CO-VALUATION OF WATER

An institutional perspective on valuation in spatial water management

Nienke van Schie

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Co-valuation of Water

An institutional perspective on valuation in spatial water management

Co-waardering van water

Een institutioneel perspectief op waardering in ruimtelijk watermanagement

Thesis

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1 Introduction

It could have been just another meeting. On the evening of January 15th 2007, I attended a public hearing of Rijkswaterstaat[1] in Middelburg (the Netherlands), which presented a new report on the local Lake Veere. The lake's water level was to be raised for ecological and recreational purposes, but local farmers and other stakeholders worried about the consequences for the surroundings and their properties. For this reason, Rijkswaterstaat had organized a series of meetings to discuss the pros and cons of several (higher) water levels, and to provide local actors with the opportunity to be involved in the process of decision-making. Based on previous meetings, Rijkswaterstaat had prepared a report proposing a specific water level, which was the subject of this particular meeting. Towards the end of the meeting, after many details had been discussed and various parties had presented their opinions, an employee of Rijkswaterstaat quickly showed the expected costs and benefits of (effects of) the newly proposed water level (in a Cost-Benefit Analysis). Rumours started to take over the till then fairly pleasant atmosphere, as the audience noticed the various monetized values aggregated in the overview. Farming land was estimated at 100,000 Euro per ha. Farmers present in the audience reacted infuriated: their properties were worth much more, and even so, they would never sell! Theirs was good farming land. How could the experts from Rijkswaterstaat assume they would be willing to accept such a price! And what about their son, who was to succeed the family business? How about the serious investments they made last winter? Some even left the room. And another said:

> *"But […] you can't compare apples with oranges! That's what we learned at primary school."*[2]

1.1. Pricing the priceless

With his remark, this farmer grasped the essence of many public objections against the monetary valuation of goods that have no market price. Again and again, it appears that monetization, the expression of values in money, does not necessarily make different goods comparable, at least in the eyes of the public; it would result in comparing apples with oranges. Even though he wasn't aware of it, the farmer taught me what was at stake here, and how people can feel personally insulted when confronted with a 'price' for something they cherish and perceive as invaluable. The event also illustrated that

1 Dutch Directorate-general for public works and water management

2 Original statement in Dutch: "*Maar luister eens even, je kunt toch geen appels met peren vergelijken! Dat leerden we immers al op de lagere school.*"

monetized values, seemingly simple numbers, can easily be interpreted in different ways; a monetary value does not imply the good can be bought – or will be sold – for such price in practice. Nevertheless, this nuance (of economic theory) is often lost in practice, and even more so when emotions and personal values are at stake.

Having said that, such monetization is what is done many times a day, all over the world, and necessarily so. When making decisions, especially big ones, money generally is involved and the expected costs and benefits of different options are crucial information. As a result of the growing demand for more transparency and efficiency in decision-making, economic information about the expected costs of measures or proposals is increasingly used in decision-making processes (Ascher and Steelman 2006). This trend has been described as the 'economisation' of society (Schmidt 1991; Goudsblom 2001; Caliscan and Callon 2009). To inform decision-makers and to compare different consequences of alternatives, these consequences (or, expected effects) of various kinds are compared in (Societal) Cost-Benefit Analyses (SCBA). Decision-makers often need to assess very different effects and values, like deaths caused or prevented or enhanced air quality and related health effects, which are not for sale on the market. Such effects are expressed in a monetary value too, which enables the comparison of these diverse effects, of apples and oranges in fact. To decide on legislation for making mobile phone calls while driving, for example, the cost of legislation and enforcement is to be weighed against (amongst other things) the number of deaths prevented by such legislation, which is achieved through the monetary valuation of a statistical human life (see Ackerman and Heinzerling 2004).

A large number of such non-market goods are environmental goods and services. To involve effects on the environment in decision-making, such goods and related effects are expressed in money; see for example the famous study of Costanza et al. (1997) on the value of the world's ecosystem services. Various economic valuation methods have been developed that enable the involvement of non-market goods and effects in economic analysis, like contingent valuation, hedonic pricing, or travel cost methodology, all heading for the expression of individuals' Willingness To Pay for a certain good or service (or To Accept a change in this good or service; WTP resp. WTA). In the Netherlands SCBA and related economic valuation methods are also increasingly applied to support decision-making. The Dutch OEI-guideline[3] prescribes to support decision-making on large infrastructural decisions with an SCBA (Eijgenraam et al. 2000). Specific guidelines have been developed as it is recognized that the monetization of environmental effects is not straightforward (Ruijgrok et al. 2004, 2007; Sijtsma et al. 2009).

Public responses, however, reflect a growing unease in society with the way many economists – and decision-makers who are informed by them – address environmental issues and measure the value of environmental goods and services (Bromley and Paavola 2002). Societal protests abounded during the last decades, mainly arguing for more appreciation of 'natural' or 'soft' values that are not recognized in monetary estimates. The infamous Brent Spar oil platform and its many protests is an illustrative example[4]. In

3 OEI stands for Overview (economic) Effects Infrastructure, established in 2000.

4 In 1995, Shell was planning to dispose this out-of-use platform in the Atlantic sea for reasons of engineering complexity, health and safety issues, environmental impact and costs considered. Initiated by Greenpeace, massive public (and political) opposition arose based on environmental arguments and harassing Shell's argument of costs. Protests focused on the value of the environment and costs of environmental damage due to the planned dump. Shell was accused of considering only direct costs (on their side) and neglecting the

the Netherlands, one of the first societal protests on environmental policy arose in the 1970s, with the Eastern Scheldt dam (see 2.4). Like the farmer quoted at the beginning of this chapter, the public, apparently, does not consider the monetized value as equal to (all) values involved or, for that matter, values lost. This value is "*lost in translation*", as Ackerman and Heinzerling (2004) state. Two famous quotes, often used in this context, illustrate the discussion and ambivalence surrounding economic value:

- "*Economists know the price of everything, and the value of nothing*" (Oscar Wilde, 1854-1900)
- "*Everything that can be counted does not necessarily count; everything that counts cannot necessarily be counted*" (Albert Einstein, 1879-1955)

These quotes suggest that value may be something different than price, and indeed, economists are among the first to state that monetary valuation is "*but one piece of the relevant information in taking a decision*" (Hanley and Spash 1993: 124). 'Financial' value is distinguished from 'economic' value, which includes more welfare issues. The difference between value and price has been known for a good length of time. Consider for example one of the earliest and most famous surveys in literature, that of the ancient King Darius:

> *"When Darius was king of the Persian Empire, he summoned the Greek who were at his court and asked them how much money it would take for them to eat the corpses of their fathers. They responded they would not do it for any price. Afterwards, Darius summoned some Indians called Kallatiai who do eat their parents and asked in the presence of the Greek … for what price they would agree to cremate their dead fathers. They cried out loudly and told him to keep still." (Herodotos, Histories 3.38, 450-420 BC)*

King Darius did not expect to discover the actual price of what he asked for. He used the responses to his question to discover the basic commitments of the respondents. These basic commitments determine what is perceived as appropriate; what is 'valued' and what is not. The quote shows that not only can values differ; they can also be deeply embedded in culture, or society. Apparently, values are not always objective measures or numbers like in the market place; some values depend on the context, or the environment, in which they are expressed (Sunstein 1993; Bowles 1998; Gowdy 2004). This context may stand in the way of the monetary expression of values; just as the Greek rejected the suggestion of King Darius 'for any price'. In Western society, for example, the monetary valuation of a human life – with different values for different ages, health situations and so forth[5] – is often met with fundamental objections based on ethical, moral, religious, or other arguments.

The question that comes to mind, then, is what would be relevant information for decision-making if such non-market values are involved. Should decision-making indeed focus on (monetized) information provided by (economic) experts only, or should it perhaps take into account the apparently different, or broader values held among the public as well? Many studies have dealt with the question how (and when) to involve the public or stakeholders in processes of (public) decision-making, as such is generally

cost of environmental effects, and based on those would have proposed the (to them) cheapest option of dumping.

5 In medicine, to measure health outcomes for the allocation of resources, so-called Quality Adjusted Life Years (QALY's) are estimated (e.g. LaPuma and Lawlor 1990; De Neeling 2004).

expected to enhance decision-making in some way or another. Various approaches have been applied, concerning, for example, interactive governance, negotiated knowledge production, or participatory policy-making. Public or stakeholder involvement in these approaches aims at more horizontal interactions between different societal actors like government, citizens, firms and organizations. It mainly concerns the stage of information gathering and scenario development, based on the expectation that the involvement of these societal actors will result in both improved outcomes and increased public support for these outcomes (Fischer and Forester 1993; Kickert et al. 1997; Rhodes 1997; Edelenbos 2005; Termeer 2009a). Based on this line of thought, it could be argued that stakeholder involvement in (e)valuation might enhance their appreciation and support for this aspect of the decision-making process as well. In light of the sometimes fierce objections to monetary valuation and assessment and the variety in stakeholder values, this seems worthwhile to consider. When many different values and perspectives are involved, consensus among stakeholders on the values relevant to decision-making might improve the decision-making process and its societal support. Whereas the economic literature generally argues that stakeholder perspectives can be incorporated through e.g. stated or revealed preferences, providing for their participation in the process, this is based on a different interpretation of 'participation' compared to interactive governance approaches (Pearce et al. 2006). This thesis studies what happens when such an interactive approach is extended into the stage of valuation, including not only experts (and their economic information) but also stakeholders (and their values and perspectives). The thesis does so in the context of decision-making on water in Dutch spatial organization.

1.2. Dutch spatial water management

Water management is crucial for survival of the Netherlands. A large percentage of the country lies below sea level and must be protected against both the North Sea and several rivers of international importance (Rhine, Meuse, and Scheldt). Changes in water level or river discharges therefore have serious consequences for water management structures and the maintenance of safety levels. Over the centuries, water management has developed into a highly technical domain, dominated by engineers and experts (Lintsen 2002; Wesselink, Bijker, Vriend et al. 2007). Water issues were safety issues, to be solved by technological improvements and engineering expertise. Water management turned into a relatively autonomous and goal-oriented policy domain (NRLO 2000; Wiering and Immink 2006), with complex and specialized legislation (Bressers , Huitema and Kuks 1994), and high-level knowledge of (and confidence in) hydraulic technology (Wesselink et al. 2007). This approach met the needs of water managers and water management constructions, and for many centuries Dutch water management was very successful along these lines.

Over the last decades, however, Dutch water policy and management has seen major changes. As climate change and various other developments pose an increasing threat of flooding in the Netherlands, it was recognized that Dutch dikes also have their limits and that, therefore, space for (more) water is needed. A different approach to water and water management was proposed, seeing water not as the enemy to be kept out, but as a friend instead, to be provided with space. A shift from hydraulic engineering

towards the involvement of social and ecological conditions took place (Wiering and Immink 2006). The current approach in water management takes the water system as complex, multifunctional and with many different uses that should be integrally taken into account in decision-making (Ministerie van V&W 2000, 2006). Water management is taken as (at least partly) a spatial issue, involving other domains. As a result, water management has started to merge with another policy subject flourishing in the Netherlands; spatial planning (van Stokkum, Smits and Leuven 2005; Wesselink 2007a). A field of 'spatial water management' is developing. (Section 2.4 discusses this development.)

Due to the limited available space and the complexity of (spatial) water management in the Netherlands (Huisman, Cramer, van Ee et al. 1998; Woltjer 2000; van Dijk 2008), it is expected that the active involvement of stakeholders will generate more support and enriched information for decision-making processes on these issues. Current water management approaches aim to involve these various stakeholders in the decision-making process. This reflects a general turn towards pluricentric governance structures in society, involving stakeholders and their sources of knowledge in various kinds of decision-making issues. These developments introduce the perspectives, sources of knowledge, and values of stakeholders in decision-making on water management, a field that used to be dominated by engineers and other established experts. Various approaches have been applied for the identification and involvement of this broad array of values and perspectives in decision-making. Both the integral approach in water management and the involvement of stakeholders follow international developments in these fields (e.g. the European Water Framework Directive, WFD).

At the same time, however, the trend of economization and increasing quests for more transparent and efficient decision-making can also be observed in Dutch water policy and management. International water policy and management shows a development towards an economic approach, with the application of economic policy principles, economic elements for steering, and economic methods for evaluation. Human activities and their consequences (for the water system) are economically analyzed, and water is perceived as an economic good. Such an approach is assumed to enhance efficient water management, to enhance efficient use of natural resources and to promote free choice for economic actors. Valuation methods applied in this perspective mostly are based on a neoclassical economic – market based – point of view, allocating values (of water) to different value chains of use. The basis of this economic approach was formulated with the fourth of the 1992 Dublin principles[6], stating that 'water is an economic good'. Also the European WFD, established in 2000, stimulates an economic management approach and the use of market-based instruments to support decision-making. The method of SCBA, based on neoclassical economic assumptions, is generally taken as an integral evaluation method for all kinds of effects, and this method is increasingly institutionalized in its process as well as its contents. In the Netherlands, to structure the application of economic valuation methods, and to increase the rationality of decisions, the OEI-guideline prescribes the application of SCBA to support major infrastructural decisions. SCBA is increasingly applied to support decision-making in water management and

6 The Dublin Principles were formulated at the International Conference on Water and the Environment (ICWE, Dublin, 1992), and elaborated on at the United Nations Conference on environment and Development (UNCED, Rio de Janeiro, 1992).

spatial organization, particularly on a regional level. The method is expected to become more important for environmental decision-making in particular, and combination of the method with deliberation is encouraged for this field of policy in the Netherlands (RMNO 2008; de Bruyn et al. 2007).

The application of spatial water management is not without problems, however. Both the participation of stakeholders and an integral assessment of all different spatial functions appear to be problematic. It has been recognized that real participation in water management is difficult to achieve (Enserink, Kamps and Mostert 2003; Goosen 2006; Cornips 2008; van der Arend 2007). This has been blamed on the institutional structure based on traditional expert roles (Kallis, Videira, Antunes et al. 2006; Steyaert and Jiggins 2007); as stated earlier water management is traditionally dominated by experts and specialised engineers. Integral assessment of various spatial functions is argued to be hindered by the extensive legislation for separate (spatial) functions, which (still) dominates at the administrative level (de Zeeuw, Puylaert and Werksma 2009). Hence, the 'new' approach conflicts with the traditional approach in decision-making, and this causes difficulties for water management organizations. The traditional approach in water management has a long history and is deeply rooted in Dutch culture. Expert knowledge remains to be of crucial importance for Dutch water management to take place, but the connection between this knowledge and the information provided by stakeholders seems to be unclear. A technocratic approach, top-down evaluation methodology, and sector-based legislation seem to persist in water management. A 'proper' institutional organization is therefore considered a critical condition for success (De Bruijn, Teisman, Edelenbos et al. 2004; Scholz and Stiftel 2005; Goosen 2006).

1.3. Problem formulation

Two parallel lines of thought seem to take place in decision-making processes on Dutch spatial water. On the one hand, processes of interactive governance are promoted to enhance decision-making through the involvement of various relevant stakeholders and the information they provide in the decision-making process. Such is the aim in the integral approach to water management. On the other hand, a tendency to apply economic valuation methods can be observed, which excludes direct involvement of stakeholders. The economic approach to valuation and decision-making on water and other spatial issues is based on neoclassical economic assumptions and is expert-based; compared to interactive processes it is organized rather top-down. The approach aims at an objective analysis of expected effects, excluding (subjective, possibly non-monetary) stakeholder perspectives on principle. In decision-making on water management, the traditionally technically oriented and expert-based culture reinforces this focus on economic information for decision-making.

Various studies have shown that monetized values revealed by economic valuation methods often are not recognized by citizens as reflecting the 'actual' value of environmental goods or services; nor do they accept the comparison of such values to other monetary (or monetized) values (e.g. Jacobs 1997; Clark, Burgess and Harrison 2000). The values these stakeholders attribute generally reflect broader perspectives. In their view, the economic (estimated or market) value does not equal the value(s) they

attribute. The economic evaluation methodology indeed does not involve these broader values, and rightly so as they are not intended for such use. Still, it *is* noticeable that, even though many decision-making processes apply an interactive approach, evaluation of interactively achieved results takes a more top-down oriented approach of monetary valuation (cf. Ascher and Steelman 2006). Thus, the considerations of participants in the interactive process are not (or not directly) taken into account in evaluation, at least not from their perspective. One of the reasons for stakeholder involvement is to achieve societal support, through active participation in the process. When participation ends when it comes to (e)valuation of the information they provided, stakeholders may easily feel neglected again, resulting in a loss of support.

Nevertheless, evaluation methods focus on expert-information and no guideline is available for the involvement of stakeholder values in the decision-making process. It remains unclear how these stakeholder values of water can be estimated and involved in the evaluation and decision-making (Morselt, Nijwening, van Ast et al. 2000). Moreover, the interrelation of these different inputs has been observed as problematic (Rinaudo and Garin 2005; Petts and Brooks 2006; Stilgoe 2007). This complicates the development of interactive water policy, especially when many parties are involved as is the case in spatial organization (Gregory 2000; de Boer 2001; van Slobbe 2002). It has been recognized that an approach or methodology aiming at the combined involvement of stakeholder and expert information in assessment and decision-making is lacking (ibidem; Sabatier et al. 2005; Scholz and Stiftel 2005; Fischer 2009).

Monetary valuation does not aim to involve stakeholders, nor was it developed for this practice. It could be argued, therefore, that monetary valuation methods may not be suitable for application in strongly interactive processes. Such does not allow for the involvement of stakeholder values and may stress the support for decisions such interactive processes aim for. Interactive processes ask for assessment or evaluation methods that enable to involve the stakeholder interests and perspectives that were identified and used in these processes and to effectively inform decision-makers on integral decision-making. A possible solution may lie in the involvement of multiple perspectives (on the value of water) in evaluation and decision-making. This implies taking a broader perspective on value that goes beyond the economic perspective currently applied: when stakeholder values are (to be) involved, neoclassical assumptions on valuation may no longer hold. The involvement of stakeholder values would require a less strict distinction between facts and values (cf. Fischer 2009). The information perceived as relevant by stakeholders and participating organizations in the process becomes relevant to decision-making. This can be hard scientific facts, but could also involve subjective values or information. A strict distinction is no longer of use, as all that is relevant becomes a 'fact', at least in that particular situation. This sounds more constructivist than I intend it to be; it merely reflects a pragmatical approach to a decision-making situation. Following the rationale for interactive governance, when stakeholders together identify the values relevant to the decision-making issue and achieve consensus on a body of values or information, this may enhance their support for the process and outcomes. A collaborative approach of valuation might involve both stakeholders participating in the interactive process and experts (traditionally) executing monetary valuation methodology. Such a collaborative process might have the potential of enhanced societal support for values relevant for evaluation and decision-making, while maintaining specialized

expert knowledge and the need for (partly) monetized assessment crucial for spatial water management to take place. It would extend an interactive approach from scenario development and information gathering towards the evaluation and provision of information to decision-makers.

On a theoretical level, perspectives in economics and public administration differ. Exaggerating both positions, they could be argued as based on different lines of thought, emphasizing either the outcome or the process in which this outcome is achieved. The discipline of economics deliberately focuses on the efficiency and effectiveness of decision-making. Concerning (individual) 'choice behaviour', economic models traditionally aim for the prediction of choices: the interest is in *what* decision is expected to be made, irrespective of how this is achieved. Public administration, as various other social science disciplines, applies a broader perspective on the decision-making process, with as main interest the process in which a decision is made: *how* a decision is made. This is studied under the header of 'decision-making (processes)'. Both disciplines have shown a shift towards more adaptive and inclusive modes of inquiry during the last decennia. Attempts have been made to combine the best of both worlds, of which the Dutch OEI-guideline for infrastructural decision-making is an example. The focus on processes and a participative approach is increasingly adopted in economics, and various process approaches currently aim to involve relevant project characteristics. In (e)valuation such integration is emerging as well.

Also the research described in this thesis addresses the combination of a process approach and economic methodology, concerning the issue of valuation. It studies a possibly different structuring of the valuation process, actively involving (subjective) stakeholder values, as it is expected this may improve the outcome in particular situations. The somewhat rigorous distinction between disciplines can also be recognized in Dutch water management practice. Whereas the process of scenario development and decision-making is increasingly dominated by current insights from public administration, with the application of integral and participative approaches (see 2.4), the act of (e) valuation mainly is the domain of economics and the currently dominant approach in this field (see 3.3). In this thesis I focus on stakeholder valuation of water and the involvement of these values in decision-making processes; I study both *what* is valued and *how* these values are achieved and can be involved in the process. I aim to combine insights and current practice from both disciplines to experiment with a novel approach towards (the role of) valuation in decision-making processes.

I do not discuss – or fight – the fundamentals of neoclassical economics. This approach has proven its value and use on many occasions and without a doubt is needed for many efficient and rational decisions to take place. Instead, I start from practical observations in processes of interactive governance and spatial water management, and economic evaluation studies. These observations led to the recognition that monetary valuation (based on neoclassical principles) may not be appropriate to achieve consensus among stakeholders on the values involved in interactive decision-making. Due to the changes in both aims and processes of water management and spatial organization, such consensus may well be needed for decisions on water management to become a success. This results in the need for new approaches to deal with different stakes in evaluation and decision-making processes. Following these insights, I study an approach

that combines neoclassical methods and recent insights on decision-making behaviour, like in philosophy (Bromley and Paavola 2002), psychology and neurology (Loewenstein 2000; Camerer and Loewenstein 2004) or complexity theory (Teisman and Klijn 2008). A consensus-seeking approach could enhance or sustain support for decisions. This requires the operationalization of the issue of stakeholder perspectives and values; what exactly are those values, and how may those values be involved in decision-making on spatial water management? As the current practice of spatial water management has encountered problems with regard to the institutional structure, the institutional embedding of such a novel approach seems relevant. The research therefore takes an institutional approach, which enables the study of the institutional environment of a valuation process.

In short, the problem formulation of this thesis reads as follows. *Dutch spatial water management aims for an integral and interactive approach, involving relevant stakeholders and taking the broader (water, spatial) system into account. This approach is expected to enhance (public) support for decisions as stakeholder perspectives are involved in the development of scenarios and alternatives. However, when the stage of evaluation in such processes is reached, a predominantly economic approach is applied, with the application of economic methods based on neoclassical assumptions of choice behaviour. This economic approach focuses on expert-based (monetized) information, to enhance rational, efficient and transparent decision-making. Whereas needed for decision-making in various situations, these methods do not provide for the active involvement of stakeholders. These stakeholders, however, did participate in previous steps of an interactive decision-making process, and may feel uninvolved in the evaluation of their products. A growing number of valuation studies reveal that stakeholders do not recognize their values and information in economic assessment methodology. This may hinder or even erode public support that may have been established during the interactive process, and which often is one of the very aims of stakeholder involvement in decision-making. Indeed, it has been recognized that a methodology to combine values provided by both experts and stakeholders in the evaluation process is lacking. Evaluation remains to be dominated by a top-down and expert based approach in practice, also when it concerns interactive decision-making. This leaves unresolved how stakeholder values identified in interactive processes are to be dealt with in evaluation, endangering the public support for such interactively developed decisions. This situation asks for a combination of participation and evaluation in decision-making. It raises the questions whether the (e)valuation process could be approached interactively as well, making the evaluation part of the interactive process, and what such a process would look like.*

1.4. Aim of study and research questions

In this thesis I study the valuation of (surface) water in Dutch spatial organization by stakeholders. I start from the observation that monetized values often are not accepted or recognized as relevant by the public or stakeholders involved in an interactive decision-making process. If these stakeholders would achieve consensus on the values involved, this could increase support for the process outcomes. I therefore aim at the study and development of an approach to involve stakeholder values of water

in interactive decision-making and (e)valuation, preliminary called 'co-valuation'. I focus on a process of valuation that aims at consensus on a shared valuation and not at the specification or measurement of a general value. The purpose of this approach is to support the (interactive) decision-making process through the involvement of values of relevant stakeholders in scenario development, evaluation and decision-making, expecting that *the involvement of stakeholder values in the process of interactive decision-making will lead to improved results of this decision-making process.* This 'improvement' concerns both the process of decision-making (a, b) and the outcome of this process (c, d) and is interpreted as:

a. Increased consensus among stakeholders on the values that are involved in the process;
b. Easier embedding of these stakeholder values in evaluation;
c. An enriched outcome regarding the content (because more values are involved);
d. Increased stakeholder support for the outcome.

Based on this expectation, I formulated the following research question:

How can stakeholder values on water be involved in interactive decision-making processes on spatial water management?

The involvement of stakeholder values in decision-making must be connected to existing procedures and processes of decision-making. If the regular procedure is maintained, it is of no use trying to involve these values as these procedures are not intended for such use. Therefore, I take an institutional perspective and study arrangements for adequate embedding of the approach in the existing system. An institutional perspective enables the study of a possible connection, or embedding of the 'new' approach in the existing institutional structures. Also, it makes it possible to address the problems currently encountered in spatial water management processes at the institutional level, and to study institutional influences on values applied. Note that I do not aim to develop a new methodology or technique; I search for a different approach to the valuation process, a possibly new structuring of this process in which existing and proven techniques and methodology may be used. Also, I do not aim to provide an improved measurement or identification of the right, or proper value of water. A process of co-valuation will not result in a number or measure that can be input in an SCBA. Instead, I study how the values that are provided by stakeholders can be involved in the process, regardless of what these values may be, and in addition to existing methodology for (e)valuation.

To this end, I participated in an experiment. I was part of a research team that tried – in a real life decision-making project – to identify stakeholder values of water, to involve these in the decision-making process through a process-to-be-developed of co-valuation, and to embed this process into the normal course of events in decision-making on spatial water management. When it concerns collaboratively developed results and achievements, I therefore speak of the 'research team'; when it concerns parallel or additional study I conducted for this thesis, I write from my own perspective ('I').

Four sub-questions steered my research in the experiment. The first question queried how the different stakeholder values could be identified in a process of decision-making on spatial water management. Second, I studied how these values could

be involved in the process of interactive decision-making, including the stages of scenario development, (e)valuation and decision-making, and how this relates to the currently applied methodology and institutions for such practice. Both questions I studied 'in action' during the experiment, and as part of the research team that conducted the project (see 1.5). As a third question, I analysed whether this involvement of stakeholder values indeed led to improved decision-making as initially expected. Finally, I studied what would be needed to embed an approach of co-valuation in the institutional structure for (e) valuation and decision-making in spatial water management. In sum, the sub-questions of the research read as follows:

1. How can different stakeholder values of (surface) water be identified in interactive decision-making on spatial water management?
2. How may stakeholder values on water be involved in the process of interactive scenario-development, (e)valuation and decision-making?
3. Does the involvement of these stakeholder values improve the decision-making process:
   a. Does it increase consensus among stakeholders on the values that are involved in the process?
   b. Does it facilitate the embedding of stakeholder values in evaluation methodology?
   c. Does it enrich the outcome in contents: are more values involved?
   d. Does it increase stakeholder support for both the decision-making process and the outcome?
4. How may (the development of) institutional arrangements stimulate processes of collaborative (e)valuation?

1.5 Methodology

I applied a specific methodology, different from classical deductive and theoretically based research. This methodology is closely connected to the research design and also the empirical approach, and therefore it needs clarification in this introductory chapter. Section 1.6 follows with the research design for study of the research questions and development of the approach of co-valuation.

1.5.1 Case study: an experiment

To study the research questions, I participated in an experiment. I was part of a research team that conducted a decision-making process, and that aimed to involve stakeholder values in this process. This was an experiment as it tried to develop an approach for such involvement 'in action'. The decision-making project, called Around Arnemuiden, took place between February 2006 and December 2007, and focused on the spatial organization of a polder area in the municipality of Middelburg (The Netherlands). The area borders Lake Veere, already introduced at the beginning of this chapter, and the farmer was also involved.

In 1996, the municipality of Middelburg recognized the need to improve the quality of the area surrounding the city. They saw a need for more houses, as many potential inhabitants appeared to be interested, and current services needed improvement. The

municipality contracted a well-known planning firm to develop a plan for the city's so-called 'renaissance', which one year later presented an ambitious plan to improve the city of Middelburg and its surroundings on various aspects. The municipality happily presented this plan, called the 'Quality Atlas Middelburg 2030', aiming for a straightforward execution. However, things took a less prosperous turn as various groups of inhabitants and other stakeholders objected. One of these groups, the inhabitants in and around the town of Arnemuiden – located northeast of Middelburg and part of the same municipality –, strongly objected to the plans proposed for their surroundings and even felt insulted. They rejected discussion of any further spatial development, and decision-making on this particular area has been postponed ever since. Apparently, the municipality was not able to develop a spatial plan for the area surrounding Arnemuiden that was supported by its inhabitants. The citizens of Arnemuiden did not feel involved, nor did they perceive their municipal representatives as adequately reflecting their stakes. They wanted to be involved themselves.

The municipality and other governmental organizations in the area remained convinced of the need to develop the area. Together with some research parties, a consortium of governmental organizations then decided on an interactive approach. In a collaborative process, starting in 2006, the values and perspectives of the inhabitants would be inventoried and used to develop a spatial plan for (part of) the area. It was this interactive project that formed the case study in my research. (The background and set-up of the case study are discussed in chapter 5.) The interactive project identified a practical goal (develop a supported spatial plan), and a scientific goal (develop an approach of co-valuation during this process). Concerning the focus on water in spatial organization, it was agreed that the project would aim for the identification of stakeholder values of water in relation to other (spatial) values, and to express these values for water in the spatial plan (see also 5.2).

1.5.2 Retroductive research

I conducted literature study and empirical research simultaneously, in a mutually influencing and contributing process. I carried out literature study on institutional theory, institutional economics, value theory, theories on decision-making processes in public administration, and on practical findings in Dutch water policy and management and spatial organization. Simultaneously, I gathered empirical data in the case study through several, predominantly qualitative and triangulating methods for data gathering (see Yin 1984, 1993; Patton 2002). Method triangulation has been argued to strengthen a study and increase the methods' validity – "*as the strength of one approach can compensate for the weakness of another*" (Patton 2002: 306) –, the methods may complement each other and cross-data validity checks may reconfirm findings (ibid).

Following this mix of theoretical and empirical study, the research methodology can be characterized as retroductive, being 'the interplay of induction and deduction' (Ragin 1994). Whereas many empirical studies are deductive in nature, leading from theory to data, this thesis follows Eisenhardt's (1989) proposal to organize the research process the other way round. A highly iterative process, tightly linked to empirical evidence and with continuous shifting between theory and data, has the potential to result in novel, testable, and empirically valid theory, she argues, which is particularly suitable for areas in which existing theory seems inadequate. Such an approach is based on the

core ideas of grounded theory developed by Glaser and Strauss (1967), which provides a methodology to generate theory from data rather than deducing testable hypotheses from existing theories. Grounded theory contains both inductive and deductive thinking. It starts with data, which are constructed through observation, interaction and materials gathered about the topic or setting. The researcher continuously goes back and forth comparing data and theory, constantly modifying and specifying the growing theory (see Charmaz 2006).

In this thesis' research I followed such a retroductive, iterative process of research, shifting back and forth between theory and empirical data and with the aim to develop novel ideas. Such seemed suitable to study a novel approach of valuation in a situation where existing approaches may no longer fit. Hence, prior to the empirical research no clear-cut framework for testing was available. Instead, following a retroductive approach I developed such a framework based on both theory and empirical data generated during the research. Of course, it is impossible to do research without any initial ideas as ideally is the aim in grounded theory (see Eisenhardt 1989; Ragin 1994; Charmaz 2006). The research presented in this thesis was initially steered by an expectation (see 1.4). I took this expectation as the starting point for the retroductive research.

1.5.3 Participatory action research

A retroductive, iterative approach requires an active role of the researcher. In this thesis' research I applied participatory action research (PAR). An approach of PAR (Wadsworth 2001), also called action science (Argyris, Putnam and McLain Smith 1985), participatory research, or action research (first coined by Lewin in 1946; Stringer 1996; Greenwood and Levin 1998; Berg 2004), significantly overlaps with the idea of grounded theory. It has been described as a highly reflexive, experiential, participatory, and empowering mode of research. Action research is "*engaged in action on real life issues in a participatory approach with those who experience these issues directly*" (Coghlan and Jacobs 2005: 454). Hence, PAR promotes broad participation, involving all relevant parties in actively examining together current action (perceived as problematic) in order to change and improve it (Wadsworth 2001). The approach thereby aims at "*democratizing the knowledge generation process*" (Greenwood and Levin 1998: 7) through the inclusion of local stakeholders as co-researchers and as providers of 'insider-knowledge'. It is based on the assumption that such an approach can produce better results than professional expert social research models; that it can produce more highly supported results that are more satisfying for stakeholders; and that it can generate (new) knowledge and insights that are both reliable and useful for researchers as well as participants. PAR particularly aims at co-generative learning (Greenwoord and Levin 1998) by confronting actors with their reactions and perceptions (Argyris et al. 1985) and it seeks to address potential conflict through dialogue and negotiation (Stringer 1996). Participatory action researchers thus are oriented on helping the policy practice they are investigating in its particular context and making a contribution to its improvement together with the actors involved. According to Greenwood and Levin (1998: 75-76) action research has the following characteristics:

- It is context bound and addresses real-life problems; its focus is determined by what the participants consider important;

- Participants and researchers co-generate knowledge in collaborative communicative processes in which all participants' contributions are taken seriously;
- It uses the diversity of experiences and capacities in the local group of investigated actors to enrich the research-action process;
- The meanings constructed in the research process lead to social action, and reflections on action may lead to the construction of new meanings;
- The credibility and validity of knowledge generated in the action research can be measured by the actions arising from it, the really resolving of problems (workability), and the increase of participants' control over their own situation.

An action research project takes into account social, cultural, interactional and emotional factors that affect human activity (Stringer 1996), and seeks to understand the context or frame into which a problem situation can be placed. PAR is not a linear method but proceeds through continuous and repeated cycles, in which both researchers and the parties involved start with the identification of major issues, concerns, and problems, initiate research, organize action, learn and proceed. As it demands that theory and action not be separated it is well suited to a retroductive approach. Typical steps in action research are: (1) analysis, identification of problem area; (2) action planning, formulation of hypotheses or predictions that imply a goal and procedure for achieving it; (3) implementation, careful recording of actions taken and desired goals; (4) evaluation, forming inferences based on data relating to the actions taken to the extent of achieving the desired goals; (5) learning, continuous retesting of generalizations in the situation in an ongoing iterative process; and (0) start this process all over again (Greenwood and Levin 1998).

1.5.4 Research methodology

PAR is characterized by a predominantly qualitative and participatory research methodology. This has been argued suitable to investigate 'why' and 'how' research questions (Yin 1984), and to enable a deeper understanding of social phenomena in their real-life context by discovering underlying reasons and patterns[7]. Many textbooks have been written on qualitative research and its methodology; it is often related to participant-observation, in-depth interviewing and fieldwork, like case studies. Possible techniques are: surveys, interviews, focus groups, ethnographies, statistics, and participatory problem solving.

Case study research studies phenomena in their natural context during a certain period, while using several data sources, and aiming at detailed description, interpretation, and analysis, and at the confrontation of different points of view (Swanborn 1996). Yin (1981; 1984) famously argued that case study research is suitable when a unique situation is studied; when the research focuses on the relationships between variables; when the boundaries between phenomenon and context are not entirely clear; when multiple sources of evidence are used; and when the researcher cannot control the behaviour of individuals that are subject of the research. Various kinds of case studies exist and case-data collection is generally derived from multiple sources; most applied are (in-depth) interviews, (direct) observations and (written) documents (Patton 2002). Well-known is participant-observation in case studies, in which the researcher aims to

7 Yin (1981; 1984) amongst others, has argued that case study research is not restricted to qualitative research, but can as well involve quantitative methods and combinations of both.

get a close and intimate familiarity with a given group of individuals and their practices through intensive involvement with people in their natural environment. Participant-observation can involve a range of methods including interviewing, direct observation, participation and discussions. Observational data that are obtained through this direct and participative approach have been argued to enable the researcher to understand a programme or treatment more fully (compared to insights obtained through only interviewing) as such observations make it possible: (1) to better understand and capture the context in which people interact, (2) to be open, discovery oriented and inductive as there is less need to rely on prior conceptualizations of the setting, (3) to see things that may routinely escape awareness among people in the setting, (4) to learn things that people would be unwilling to talk about in an interview, (5) to move beyond the selective perceptions of others (interviewees), and (6) to draw on personal knowledge during the formal interpretation stage of analysis (Patton 2002: 262-4).

These characteristics suited the aims of my research well: to study the (uncontrolled) behaviour and relationships of actors concerning valuation of surface water in their natural environment, and the possibilities to involve these values in evaluation and decision-making. The case study can be characterized as predominantly explorative, aiming to explore possibilities for – and develop 'in action' a new approach towards – stakeholder valuation, and to study the problems encountered while developing this approach. In the case study, PAR enabled me to gain a broad insight into the issue and its context. From the position of a participant-observer I participated in the method's development as well as observed this practice. Through the active involvement of stakeholders, the active involvement of myself as a researcher, a process of 'learning-by-doing', and a focus on collaboration between different parties involved, I studied the stakeholder values as identified, developed and applied by the stakeholders themselves. In this way I aimed at an 'inside view' on the achievements to involve these values in decision-making and evaluation practice and the possibilities for this approach. I applied several methods for data gathering:

- Together with the research team I conducted open-ended interviews both with individuals and in small group settings. These interviews took place together with a co-researcher in the project. Excerpts of the interviews were approved by interviewees. The interviews enabled me to become familiar with the subject, its context and stakeholders, and to gain a first idea of the values and relevant issues involved.
- I studied documents both developed within the context of the case study and related documents from its broader context (like policy documents, documents of governmental organizations). This enabled me to become acquainted with the normal course of events and culture in the area concerning policy and management and the reigning policy for the area. This helped to observe the decision-making process in its natural setting.
- Participant-observation took place during the project: I both contributed to the project's execution as part of the research team, and observed the process as it unfolded. Participation and observation started shortly after the beginning of the project (April 2006). Participation stopped with the end of the project (December 2007), but observation and incidental interviewing continued until November 2009. Observation of the process helped to understand the difficul-

ties encountered. During the project I kept a diary to describe the behaviour, actions and reactions of stakeholders and the related setting. This enabled me to gain a deep insight into the values participants developed and applied in the project, how this was achieved and what happened along the way.

- Closely related to the position of participant-observer, the PAR in the case study allowed for observation and data collection on various occasions. The research team organized the process (including many meetings with stakeholding organizations and individuals) and workshops, participants and researchers jointly wrote documents, illustrators drew maps, participants held discussions and they filled in a questionnaire and *ex-post* evaluation. Participation in and observation of these activities provided me with insight in and detailed information on the values of stakeholders and the possibilities for involvement of these values in evaluation and decision-making. It allowed me as a participating researcher to work together with the participants and get to know their perspectives on the issue. The many discussions and negotiations provided a dynamic learning process that enhanced my understanding of the stakeholder values involved. The PAR enabled the research team to actively adapt the process to these insights in order to achieve an approach of valuation in the case as appropriate as possible. The results provided me with data to study the perceptions of stakeholders and the course of events during the process.

Fulfilling a double role in the research, both participating in the execution of a project and observing this project as it developed, raises the issue of double hermeneutics. As part of the research team I was partly subject of my own research, as is common in action research (Greenwood and Levin 1998). The researchers needed constant reflecting on their actions, the responses of the environment and vice versa. Fulfilment of different roles inevitably leads to mutual influences, and, as with most qualitative research; a subjective perspective cannot be strictly avoided. I aimed to be transparent about this position and to restrict subjective judgments as much as possible by only acting in a facilitating capacity during the project (I took no position regarding contents) and by verification of reports and outcomes of the analysis by participants on a regular basis (like interview excerpts, workshop results). Nevertheless, the resulting description and analysis of the case are coloured by my perspective and role in the project. In my view, this is an important strength of PAR and participatory-observation, as it enables a nuanced and *inside* view on the experiences. Moreover, it provides the possibility to actively adjust the approach during the process resulting in better-adapted outcomes, which would not have been possible from outside observation.

1.6 Research design

1.6.1 Methodology for the research questions

I studied the research questions with the methodology described in section 1.5. With regard to the first question, I studied the values that the stakeholders participating in the project attributed to water in the project area. To identify and gain insight in these values, as part of the research team I conducted interviews, I gathered information during

the project through participant-observation, and I studied documents developed in the project. To study the second question; how these stakeholder values could be involved in the process of scenario-development, (e)valuation and decision-making, I actively participated in the project. I was part of the research team that tried to design the process in such a way that the stakeholders and their values could be actively involved. Also, I observed what happened along the way, and how participants (both individuals and organizations) reacted to our attempts. This helped me to study and understand the difficulties encountered. Based on study of question three (see below), I identified lessons for the approach of co-valuation and adapted its framework accordingly.

To study the process of valuation that developed during the project, I identified five elements or variables of the valuation process: (1) involvement; who are involved in valuation, and how; (2) notion of value; what notion of value is applied, what rationality is applied; (3) role of information or knowledge; what is the role of knowledge in the process, what kind of information is used and who provides this; (4) process; which steps are taken in the valuation process, what is the position of valuation in decision-making and what methods and techniques are applied; and (5) connection to institutions; how does the valuation process fit into the institutional environment (customs, rules of the game, procedures). I studied these variables in comparison to the characteristics of neoclassical economic valuation methodology.

After the project was finished, I analysed whether the involvement of stakeholder values did indeed meet the initial expectation of improving the process (third question). I analysed this based on my experiences as participant-observer in the project, on case findings and on the outcomes of an *ex post* evaluation among participants. I compared the situation after finishing the decision-making project to the situation preceding it, for which the interviews and document analysis provided sources of information. As mentioned, I used these insights to formulate lessons on the approach.

- To determine whether the process of co-valuation resulted in increased consensus among participants (a), I assessed whether the stakeholders agreed (more) upon the outcome and values involved in the process; to what extent a common opinion was established on the development of the area.
- To determine whether the embedding of stakeholder values in the process was facilitated (b), I studied the course of events in the project from my role as participant-observer and case study findings. To assess this embedding, I identified to what extent a balanced evaluation took place, involving both the stakeholder values and expert knowledge. A balance between the different sources I interpreted as a high level of embedding; such a balance would result in equal opportunities for both sources to be involved and to provide information in the process, with both stakeholders and experts respecting the others' inputs. I took a low level of embedding as a situation in which either stakeholder or expert information dominates the evaluation at the expense of the other (cf. Edelenbos, van Buuren and van Schie 2010).
- To study whether the outcome of the process was enriched (c), I assessed if more values were involved in the process of scenario development and (e) valuation compared to decision-making on the area prior to the project. I took an enriched outcome as the involvement of more values or perspectives in the process and the outcomes compared to the situation prior to the project.

– Finally, concerning the assessment of support for the outcome (d), I used my experiences as participant-observer in the project and the results of the *ex post* evaluation that queried (among other aspects) the respondents' support for the outcome and process conducted. I deduced the level of support from the satisfaction of participants with process and outcomes. This was explicitly questioned in the *ex post* evaluation, and could be derived from the level and stability of participant involvement in the project. I interpreted a high and stable number of participants (in combination with their positive attitude) as a high level of support. A low or declining number of participants I interpreted as a low level of support.

Finally, to study the fourth research question; what institutional arrangements might stimulate a process of co-valuation in interactive decision-making on spatial water management, I used my experiences as a participant-observer, the case study findings, the results of the *ex post* evaluation and my theoretical study. Based on these, I assessed what actions and arrangements appeared successful in the practical experiment, what went wrong, and – based on the lessons – what kinds of arrangements might improve the process and a proper embedding of co-valuation in the normal course of events. For this end, an institutional perspective in the research proved suitable to study institutional influences on the process of valuation.

1.6.2 Research design for co-valuation

For the development of an approach of co-valuation in the case, the research team made an initial research design. This was very general and open, as it was the aim to actively develop and adjust this design during the project, anticipating the actions and reactions of participating stakeholders and organizations. Table 1.1 shows the initial research design for the approach of co-valuation in the case. The empty cells in the figure represent the activities to be identified and developed during the process.

Table 1.1: Research design for the approach of co-valuation

Step	Activities	Values
Prior		Identification
Start		
Scenario development a. Ideal scenarios b. Assessment c. Specification		Specification
Outcome		Registration, justification

Prior to the start of the interactive decision-making process, we aimed to do interviews with relevant stakeholders, NGOs, governmental organizations and other relevant parties. We intended to establish the list of interviewees during the first phases of the process. With the interviews we wanted to get a first idea on the values and perceptions of stakeholders and the context in which they interacted. We also aimed to explain our aims and the goal of the project, and thereby we hoped to establish a group of interested participants. In this first phase, we also aimed to do a policy analysis and study of the area,

to identify what was at stake, who were involved, and possible conflicts. We hoped to gain a fist idea of the values that stakeholders attributed to water in the area.

We intended to develop a project plan supported by all governmental parties involved that would establish (at least) the project goals and aims; the participating stakeholders, governmental organizations and other parties and their respective roles in the project; restrictions to the project outcomes from both governmental organizations and stakeholders involved (as identified in the interviews); and a planning of what we were going to do, including deadlines. We planned to start the active phase of the project with a 'kick-off meeting' where governmental representatives, experts and local stakeholders could meet, and goals and aims of the project as formulated in the project plan could be publicly established.

After the establishment of a supported project plan, we aimed to start scenario-development in a series of workshops. We wanted the stakeholders to make scenarios for development of the area, in which they would be supported by a group of experts. The series of workshops would consist of three phases; first the stakeholders would develop 'ideal' scenarios, reflecting their various dreams for the area unrestricted by practical or policy limitations. They would then identify the most valued elements of these ideal scenarios ('assessment'), which they would combine into a more detailed scenario for the area. In this process, the stakeholders would first diverge ideas, after which they selected elements and converged these into a new product. We expected this would make them become familiar with the ideas and values of other participants. We further expected this to enable a specification of the stakeholder values, but how we would involve these values, we would establish as the project enfolded. We intended the stakeholders to be supported by a group of experts, who would repeatedly discuss the feasibility of the scenarios and would provide suggestions for improvement.

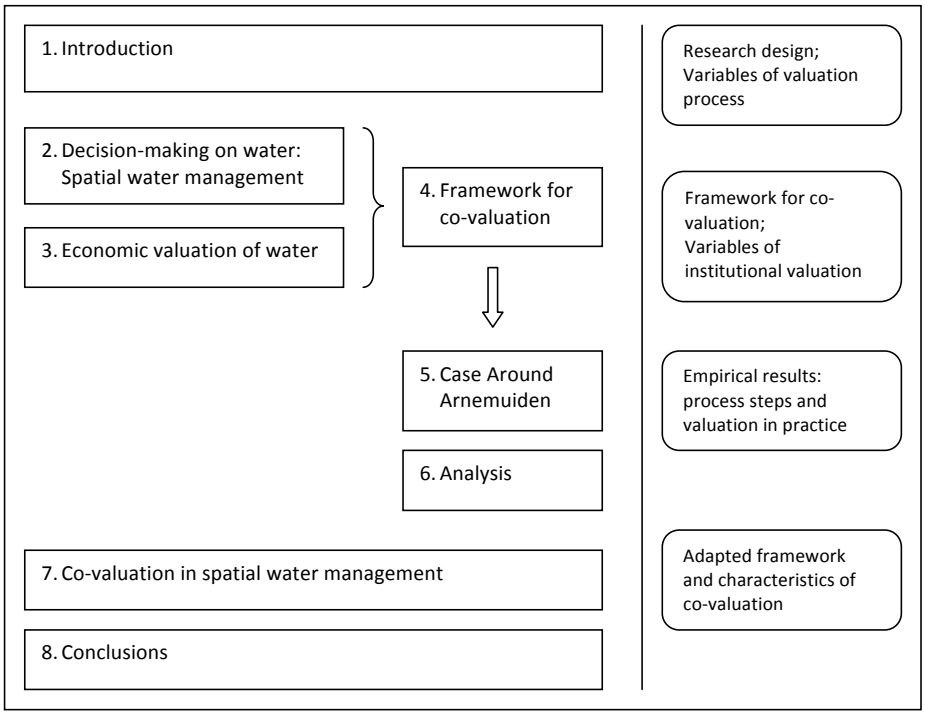
Finally, the stakeholders would formulate an advice for the development of the area, based on the scenario they had developed. This advice we aimed to accompany with a collaboratively established overview of values, costs and benefits, to support decision-making on the area. What this overview would look like, we planned to establish during the process and in collaboration with participants. We envisaged the stakeholders to present the outcome to the city council of Middelburg themselves, at a final meeting of all project participants. We planned to actively embed the process (and outcomes) on various levels; which levels appeared relevant and how this would take place we would, again, establish as the process enfolded, anticipating on the circumstances. As a closure, we planned an *ex post* evaluation of the project among all participants, to question the respondents' opinion on process and outcomes.

1.7 Outline of thesis

Figure 1.1 shows the outline of this thesis. This introductory chapter posed the subject of research: stakeholder valuation in decision-making on (Dutch) surface water. The chapter presented the policy setting of such valuation in the Netherlands, the problem formulation and research questions steering the research, and the research design to address these questions. As water management and economic valuation touch upon various disciplines and a jungle of literature (and perspectives) has been published on

either of them, chapters 2 and 3 provide a theoretical background on each of them. Chapter 2 discusses interactive decision-making and its application in Dutch spatial water management. Chapter 3 discusses economic valuation of water as an environmental resource, based on a neoclassical economic perspective, and adaptations to this approach. Chapter 3 ends with the institutional approach applied in this thesis, enabling to study the institutional setting in which valuation takes place. Chapter 4 provides a framework for the approach of co-valuation to be developed that extends the research design presented in 1.6. Also, this chapter identifies an institutional perspective on value, following the variables of valuation also identified in 1.6. The framework will be used to discuss the case Around Arnemuiden, which is presented in chapter 5. Chapter 6 then analyses the case in the light of the theoretical findings and framework for co-valuation. Based on the analysis, chapter 7 presents an approach of co-valuation for the involvement of stakeholder values in (interactive) spatial water management, including an adapted framework and characteristics of the approach of valuation. Chapter 8 concludes the research and returns to the aim of research and research questions posed. The right side of figure 1.1 shows the development of the approach of co-valuation during the research; from research design to an adapted framework based on empirical findings.

Figure 1.1: Outline of thesis



It must be stressed that this outline does not represent the order of things as they happened in actual research. Contrary to positivist research and in line with the methodology discussed in 1.5, the research presented in this thesis had no strict linear approach. Theoretical and empirical research started simultaneously, and from then on

both induction and deduction alternated. Inspired by the primarily inductive, grounded theory approach of Eisenhardt (1989), I used the empirical findings from the case study (by amongst other things participant-observation and in collaboration with co-researchers in the process) together with theoretical findings, to develop a practical approach of co-valuation for the involvement of stakeholder values in interactive decision-making. For the sake of clarity this cycle of induction and deduction is left out of the presentation.

2 Decision-making in water management

Water is an important element of Dutch spatial organization. Some areas have too much of it, others (sometimes) too little, and many face the constant threat of flooding. As a result, water management structures, like dikes, are vital for the country and need continuous attention. Water has shaped the Dutch landscape; it has shaped the Dutch culture, the Dutch country, and Dutch water management has a long and lively history. Even today, after many technological successes, water management remains a crucial issue for the country. In present times adequate water management is very important due to climate changes which are causing the sea level to rise, as well as higher and more frequent river discharges which threaten ever more areas. It results in the need to find more space for water.

This chapter discusses decision-making on water in the context of Dutch spatial organisation. The chapter first discusses current insights in decision-making processes (2.1). It highlights two developments: the involvement of stakeholders in decision-making processes and the use of different sources of knowledge in these processes. Section 2.2 discusses similar developments in evaluation theory. The chapter then turns to the practice of interactive decision-making (2.3) and water management in the Netherlands (2.4). Both domains show similar developments in decision-making approaches, leading the way towards, what I call, spatial water management. This approach, however, is not without problems, which is the subject of section 2.5. Section 2.6 concludes with the identification of characteristics of decision-making in spatial water management that are used in the research framework (in chapter 4).

2.1 Decision-making processes

Many theories on decision-making have been proposed, and as many reactions and adaptations have been developed, predominantly in the fields of economics, public administration/political science, and psychology. These models take various perspectives, ranging from a rational to a normative, a (social-) constructivist, a network, or an institutional point of view. The models differ in perspective on the elements of a decision-making process, including rationality, the provision and use of knowledge, the application of instruments, the organization of the process, the definition of actors, the role and execution of evaluation and the role of policy (Abma and in 't Veld 2001; van de Riet, Klijn, de Jong et al. 2003).

During most of the 20th century, the rational choice model was generally applied to analyse policy processes (Sabatier 1999). Based on empirical observations, in the course of the 20th century many adjustments to this rational model and new models for decision-making have been proposed. A jungle of literature has been devoted to this subject. This section does not aim to provide a thorough overview of these developments; there are other people who are – and have been – better equipped for this task. Instead, this section focuses on two important adjustments (to the rational choice model) in current perspectives on decision-making processes, subsequently discussed in the following sections:

- the involvement of various stakeholders; and
- the involvement of various sources of knowledge.

Both seem relevant for the study of valuation in decision-making processes, as they influence who, and whose information is involved.

2.1.1 Stakeholders in decision-making

The rational choice model, also called the 'stages' model of decision-making, is based on contributions from, amongst others, Dewey (1910) and Brim, Glass, Lavin et al. (1962). It considers decision-making as passing through sequential phases, from problem definition, via the formulation of a goal, the inventory and analysis of possible alternatives and mutually rational weighing of these alternatives, to eventually the choice for the alternative bearing the highest net benefits. The rational choice model assumes a central actor who has a single set of preferences and applies an unambiguous estimation of the different consequences of alternatives. The model is based on the assumption of methodological individualism, according to which complex social phenomena are explained by individual actions. Individuals are assumed to behave like a *Homo economicus*: rational and goal oriented, and using effectiveness and efficiency as criteria for choices. Data and information play a major role in this model and a linear relationship is assumed to exist between researchers and policy makers. Instruments are used that aim at increasing the rationality of choices.

Despite the appreciated ideals of this model of decision-making, it was increasingly recognized as being too idealized. The model and its methods were highly criticized as being too technocratic and as neglecting the process as a whole with its focus on only one aspect of the process. Well-known critiques are those of Lindblom (1959) with his 'science of muddling through', and Simon (1957) with his plea for 'bounded rationality[8]' and 'satisficing' oriented processes (Parsons 1995). Simon famously stated that it is impossible to have perfect and complete information to support a decision. Individuals cannot take into account all possible alternatives and all (possible) consequences because of uncertainty about the future and cognitive restrictions in knowledge and cognitive capacity.

Many highly criticized the assumed fixed sequence of phases in a decision-making process, also known as the 'stages heuristics'. In practice, it was argued, these different phases occur simultaneously (e.g. Witte 1972) and interactions between stages take place. It was increasingly recognized that several interacting cycles of policy exist, with several policy proposals and statutes, and at several levels of administration. Various

8 Simon (1985) clearly distinguishes bounded rationality from irrationality. In his view individuals do act rational in the sense that they have reasons for what they do.

authors published models with a variable order of stages in the decision-making process; well-known examples are the model of Mintzberg, Raisinghani and Theoret (1976), the streams – or garbage can – model of Cohen, March and Olsen (1972), and the multiple streams framework of Kingdon (1984).

Most criticized is the model's incompatibility with actual decision-making behaviour[9]. Empirical studies have shown various actual patterns of choice behaviour and decision-making that cannot be explained by the rational choice model (Thaler 2000); examples are collective behaviour, pro-social choice (the influence of social norms and social structure like trust), intertemporal choice, decisions in hazardous situations, loss aversion, and the endowment effect. Decision-making processes are increasingly recognized as complex, unstructured and pluriform in nature, as in reality various actors are present, who may have conflicting goals, and who are each in the possession of (bounded) knowledge, powers, and means needed for the decision-making process to take place (for example, national government, citizens, local businesses, NGOs). As a result, as argued by many, these actors are mutually dependent. Governments no longer are the central governing authority in society: they are not capable of developing and implementing policies without the contributions of and support from other actors (Kickert, Klijn and Koppenjan 1997; Koppenjan and Klijn 2004).

During the last 25 years, two dominant approaches in public management have developed; New Public Management (NPM) and governance (Klijn 2008; Hakvoort and Klaassen 2008). NPM aims at improving the effectiveness and efficiency of government performance through a separation of policy or decision-making and implementation or realization. It applies ideas and techniques proven in the private sector like market-mechanisms, privatization, competition and performance indicators. The governance approach takes a different perspective and underlines the dependency of governmental organizations on various societal actors and organizations for the development and implementation of policy. It focuses on improving these interdependencies through horizontal co-ordination, reflecting a shift from hierarchical and institutionalized forms of government towards less formalized forms of governance (Sorenson 2002; Sorenson and Torfing 2007). Governments create various alliances and cooperation models to deal with complex issues in the public domain (Rhodes 1997), and collaborative or participative approaches are increasingly applied in all kinds of inquiry. Such an approach takes a broader perspective and involves the influence of various stakeholders and their perceptions on problem definition and possible solutions. The participation of these actors is argued to enhance social support for decisions, to improve the quality and legitimacy of decisions, to result in new types of co-operation, and to enhance the innovative capability of outcomes (Klijn and Snellen 2009; Termeer 2009a, 2009b). These insights have been studied from various perspectives, resulting in attention for concepts such as (interactive) governance (Rhodes 1997; Edelenbos 2005; Termeer 2009a), network governance and/or management (Castells 1996; Kickert et al. 1997; Koppenjan and Klijn 2004), partnerships (Klijn and Teisman 2003), and deliberative policy-making (Fischer and Forester 1993; Hajer and Wagenaar 2003). Generally, these concepts or strategies aim at more horizontal interactions between different societal actors, like government, citizens, firms and social organizations.

9 Actual decision-making stands for decision-making behaviour as observed in practice.

Most dominant in the governance approach are *network strategies*. The network approach of policy- and decision-making argues that different mutually dependent actors each have different perceptions on problems and solutions, and are interconnected by a network of organisations that influence decision-making. Network theories generally focus on the complexity of interactions due to the interdependency of these various actors. A decision-making process consists of a wide range of decisions made by changing combinations of actors. Policy is interpreted as the result of negotiations between interdependent parties. Public policy-making takes place in such networks of various interdependent actors with different – and often conflicting – rationalities, interests, and strategies. The actors each are in the possession of different information and resources needed to achieve goals. None of the actors has the power to overrule the others and no shared opinion exists on which way to go: also knowledge is perceived as a network of increasing complexity and diversity, which is to be involved in the policy and decision-making as such (Teisman 1992; Castells 1996; Klijn 2002; see further). In such a situation, network management is about finding a common purpose and creating strategic consensus for joint action (Kickert et al. 1997). The network approach recognizes that dealing with societal resistance requires broad participation in the process, the gathering of support, and enrichment of the contents. Different parties with different perspectives are to be involved, which requires the attuning of various societal parties and policy fields. Network management is oriented towards facilitating interaction processes, mediating between different actors and goal searching (Kickert et al. 1997). The network way of thinking and the interactive approach of decision-making issues has gained ground among scientists as well as administrators, nationally as well as internationally, and is put into practice in increasing numbers of projects and pilot studies. Examples are interactive policy making, participative decision-making, participatory evaluation, citizen's panels, consensus conferences, or 'mini-publics' (Goodin and Dryzek 2006).

The growing attention for the multi-actor setting of policy, and also the recognition that these multiple actors have multiple interpretations of the policy reality, have increased awareness in public administration of the complexity of processes (Klijn and Snellen 2009). The currently developing *complexity theory* in public administration provides an evolutionary approach that seems to fit in well with the trend from government to governance (Teisman and Klijn 2008). It is argued that managing governance processes is a complex matter, due to their non-linear dynamics, the self-organizing capacities of participants, and co-evolution between different (sub) processes and (sub) systems (Gerrits 2008; Klijn 2008; Teisman, Gerrits and van Buuren 2009). Governance systems and networks are argued to be (often) in states of change (Mintzberg et al. 1976; Teisman 1992; Geldof 2001), and changes often are capricious and erratic. Outcomes are the result of the complex behaviour of elements, subsystems and other systems, and the many interactions and interconnections of actors within these systems. As a result, properties and actions of and within (policy) processes are unpredictable and complex.

2.1.2 Knowledge in decision-making

Just like the developments towards governance processes, processes of knowledge generation also deviate from the rational choice model and show a development towards more deliberative approaches. In the rational choice model, data and information play a major role, and the model assumes a linear and rational relationship between experts

(or professionals, or scientists) and policy makers. Trained experts are best suited to support complex (technical) decision-making (cf. Backstrand 2003) through the provision of – mainly technical – knowledge, based on which decision-makers are expected to make a decision. Technical knowledge, expertise, techniques and methods of problem solving are applied that aim to increase the rationality of choices. Individuals are assumed to make rational decisions based on instrumental reason, and the nature, definition and boundaries of the problem at hand (and desired changes) are assumed to be clear. This has been described as a 'technocratic' approach to decision-making (Desario and Langton 1987; Jasanoff 1990).

The technocratic approach is based on the traditional 'deficit model' of public understanding and the relationship between science and politics. In this model, local experience is characterized as unfounded and inaccurate, and as inferior to objective scientific inquiry, and even as putting expert credibility at risk (Petts and Brooks 2006; Stilgoe 2007). Experts assume the public cannot understand the relevant issues and scientific knowledge. This deficit is to be solved by providing the public with more or 'the right' information. The technocratic, rational perspective thus perceives public concern as "*nothing more than the opposite of expertise*" (Stilgoe 2007: 56). It applies a strict distinction between values and facts. The 'fact-value distinction' distinguishes between arguments based on facts, reason alone, and arguments based on values, where rationality is limited to describing a collective opinion. It is argued facts can be resolved empirically (scientific, positive, descriptive), while values cannot as these give a judgment on what ought to be, which depends on the beholder and cannot be justified (judgment, normative, prescriptive). Social scientists are assumed to apply a value-neutral orientation and to limit their research to 'factual', empirical phenomena (Fischer 1998).

There is, however, a declining belief in the superiority of this technocratic approach and the linear relationship between scientific expertise and policy. The approach was often unable to provide solutions for complex problems (Fischer 1998; Yearley 2000; van de Riet 2003); some argue it may even have worsened them (Stilgoe 2007). It has been recognized that science and policy cannot be strictly separated because decision-processes are 'deeply permeated' by scientists (Lasswell 1971: 125). Decision-making was increasingly recognized as being a social process (Lindblom and Cohen 1979) in today's network societies, and not a linear and rational activity. Expertise increasingly is contested and is losing its traditional authority in society (Nowotny 2000; Backstrand 2003; Petts and Brooks 2006; van Buuren 2006, Pielke 2007). Based on different interpretations of the same evidence, experts make different claims. As a result, expert statements often contradict each other and 'knowledge coalitions' develop, resulting in 'counter-expertise (Fischer 1998) 'conflicting knowledge' (van Buuren and Edelenbos 2004) and the strategic use of knowledge.

Thus, the role of experts and scientific knowledge in (political) debates appears to have changed, with experts taking positions and defending different sides of the debate. A strict fact-value distinction, with experts objectively informing decision-makers, no longer seems to exist. Experts have entered the value-debate: it is increasingly recognized that scientific activities and knowledge are not value neutral. Facts cannot be strictly separated from values as facts always reflect the researchers' deeply rooted ambitions and interests (e.g. Fischer 1995, 1998, 2009; Holland 2002; Rinaudo and Garin 2005). Instead, knowledge is socially constructed (Functowicz and Ravetz 1993). It is recognized that disputes

over values cannot be solved by more knowledge or scientific information (Jasanoff 1990; Nowotny 2000; Pielke 2007). The best achievable for a decision-making situation is a 'serviceable truth' (Jasanoff 1990) or 'decision-relevant knowledge' (Petts and Brooks 2006).

As a result, the use of different sources of knowledge for decision-making has increased tremendously (Kickert et al. 1997; Pielke 2007). Democratization of knowledge, expertise, and the knowledge generation process increasingly take place (Jasanoff 1990; Nowotny, Scott and Gibbons 2001; Nowotny 2000; 2003; Backstrand 2003), involving 'non-expert participation' (Stilgoe 2007; Pielke 2007)[10]. The provision of knowledge ('facts') and the interpretation of this knowledge no longer is only the task of educated experts: social interest groups, environmental groups, or organized citizens can supply knowledge to the decision-making process, which is equal to scientific-based knowledge used in the process (van Buuren and Edelenbos 2004; Petts and Brooks 2006). Knowledge production is viewed as a process of social construction in which different knowledge providers are active. As a result, experts get competition from other actors who provide input in the decision-making process, and knowledge has become negotiable and tradable (van Eeten 1998; van Buuren 2005, 2006).

Several authors argue that both expert and stakeholder knowledge should be used in the production of knowledge (Petts and Brooks 2006; Rinaudo and Garin 2005; Yearley 2000; Petts 1997; Jasanoff 2003). Jasanoff states that, in order to provide credible scientific advice to decision-making, "*the concept of expertise […] needs to be diversified and opened up to a wider range of views*" (2003: 161). It is argued that room must be provided for controversy and uncertainty, and for the involvement of more than just expert knowledge. Compared to the technocratic approach, this requires a more open approach to what is legitimate knowledge and expertise, and more than a rational-linear approach and singular problem definition (Teisman 1992; Hisschemoller and Hoppe 1998). More collaborative and democratic modes of knowledge production and decision-making were introduced (Desario and Langton 1987; March and Olsen 1989; Fischer and Forester 1993; Kickert et al. 1997; Fischer 1998; Sorenson and Torfing 2007), based on the assumption that all who are affected by a decision have the right to participate in the decision-making process, either direct or via representation. The local knowledge of citizens is increasingly included in complex projects via citizen involvement (Rinaudo and Garin 2005; Petts and Brooks 2006, Sabatier et al. 2005; Scholz and Stiftel 2005). Citizens – or, the lay public – introduce new perceptions and knowledge in the decision-making process. Their input is argued to be beneficial to decision-making (e.g. Irwin 1995; Petts 1997; Yearley 2000; Petts and Brooks 2006), as they can defend their interests, express their values, and bring in local knowledge and expertise. Various studies, empirical as well as theoretical, have shown that the public is well able to deal with complex scientific issues (Petts 1997; Yearley 2000): the citizen of today is vocal, self-assured, highly educated, and well-read and thus has obtained much insight in the nature of scientific knowledge (Nowotny 2000; Nowotny, Scott and Gibbons 2001). Citizens often have a good understanding of the potential and limitations of their local environment (Rinaudo and Garin 2005), and therefore the involvement of their knowledge has been argued to improve the identification of problems and search for solutions. Through citizen involvement socially robust knowledge can be produced (Nowotny 2003).

10 Examples are the involvement of indigenous people like the Native Americans, or the Aboriginals in Australia, in development processes.

As a result of the democratization of knowledge, the role of knowledge in the decision-making process and the relationship between scientific knowledge and other sources of knowledge has changed (McClean and Shaw 2005; Petts and Brook 2006; Pielke 2007). Processes involving citizen knowledge aim to interconnect and combine 'the worlds' of experts and citizens (Woolgar 2000). Experiments with collaborative knowledge production processes increasingly take place and approaches have been developed to involve various sources of knowledge in the decision-making process. Examples are joint fact finding (Ehrmann and Stinson 1999), interactive social science (Caswill and Shove 2000; Woolgar 2000), participatory policy analysis (Hoppe 1999), interactive knowledge (Lindblom and Cohen 1979), negotiated knowledge, cogeneration of knowledge (Petts and Brooks 2006), communities of practice (Wenger 1998) and civic science (Backstrand 2003). These notions aim at collaborative or negotiated knowledge production, in which 'knowledge' and 'facts' relevant to the decision issue are identified and negotiated in a collaboration of stakeholding parties and experts on the issue of concern with the aim to produce policy-relevant information (cf. van Buuren and Edelenbos 2004). 'Social learning' processes focus on the learning, interaction, and negotiation that take place among multiple and interdependent stakeholders in processes of knowledge production (Blackmore, Ison and Jiggins 2007). It is argued that "*Knowing is constructed in action, i.e. […] it arises with the act of constructing an issue and solutions*"; it *"[…] occurs through people's interactions with what composes the social and physical world.*" (Steyaert and Jiggins 2007: 575, 582).

Despite increasing attention for such processes, a more democratic approach towards expertise is met with many difficulties. In practice, expert and stakeholder knowledge are still approached differently, and real interaction between experts and stakeholders hardly takes place (Rinaudo and Garin 2005). Scientific, technical and economic analyses are still stressed as the (institutionalised) basis for decision-making (Weiss 1990; Vasconcelos, Hamilton and Barrett 2000; Backstrand 2003; Petts and Brooks 2006; Pielke 2007), whereas stakeholder knowledge is not. Experts and expertise remain conventionally understood in deliberative policy processes and as a result, the use of expert information in deliberative processes appears to be problematic (Fischer 2009).

Various authors distinguish expert and stakeholder knowledge on the basis of their characteristics (Rinaudo and Garin 2005; Petts and Brooks 2006; Hunt and Shackley 1999). Their knowledge differs in both content and orientation (Eshuis and Stuiver 2005), and is developed in different institutional and social contexts (Hajer and Wagenaar 2003). Expert – or scientific – knowledge is based on education and professional experience (van Buuren and Edelenbos 2004), is mainly based on scientific models and methods, and aims for objective and verifiable statements. Stakeholder knowledge, on the other hand, is grounded in the experiences of stakeholders, is practical and context or location related (Wynne 1991; Eshuis and Stuiver 2005; van der Arend 2007).

Pielke (2007) argues that scientists often use their scientific authority to push forward specific knowledge. Experts approach citizen involvement only as a means to enhance public understanding and societal support for decisions (Edelenbos 2005). They defend their own functional role – supported by legislation – and do not conceive the public as providing the process with useful information (Petts and Brooks 2006), stressing the 'deficit'-perspective on stakeholder knowledge.

This raises the question how the different sources of knowledge can be integrated or balanced in the decision-making process (Gregory and Wellman 2001; Backstrand 2003). The interconnection between public and expert knowledge challenges the normal ways of doing things, as these are institutionalized in representative democracy (Backstrand 2003; Edelenbos 2005), which may cause clashes between these parties (McClean and Shaw 2005). The decision-making/expert arena has been recognized as difficult to break open (van Buuren and Edelenbos 2004); to achieve real involvement of both stakeholder and expert knowledge, institutional – including political – support has been argued as being needed (Petts and Brooks 2006). Also, the culture of expertise should be actively taken into account. Consequently, Fisher (2009) argues that the use of expert information in deliberative processes needs further study.

2.2 Evaluation theory

Literature on evaluation shows a similar shift towards more participative, constructivist and responsive types of evaluation (see Guba and Lincoln 1989; House and Howe 1999, 2000; van der Meer and Edelenbos 2006). The subject of evaluation has been studied by many authors and various types of evaluations have been identified. Common distinctions concern the perspective of the evaluator (internal or external); the manner of evaluation (rational or constructivist); and the timing of evaluation (*ex ante* or *ex post*). *Ex post* evaluation is conducted after a decision has been made and aims at studying the contribution of a specific project to certain policy goals. *Ex ante* evaluation methods precede the moment of decision and aim at the measurement of expected effects of investments in the preparation of policy: such methods aim to structure information, to order alternatives, and to measure socio-economic costs and benefits to provide information for decision-making. *Ex ante* evaluation suits a rational model of decision-making, with a focus on efficiency and effectiveness. An important element of *ex ante* evaluation methods is the monetary or non-monetary valuation of (expected) effects.

In the 1960s and 1970s the dominant approach to evaluation was characterized by a careful and strong experimental design and quantitative measurement focused on outcomes (House 2001). Evaluation generally was an external activity that aimed for objectivity and accountability, which fitted in well with the predominantly rational perspective on decision-making of the time. Following the shift in thought about government and the development and implementation of policy in the 1980s, thinking about evaluation changed (Edelenbos and van Buuren 2005). The rational approach seemed inadequate to many and quite a lot of critiques on evaluation practice were published, for example concerning methodological inadequacies and lack of fit between evaluation and the socio-political context. Alternative perspectives on evaluation emerged based on participative, constructivist and responsive grounds (Bryk 1983; Weiss 1983; Wadsworth 2001).

These new – and more democratic – modes of evaluation focus on the user, or stakeholder, and argue that "*stakeholders should recognize their ideas and experiences in evaluations if they are to utilize the results*" (van der Meer and Edelenbos 2006: 211). It was argued that such was needed in order to increase the use of evaluation results in decision-making and to "*democratize the evaluation process*" (Weiss 1983: 8). Types of evaluation were developed that were conducted together with those involved, enabling

dialogue, deliberation, and multiple points of view[11]. Early examples are responsive evaluation (Stake 1975, Abma 1996) and fourth generation evaluation (Guba and Lincoln 1989). Stake's early contribution was highly influential and helped "*break the intellectual strangehold that single-method approaches had on evaluation.*" (House 2001: 27). Also Guba and Lincoln made an important contribution to the thinking about evaluation and its methodology. Contrary to previous practice, they did not consider evaluation as a technical procedure but as influential to social, cultural, contextual, political and ethical aspects. More recent contributions are deliberative democratic evaluation (House and Howe 2000); participative evaluation (Whitmore 1998); collaborative evaluation (Torres, Stone, Butkus et al. 2000); and utilization-focused evaluation (Patton 2008). These participative approaches to evaluation assume that evaluative statements often consist of both fact and value claims, which cannot be strictly distinguished. Hence a less strict fact-value dichotomy is applied (House and Howe 1999; see 2.1).

Stakeholder participation is now widely accepted in the evaluation community (Whitmore 1998). The participative approach to evaluation connects well with interactive policy processes as stakeholders get a voice in policy making as well as in its evaluation. In the Dutch policy context, based on insights in the complexity of policy processes, the 'learning evaluation' has received some attention. This *ex durante*-type of evaluation focuses on improving projects as they unfold during the implementation process (Edelenbos and van Buuren 2005: 594). Especially in multi-actor policy settings this learning is considered important as more uncertainty and ambiguity are present and different kinds of knowledge are required. Evaluation is thus perceived as a product of co-operation in which processes of 'sense-making' and interaction should be taken into account (van der Meer 1999; van der Meer and Edelenbos 2006).

Despite the theoretically wide acceptance of these new and participatory modes of evaluation, several authors have noted that in practice evaluation often remains embedded within the traditional top-down and non-participatory approaches to measurement (Weiss 1999; Wadsworth 2001; Sharkey and Sharples 2008), that focus on monetary assessment (House and Howe 1999; Courtois 2004). Section 2.5 will discuss that this also continues to dominate Dutch water management practice. The rational economic approach as applied in this field is discussed in more detail in chapter 3.

2.3 Interactive decision-making in the Netherlands

Developments in the Netherlands are no exception to the developments as described so far, with direct forms of influence on policy-making gaining attention since the 1970s. In the late 1970s and 1980s, disappointing results of public policies and government direction resulted in disillusionment with government performance. Policies failed to meet targets and expectations and caused long delays and policy disasters. While previous policy had been predominantly rational-technical oriented with a strict separation between political formulation of policy and 'neutral' implementation, it was realized that

11 Also the role of the evaluator changed as a result of this change in perspective on evaluation. The evaluator becomes more of a mediator, negotiator and facilitator in the collaborative process, resulting in changed skills and requirements (see House and Howe 1999; Edelenbos and van Buuren 2005; Sharkey and Sharples 2008).

the government was not (or no longer) able to direct authority on its own. It needed other actors and their resources, information and powers to achieve their goal (Kickert et al. 1997).

Experiences with several decision-making processes on complex issues[12] caused political as well as societal calls for more transparency in decision-making and clearly debated decisions that fit the demands of society (Edelenbos 2000). Politically there was a need to 'fill the gap' between politicians and citizens and to increase support for policy by more involvement of the public. This need was reinforced by a societal call to be involved in the design and development of policy. Citizens have their own perception of relevant knowledge, problems, and possible solutions and they want to defend their stakes when formulating measures (Teisman 2001). From the 1990s onwards, participatory processes and stakeholder involvement in policy making has increasingly been applied in the Netherlands (Cornips 2008; van der Arend 2007). Following international developments this is particularly the case concerning (complex) spatial issues such as urban- and infrastructure development and water management (Scholz and Stiftel 2005; Sabatier et al. 2005; Edelenbos, van Schie and Gerrits 2009a; Edelenbos, Klok and Tatenhove 2009b), and particularly at the levels of local and provincial government (Edelenbos and Monnikhof 2001; Edelenbos, Domingo, Klok et al. 2006). Examples are the room for the river-policy, the expansion of Schiphol airport, and the development of the 2nd Maasvlakte (Edelenbos and Monnikhof 1998; Teisman 2001).

Interactive governance processes involve all types of stakeholders – citizens, farmers, NGOs, private companies – in the early phases of development, formulation, and implementation of public policy (Edelenbos 2000). Hence, government's traditionally central position is replaced by negotiation between civil servants, politicians, and societal actors, on the formulation of policy and its implementation. Interactive governance is put forward in order to achieve supported decisions for complex societal issues, which are characterized by conflicts over values. It aims at the involvement of different stakes and values in the process, widening the scope of 'information' involved in the decision-making, cf. processes of collaborative knowledge production (see 2.1). Interactive governance is expected to reduce the veto power of various societal actors by involving them in the decision-making, to improve the quality of decision-making through the use of information and solutions put forward by various actors, and to bridge the perceived growing distance between citizens and elected politicians (Edelenbos 2000).

Yet, interactive governance is not without problems. Its implementation in the traditional way of doing and representative democratic structure is regularly met with difficulties (Kickert et al. 1997; Sorenson 2002; Klijn and Teisman 2003; Koppenjan and Klijn 2004; Mayer et al. 2005; Edelenbos 2005; Cornips 2008; van der Arend 2007; Sorenson and Torfing 2007; Termeer and Kessener 2007; Termeer 2009a, 2009b). Termeer (2009a) lists 5 barriers to the execution of governance: (1) conflicting convictions about good policy making; (2) stereotyping partners (e.g. as ideological, incompetent, or questioning their standing); (3) framing of the situation (e.g. as an experiment); (4) fear of undermining existing policy; and (5) cover-up strategies. She concludes that many of the barriers to interactive governance are constructed within the governmental organization itself.

12 For example, decision-making on the Betuwelijn or the HSL-zuid (Dutch railways)

In line with this, Edelenbos (2005) and Edelenbos et al. (2006, 2009b) argue that interactive governance needs better institutional embedding in formal decision-making, to prevent it from becoming meaningless and useless. Interactive governance processes often are organized at a distance from formal decision-making, for example as an isolated experiment, running parallel or even prior to formal negotiation and decision-making. As a result, the interactive process is pushed aside and existing institutions are rehabilitated at the stage of formal decision-making. Edelenbos et al. (ibidem) identify four levels of embedding to avoid institutional 'misfits' between interactive governance and the existing representative democratic system; (1) political level (see also Monnikhof 2006; van der Arend 2007); (2) executive level; (3) professional level; and (4) policy level. While the political, executive and professional levels focus on the connection to different (groups of) actors in the process, the fourth policy level is concerned with the embedding of the interactive process in the existing policy structure and documents. These different levels of institutional embedding prove increasingly relevant for a connection between the interactive process and the existing (representative) system (Edelenbos et al. 2009a).

2.4 Water management in the Netherlands

The interactive approach towards decision-making and knowledge generation (see 2.1) is gaining ground in Dutch water management. Water management increasingly applies an integral approach, involving various relevant parties and other sectors, like the spatial domain. As a result, the domains of water management and spatial organization seem to meet. This development, however, is not without problems as Dutch water management has a long history and is characterized by a specific culture deeply embedded in the water sector. This section discusses some historical developments in this domain, it describes the perspective currently applied, and its relationship to developments in spatial planning. Developments in these domains follow the general developments discussed in the former sections.

2.4.1 Safety first

In the Netherlands, surface water policy and management is an important and pressing issue. The country has an enormous need for space, as it is one of the most densely populated countries in the world. With a sea shore of 451 km, and the presence of an internationally important delta region and of major rivers like the Rhine, the Meuse and the Scheldt, the existing space is continuously threatened by rising sea levels and increasing river discharges. A considerable percentage of the country lies below sea level, which requires continuous maintenance of water safety and irrigation infrastructures (Huisman et al. 1998). As a result, land is a scarce resource in the Netherlands, and "*spatial planning is vital*" (Woltjer 2000: 74) for the careful location and attuning of different spatial functions like infrastructure, industry, housing, agriculture, nature and recreational spaces (van Dijk 2008). Still, the Dutch have managed to establish a high sense of safety among the public (Heems and Korthuis 2006; Wesselink 2007a, 2007b; Wesselink et al. 2007). The Dutch public generally perceives water management as something the government will take care of, and they trust them to do this well. This attitude does not stand on its own: it is grounded in a long and important role of water management in Dutch governance history.

Water management has a long history in the Netherlands, starting as early as the 12th or 13th century[13] with the establishment of Water Boards to protect local areas from flooding and (later) to reclaim polder areas (Te Brake 2002; Huisman et al. 1998). Technical and traditionally educated engineers and water experts – with a rational and linear view on decision-making – traditionally dominated the field of water management, which has been portrayed as technocratic-scientific (Lintsen 2002; Wesselink et al. 2007; Wesselink 2007b). Water management focused on safety issues, ensuring 'dry feet' and controlling the probability of floods, a reliance on dikes, and proper conditions for land use (i.e. agriculture) through a fixed separation of land and water. Water (safety-) issues were expected to be solved by technological improvements and scientific expertise. Over the centuries, water management has developed into a relatively autonomous and goal-oriented policy domain (NRLO 2000; Wiering and Immink 2006), with complex and specialized legislation (Bressers et al. 1994), and high level knowledge of (and confidence in) hydraulic technology (NRLO 2000; Wesselink et al. 2007). This approach provided well for the needs of water managers and water management constructions, and for many centuries the water management of the Netherlands was very successful along these lines.

2.4.2 Integral approach

During the last decades, however, Dutch water policy and management faced challenges that could not be solved by this traditional approach, and as a result it has been subject to important changes. A crucial event in Dutch water management was the disastrous flooding in 1953 in which large areas of the southwest of the Netherlands were flooded and over 1800 people drowned. As a reaction, the famous Delta Plan was launched, involving major constructions to protect the land from the sea. Whereas this plan received wide societal support, one of its last constructions – the Eastern Scheldt dam in the 1970s – caused many objections and turned out to be the preface to radical changes in Dutch water management and engineering (Bijker 2002). Fishermen, nature conservationists and ecologists successfully challenged the construction of this dam, and based on ecology arguments the decision was made for a partial closure of the Eastern Scheldt[14].

With the introduction of other than safety arguments in water management (i.e.: ecology), talks started on the approach in water management. Around 1985 discussions arose on the ecological impact of the water management, which, at that time, focused on enforcing (inland) river dikes. Environmental groups and citizens argued that more dike enforcements would harm the Dutch river landscape, the cultural history, and 'natural values'. Public awareness on the risks of inland flooding and safety issues was low, as the last river flooding dated back to 1926. A for that time innovative plan was proposed for the combination of flood protection and nature development, through the creation of large dynamic nature areas[15] (de Bruin, Hamhuis, Nieuwenhuijze et al. 1987). This plan was expected to satisfy both engineers and ecologists as it would leave the need of dike reinforcements. First implementations of these new ideas started in the 1990s. Gradually,

13 The organization of regional water management has been called the oldest institution of the Netherlands, see e.g. Bijker 2002

14 Still, in the 1980s various political crises on the Delta Plan and the Eastern Scheldt barrier took place (Bijker 2002).

15 'Plan Ooievaar' (Plan Stork)

water management shifted from pure hydraulic engineering towards involving social and ecological conditions (Wiering and Immink 2006).

High river-discharges of the Rhine and Meuse and several near-floodings in 1993, 1995, and 1998[16] accelerated these developments. Fostered by calls for action and more safety, the occurrence of climate changes and the resulting sea level rise, and long-term institutional changes, it was realised that there are limits to the heights of dikes and that a more integrative approach to water management was needed. Conform international developments in water management (Rinaudo and Garin 2005; Petts and Brook 2006; Sabatier et al. 2005; Scholz and Stiftel 2005), a shift in both the aims of water management solutions and the role of (technocratic) institutions took place in the Netherlands, towards an integral and a more open, communicative and participative approach. This approach was developed under the header of 'accommodating water'. Contrary to the old adage of water as the enemy with its focus on control (Kuks 2004), it is argued that water is to be approached as a 'friend' who must be provided with space. Water is here to stay, it was argued, so we had better live with it, resulting in campaigns and programmes like '*Living with Water*' and '*The Netherlands above water*'[17]. This approach is laid down in the current Dutch water policy document called 'A different approach to water: water management policy in the 21st century', and was reconfirmed in the governmental National Policy Covenant on Water (NBW 2003)[18]. Also at a European level the participative and integral direction in water management is recognized, established in the European Water Framework Directive (WFD 2000).

From a technocratically oriented domain, a shift took place towards more collaborative governance approaches. An integral approach, with the involvement of many parties that are affected by integral solutions to the water problems, is presented as the new way forward. This includes governmental actors, local authorities, social organizations, and private actors – including stakeholders and citizens[19]. Following the broader shift from technocratic towards more democratic types of knowledge generation and decision-making (from government to governance; see 2.1), this approach is increasingly applied in Dutch water management as well (Edelenbos et al. 2009b), and processes of negotiated knowledge production, joint fact finding and social learning are being developed (e.g. Jiggins, van Slobbe and Roling 2007).

Instead of a solitary and autonomous issue, water management now is approached as a policy subject interdependent of other spatial (policy) issues, like infrastructure, agriculture, or landscape quality. Increasingly, water – and water management – is considered a spatial issue; an element of spatial planning (van Stokkum et al. 2005; Wiering and Immink 2006; Wesselink 2007a). This direction is expressed in current documents on both water policy and spatial planning (van Dijk 2008), and is reflected in prescribed

16 resulting in 250.000 people being evacuated

17 '*Leven met water*' and '*Nederland boven water*' respectively

18 Waterbeleid 21e eeuw (WB21; 2000) and Nationaal Bestuursakkoord Water (NBW; 2003)

19 A national PR campaign was started to increase public awareness on the importance of water management 'The Netherlands lives with water'. However, this campaign has been criticized for only reconfirming the public views of safety, 'all is under control', and 'the government will take care of it' (see Heems and Kothuis 2006; Wesselink et al. 2007). Also, applied research projects on the issue were provided with large budgets, an example of which is 'Living with Water', this thesis' co-financing institution.

methodology like the water test[20] for spatial planning projects (Wiering and Immink 2006). Spatial aspects of water are considered, involving the multiple uses of space, and the spatial aspects of water safety issues. Hence, current decision-making on surface water takes place in the context of not only water management but also spatial planning policy: a development towards 'spatial water management' (Goosen 2006) is taking place. The sections below discuss the spatial planning context of such spatial water management. Developments in this domain show remarkable similarities with those in water management.

2.4.3 Developments in strategic spatial planning

(Strategic) Spatial planning is big business in the Netherlands. It is a continuous balancing act between ever growing numbers of users of space, of continuously shifting coalitions, and of many different disciplines (Salet and Faludi 2000). In accordance with developments described earlier, Dutch history of planning thought (and practice) shows a development from a rational and top-down approach dominated by experts and technicians towards a broader and more bottom-up approach characterized by interaction, communication and negotiation[21]. Elements of the Anglo-Saxon tradition – characterized by "*utilitarian and functional administrations*" (Salet and Faludi 2000; 5) – are gradually replaced by elements of the Continental European tradition – characterized by "*territorial and universal administrative structures*" (ibidem).

Traditionally, planning in the Netherlands was based on a rational model of science and decision-making, aiming at certainty and efficiency (see 2.1). This model was based on the premise that knowledge is power, and much faith was put in scientific expertise and technology (Faludi and van der Valk 1994; 2001). From the first national report on spatial planning (1960) onwards, classic rationalist planning was characterized by centralization, and a top-down and sector based approach. A linear relationship between scientific evidence and planning was assumed; the resulting plans only needed implementation. These were the heydays of engineers and designers. The 1960s and '70s Faludi and van der Valk (1994) describe as 'technocracy': experts provided the 'best' plan for policy-makers and the public to accept. Tremendous growth took place and based on optimistic outlooks the planning system was expanded, only briefly interrupted by the 1980 economic crisis. When gradually the limitations of the rational and goal-oriented model became evident, more procedural approaches in strategic spatial planning developed. These approaches aimed to involve newly relevant actors in the process, like market parties, non-governmental parties and private investors.

From the 1970s onwards, triggered by the 1972 report of the Club of Rome, environmental issues were studied and involved in decision-making on Dutch spatial planning (Dietz et al. 1994). The third national report on spatial planning (1974) "*was the first to confirm the importance of the environment as a societal and political factor*" (Salet and Faludi 2000: 2). These were the days of rational planning and legislation: environmental problems were dealt with through laws and guidelines. Amongst others the Dutch environmental impact assessment dates from this period (van Dijk 2008). Many laws and rules were developed for different environmental sectors, like fine particles, noise,

20 In Dutch: watertoets

21 Dutch terms for these two strands of thought are 'toelatingsplanologie' and 'ontwikkelingsplanologie'.

water, soil, external safety, nature, and energy (de Groene and Hafkamp 1994). These laws and rules were embedded in (inter-) national institutions for legislation, calculation methodology, financing, inspection and accountability, based on a separation of spatial functions (de Zeeuw et al. 2009).

This, however, resulted in a huge body of laws and rules, too many and all for separate sectors, which hindered and delayed spatial planning. Based on these experiences, together with various societal developments[22] at the end of the 1990s, it was recognized that spatial planning is not only a (technocratic) planning issue but also – and more importantly – a societal issue that requires an interdisciplinary approach that extended the sector- and short-term focus. An important change in Dutch spatial planning took place: a strong decentralization towards the regional level (Priemus 2007). Nowadays, planning is generally considered as being the outcome of discussion, negotiation and conflict, which is influenced by various contextual and ideological factors. It is about creating a shared conception, about power sharing, bargaining, and learning-by-doing (Faludi and van der Valk 1994; Woltjer 2000). The process and 'process management' of planning and decision-making are increasingly considered as crucial for spatial planning processes (e.g. De Bruijn et al. 2004). Salet and Faludi (2000) recognize a revival of strategic spatial planning in dealing with the new questions of legitimacy and effectiveness around 2000. They distinguish the predominant interactive approach that aims to involve new actors in the planning process in a more participatory way. This marked the start of the inclusion of civil society in planning currently prospering in Dutch spatial planning.

2.4.4 Regional development

The current Spatial Planning Act (Ministerie van VROM 2008) prescribes decentralization, deregulation, and a focus on implementation. The central government is the hierarchical steering system that formulates rules, conditions and criteria. It stimulates and facilitates regional and local government to autonomously formulate policy along these lines (Woltjer 2000). Following this approach scope for spatial planning is increasingly given to decentralized public bodies, municipalities and provinces (Ministerie van V&W 2000; Ministerie van VROM 2006; Ministerie van LNV V&W EZ en VROM 2006). While these 3 levels each have their own powers, they are mutually dependent. Private actors who have many and possibly contradictory stakes and values participate in the policy-making process (through public-private partnerships and interactive policy-making processes) (van der Meer and Edelenbos 2006). Compared to previous spatial planning Acts, municipalities are provided with more responsibilities in spatial planning, and more freedom to execute these. Governmental parties (national government, province) only pose conditions for local (public, private, and individual) parties involved to take initiative in spatial planning. Policy is set out in 'structure documents'[23]: strategic, not legally binding, policy documents that outline intended spatial developments.

The Spatial Planning Act obliges an integral approach towards spatial planning, integrating different spatial functions and dissociating from the previously applied sector approach. As many parties and actors now are to be involved, this has changed relation-

22 Amongst others; climate change, the need for sustainable development, new relationships among society, a shift from government to governance.

23 In Dutch: 'structuurvisies'

ships and responsibilities between parties in spatial planning. This new regional approach to spatial development, known as regional development[24], was expected to result in increased investments in spatial quality and sustainability; enhanced implementation of joint plans; and increased involvement and support of inhabitants and users (Ministerie van VROM 2006, 2008). Various research programmes were set up to study and finance regional development processes[25].

Regional development focuses on multifunctional spatial issues and on integrating the interests of various stakeholding parties. An important characteristic of regional development is the interconnection of process and contents (De Zeeuw 2007). Regional development may concern various 'regions', ranging from urban issues and city development to reorganizing rural areas. Three important elements of regional development are:

- Regional development takes an *integral* perspective on spatial issues to carefully use the limited available space. This is characterized by a search for coherence between functions and combining different spatial functions (like 'multiple use of space'[26]; e.g. de Bruijn et al. 2004). It aims for management of different relevant systems, spatial functions and policy subjects, which are considered to be interconnected. Also the water system is viewed as a complex and multifunctional system, with many different uses and many different parties involved (WFD 2000; Ministerie van V&W 2000, 2006, 2007).
- Regional development aims to bring together different stakes in the respective region: it aims at the *participation* of involved parties in the planning process (and the integration of these stakes). As a result new relationships and responsibilities between parties (governments, private parties, NGOs, inhabitants, businesses) arise. Co-operation between government and private parties is often conducted in public-private partnerships. The public participates through interactive processes.
- Regional development aims at the creation of *surplus value*. Paying attention to the creation of value in an early phase in the process is expected to enhance the process and its outcomes (de Zeeuw 2007).

Through the participation of stakeholding parties regional development aims at the integration of values and perspectives of relevant stakeholders, in order to achieve an integral approach of spatial functions and, through this, surplus value. What this surplus value entails, still is the subject of study (de Zeeuw et al. 2009). For the identification and involvement of stakeholder values and perspectives in the process, several methods or approaches have been applied, for example joint fact finding (JFF), joint planning approach (JPA), interactive workshops, scenario development, and a 'community of practice' (CoP) (Bressers and Maris 2009). Following the integral approach, various policy domains are involved in regional development. In order to integrate and link the different scales of these planning and policy domains, regional development applies the layers approach. This approach (imaginary) separates physical reality in three layers: the physical

24 In Dutch: 'gebiedsontwikkeling'. Regional development was formally introduced in the Spatial Planning Act of 2006, however it had been (informally) applied long before.

25 For example Habiforum (www.habiforum.nl), Nirov (www.nirov.nl), and Living with water (www.levenmetwater.nl)

26 In Dutch: 'meervoudig ruimtegebruik'

substratum (soil system, water system, biotic system); the network layer (infrastructure, air routes, digital connections); and the occupational layer (human activities, housing, work and related spatial pattern). The layers approach proposes a process-approach to spatial planning, in order to adjust to possible frictions between layers because of a different pace of change or mutual influences (Rijksplanologischedienst 2001). The layers approach assumes a hierarchical relationship between the layers, which "*is supposed to produce clear ground rules for the planner and provide a robust methodology for spatial planning*" (Priemus 2007: 671).

2.5 Towards spatial water management

The previous sections described that both the domains of water management and spatial (regional) development aim for an integral approach and the involvement of relevant actors and stakeholders. Water management increasingly is a spatial issue, and spatial development incorporates water management issues. This results in an increasing overlap of both domains and a development towards, what I call: spatial water management (see also Goosen 2006). The application of this integrated approach is not without problems, however. Both domains experience problems, concerning the participation of stakeholders as well as an integral assessment.

In water management, the implementation of a participative approach appears not to be straightforward (e.g. NRLO 2000; Goosen 2006). Real participation has been observed as limited (Enserink et al. 2003; Cornips 2008; van der Arend 2007). Also internationally these developments have been recognized as problematic in water management (e.g. Ollivier 2004; Rinaudo and Garin 2005; Kallis et al. 2006). Kallis et al. (2006) pose that it is questionable how participation processes can become operative within the existing institutional structures in water management. Some argue that the WFD's increasing demand for public participation "*poses something of a challenge to the conventional role of expert knowledge in relation to governance*" (Steyaert and Jiggins 2007: 576). Even though the relevance of participation and integration is recognized, Dutch water management remains to be characterized by highly technical tasks that require expert knowledge and specialized engineers. The relationship and interconnection between the role of experts and expert knowledge on the one hand, and the interactive approach, involving various stakeholders, on the other, appears to be problematic. In accordance with the broader problems encountered with a governance approach (see 2.1), the 'accommodating water' adage is implemented next to the traditional 'control' paradigm, which continues to dominate Dutch water management with its technocratic approach (van Slobbe 2002; van Slobbe et al. 2003; van Dijk 2008). Evaluation practice remains dominated by traditional top-down approaches, also in accordance with the broader trend in evaluation (Kallis et al. 2006; see 2.2).

Regional development projects also encounter problems in their approach, and are increasingly frustrated by delay and financial problems. Especially the integral assessment of spatial functions and the participation of stakeholders appear problematic, analogous to problems with the embedding of interactive governance processes (see 2.1; de Bruijn et al. 2004, Edelenbos 2005; Termeer 2009a). De Zeeuw et al. (2009) refer to various recent reports advising the Dutch government on infrastructure, construc-

tion, air quality, industrial sites, and natural areas, which come to similar conclusions. The obligation to perform an environmental impact assessment is an example of the problems that regional development processes encounter; such an assessment is to be executed by experts and focuses on specific functions (van Dijk 2008): inherently in contradiction to the aims of regional development. The problems are often blamed on the broad (inter-) national legislation for planning in the Netherlands (e.g. van der Heijden and Slob 2005). It is argued this – aforementioned – huge body of laws and rules would stimulate a sector approach based on a separation of functions, conflicting with the regional development approach. In reaction to these criticisms, legislation and sector-specific procedures were changed, but according to De Zeeuw et al. (2009) this has not yet resulted in any improvements for regional development processes. They argue the sector approach continues to dominate in the administrative system. The integral approach put forward in regional development should be implemented further at the local level, including the early involvement of all stakeholding parties and the public as 'regional experts' in the process, and this should be formally established in legislation. Also Priemus (2007) argues regional development should take a more integral approach than currently applied. He argues that the layers approach is not suitable for an integral perspective as it oversimplifies reality: change of and within layers is variable and the relationship between layers goes both ways. In his view, the first two layers have been neglected in spatial planning, focusing on occupational issues only.

Consequently, it seems that the rational approach towards planning and decision-making processes continues to dominate, which hinders integral approaches of spatial water management taking place. The traditional approach in Dutch water management has been applied for many centuries and is embedded in various institutions of society; its legal standards based on control of flooding remain in place. Dutch water management is necessarily based on highly technical knowledge, but the relationship between this knowledge and other sources of knowledge in interactive processes remains unclear. The 'new' approach conflicts with the traditional way of doing things. Water Boards, for example, have difficulty with the interactive approach as they mainly use traditional communication mechanisms (van Slobbe 2002). Also, the new approach leaves experts frustrated that their knowledge no longer is accepted as (the only) 'truth' anymore in the policy environment. Only a few decades ago, water management mainly was about creating the right conditions for agricultural production. This, however, changed radically (and rapidly) when issues like water quality, ecology and land use management also were to be dealt with in water management decisions. It resulted in a changed and often problematic relationship between, for example, farmers and water management (van Slobbe et al. 2003; van der Arend 2007). Therefore, a 'proper' institutional organization and co-ordination has been found to be a critical condition for success in spatial water management (de Bruijn et al. 2004; Scholz and Stiftel 2005; Goosen 2006), similar to findings on the embedding of interactive governance processes (see 2.3). Wesselink (2007a, 2007b; see also Te Brake 2002) even argues that Dutch water management suffers from a technological and political lock-in that hinders implementation of the new approach. This dominating traditional approach towards evaluation and the decision-making process is reflected in, for example, the Dutch OEI-guideline for infrastructural decisions. This guideline, recommending a rational approach towards decision-making and the application of SCBA as *ex ante* evaluation method, is discussed in more detail in chapter 3.

2.6 Conclusions

Water management in the Netherlands shows a development towards spatial water management. Water management and spatial development approaches have changed from merely rational and top-down sector-based domains dominated by specialized experts and technical engineers, towards more collaborative, bottom-up and integral fields of study characterized by interaction, communication, and negotiation. Both water management and spatial development aim for a participative and integral approach, incorporating the other domain's field of attention. Spatial water management aims to involve various relevant spatial domains and stakeholders in the process, and to (possibly) generate their knowledge to enhance (the knowledge base for) decision-making and generate societal support for the outcomes (see 2.4). This approach follows current perspectives in public administration on interactive decision-making (2.1), collaborative knowledge production (2.1), and evaluation (2.2).

In practice, however, an integral and participative approach in both water management and regional development encounters difficulties. The traditional approach is deeply rooted in culture and seems to persist in these domains. Dutch water management has a specific expert culture with a long history, dominated by traditionally schooled engineers. Also, technical information remains crucial for adequate water management in the Netherlands. As a result, the control paradigm and technocratic approach still dominate Dutch water management practice, and evaluation is dominated by traditional top-down procedures. Also in regional development the traditional sector based approach remains dominant, hindering an integral assessment and the participation of stakeholders.

These problems with an integral and participative approach have been recognized in the broader literature on governance. Section 2.1 discussed that the participation of stakeholders in development or policy processes, processes of democratization of knowledge, and also interactive evaluations (see 2.2) encounter problems of implementation in the traditional way of doing things and the existing representative democratic structure. Collaborative knowledge production appears to be difficult as the knowledge or inputs from experts and stakeholders are still approached differently. A strict fact-value distinction continues to be applied, even though values have long entered the scientific debate. As a result, real participation of stakeholders and interaction between experts and stakeholders is limited. Integral and participative approaches challenge the normal ways of doing things, which are institutionalized in representative democratic structures. Therefore, to achieve a connection between the interactive process and the existing system, a proper institutional embedding of these processes is needed, also in spatial water management.

Based on the findings in this chapter, the research framework presented in chapter 4 applies several characteristics of spatial water management. An approach of co-valuation to involve stakeholder values in decision-making on spatial water management will have to take into account:

- The multi-actor setting of decision-making processes; the need to involve relevant stakeholders in the valuation process;
- The involvement of knowledge or inputs of these various actors in the valuation process; the need for collaborative (value-) information production;
- The need for institutional embedding of an approach of interactive valuation at 4 levels: political, executive, professional, and policy.

3 Economic valuation of water

In recent decades, public concerns have arisen about the allocation of water and increasingly scarce water supplies (Whitford and Clark 2007). Drinking water, surface water and sanitation are pressing subjects of international discussion and policy making, concerning both water quality and water quantity. The invaluable role of water to humans – and to society as a whole – results in emotional pleas like 'safe drinking water for all', or 'a toilet for every child'. Whether invaluable or not, it is argued *a* value is needed for decision-making to take place (French and Geldermann 2005). Nevertheless, the valuation of water may not be as straightforward as some studies suggest.

Chapter 2 concluded that current (decision-making in) spatial water management aims for an integral and participative approach, taking the total water system and other spatial domains into account and involving a wide range of relevant actors in the process. It was also concluded, however, that the application of this approach is not straightforward, as it conflicts with traditional approaches present in the domain of water management and other (spatial) sectors. The application of integral assessment and stakeholder participation appears to be especially problematic (see 2.5). It was also seen that economic information is increasingly applied for decision-making and economic concepts are incorporated in models for public decision-making. This chapter discusses how integral assessment and valuation of water takes place in Dutch decision-making on water. It focuses on the current economic approach to valuation and assessment. Hence, perhaps contrary to what the title may suggest, this chapter is not about the proper, or actual (economic) value of water. It discusses the conventions in economics to identify this value and to use it in decision-support models. Situated in this (institutional) setting, the thesis studies how a collaborative approach to valuation (is different from and) may be connected to these conventions.

First, valuation in economics and its current perspective are discussed (3.1). It commonly applies neoclassical (e)valuation, based on monetary, expert-based information. Section 3.2 discusses economic (e)valuation and decision-making on environmental issues, a highly contested subject. The chapter then focuses on the valuation of water, and its application in Dutch decision-making (3.3). Section 3.4 discusses developments in economic perspectives, which show an increasing recognition of contextual and behavioural factors that are not included in the neoclassical model. Based on these insights, the section presents institutional analysis as a suitable perspective for the study of stakeholder valuation of spatial water. Section 3.5 provides an overview of the per-

spectives on value and valuation discussed so far, and concludes the chapter with the identification of aspects of economic valuation that are incorporated in the research framework of this thesis (discussed in chapter 4).

3.1 Valuation in economics

"*Economics is about choices*", Ward (2006: 14) states; it "*studies the choices people make in allocating scarce resources among competing demands*" (ibid: 21). Choices, in turn, are based on values and value differences, which makes value central to economics (Foster 1995). Any theory or approach in economics necessarily takes a perspective on value, even if implicitly (Dietz, Hafkamp and van der Straaten 1994; Dolfsma 1997). Differences between various schools of economic thought can largely be ascribed to differences in value theories. Nevertheless, practical applications of economic theory and methods scarcely pay attention to their underlying value theory and assumptions (Heilbroner 1983; Dolfsma 2002; Groeneveld 2006; Aydinouat 2008).

3.1.1 The concept of value in economics

Value theory in economics focuses on describing the values people have as derived from (individual) consumer choices in a market or market-like situation. These choices are assumed to reflect preferences (which are assumed to follow from values). Value is defined as how much a desired good or service is worth relative to other goods or services available on the market. In earlier days, however, different interpretations of value and its measurement were applied. The perception on value and valuation continues to be subject to development (Bouma 2010). A common distinction is the one between theories that take value as labour and theories that take value as utility. Concerning the first, before the 'Marginalist revolution' in the 1870s, the value of an object was supposed to inhere in objects, derived from either God or labour. The Marginalists radically broke with this way of thinking and argued that human (individual) preferences provide objects with value (Dolfsma 1997), leading the way to the utilitarian approach in value theory and economics.

The foundation of modern economic choice models is the *hedonic utility model*, developed by Bentham (in 1789) and later extended by Jevons (in 1871) and Edgeworth (in 1881). After the 1870s this model has been widely accepted among economists. It became known as the 'Marginalist Revolution in economic thought', and marked the beginning of utilitarianism. According to this model, all human actions – and also the criteria for their evaluation – are determined by the desire for pleasure and the avoidance of pain. In those days, hedonistic behaviour was considered a universal law of humanity, from which (economic) behaviour could be derived. Consequently, the value of objects was interpreted as the level of hedonic utility these objects provided: the amount of pain or pleasure.

This model of value and (economic) choice came across two problems. First, cardinal hedonic utility as defined by Bentham (i.e. pain and pleasure) is not measurable let alone measurable on a universal scale. Second, empirical evidence of behaviour that is driven by the optimization of levels of pain and pleasure only, is lacking. In reaction to these problems, in the course of the 20th century several attempts were made to 'purge' economic models of decision-making from psychological assumptions and pre-

suppositions (Camerer and Loewenstein 2004; Muramatsu 2006). The cardinal concept of utility was replaced by an ordinal version based on choice. Based on the rational choice model of decision-making (see 2.1), it was assumed there is one central actor who bears one single set of preferences and applies an unambiguous estimation of the different consequences of alternatives. Individuals were assumed to behave like a *Homo economicus*; an ideal typical individual who makes internally consistent choices based on an individual utility function (i.e. he optimally deduces choices from objective probabilities and outcomes), who acts rationally and goal oriented, and uses effectiveness and efficiency as criteria for choices. This model of decision-making is based on the assumption of methodological individualism, from which complex social phenomena are explained by individual actions. Instruments are used that aim at increasing the rationality of choices, like monetary (*ex ante*) evaluation methods, a well known example being Cost-Benefit Analysis (CBA).

By establishing an ordinal notion of utility, it was made an objective and measurable variable. Pareto famously stated that utility can be measured by observing actual economic phenomena, thereby excluding motivations for choice from the analysis. This, however, also disposed the notion of utility of its essence as originally developed by Bentham, who had aimed explicitly to describe these motivations for choices in terms of pain and pleasure. Based on the ordinal notion of utility, economists developed an explanation of choice behaviour in terms of utility and probability axioms, 'purged' from a psychological basis: the *expected utility theory* (Knight 1925; Loewenstein 2000). This theory takes value as the weighed sum of expected utilities. It continued to be based on the *Homo economicus*; all social action is assumed rationally motivated, as if it were instrumental action. This model of decision-making, however, could not explain various patterns of actual behaviour, and its presuppositions were quickly recognized as too objective. This resulted in a slightly adapted version: the *subjective expected utility theory* (SEU, mainly developed by Savage 1954), which essentially still is the dominant theoretical approach in economics today. Also called the neoclassical economic tradition, this theory adjusts the expected utility theory by combining individual utility with individual probability analysis (based on Bayesian probability theory). The subjective probability of utilities is deduced from individual preferences, which in turn are deduced from factual economic events. Argued the other way round; factual economic behaviour is assumed to reflect individuals' preferences that, in turn, are assumed to reflect the (subjective) utility these individuals receive from goods.

Consequently, neoclassical economic theory takes a mechanical perception of choice and is not about explaining choice – about why an individual has certain motives (Bromley and Paavola 2002). Choices are 'justified' as being consistent with preferences (Holland 2002), which are seen as neutral and *a priori* known data. The reasons why people value goods do not matter to economic analysis (Dietz et al. 1994; Turner, Pearce and Bateman 1994; Brouwer 2000; Bromley and Paavola 2002). Neoclassical economics considers value not as an intrinsic quality, but as a fixed and constant fact, which can be revealed through choice (assumed as based on preferences). This turn from 'value' to 'choice' was believed to enhance economics as a science (Dietz et al. 1994).

3.1.2 Perspective on valuation

Based on the neoclassical perspective, the current economic perspective on valuation considers values as neutral data: as fixed, constant, and objective facts. It is based on value

monism and value commensurability. Motives to achieve (thus, to value) some good are explained by the rational model of *Homo economicus*. Value (individual preference) is based on the amount of utility a certain good or service provides: it is the functions of goods and services to individuals that provide them with value. These functions are assumed to be objective and measurable, and independent of any psychological or external influences[27]. The functional approach to valuation has been widely used; an example in the context of environmental evaluation is the work by De Groot (1992), who lists 37 different functions of ecosystems and protected areas that should be taken into account in decision-making.

The value (utility) of a good is assumed to depend on supply and demand. The (monetary) market value is taken as an appropriate indicator of the value of goods and services, following the assumption of Adam Smith's invisible hand[28]. Values that are not expressed on the market are measured by the amount of goods (like time, or money) that an individual is hypothetically willing to pay (WTP) in order to receive that good; or conversely, what s/he is willing to accept (WTA) in order to keep or loose that good. Several methods have been developed to measure or reveal these values, which enable analysts to involve in economic analyses various values that are not reflected on the market (see 3.2). Consequently, values – preferences – are perceived as either costs or benefits that are expressed on the market, or that can be expressed in (fictional) monetary terms by use of market-based instruments. This means that value is based on scarcity: only scarcity defines a good or service's price (hence its value). Table 3.1 provides the main characteristics of the neoclassical perspective on valuation.

Table 3.1: Characteristics of neoclassical valuation

Characteristic	Neoclassical perspective on valuation
Involvement	Value of economic (scarce) goods. Goods are homogenous Methodological individualism (Homo economicus)
Notion of value	Value monism (value = utility / functional approach) Single measurement: Total Economic Value is measurable in monetary terms Commensurability Preferences are fixed, objective, exogenous
Role of information	Efficiency (maximizing utility, minimizing transaction costs) Instrumental rationality Values are revealed through (market-based) methods, executed by (established) experts
Process	Institutions are external constraints, not relevant to analysis Assumption of no transaction costs and complete information

27 In line with this focus on functions, Porter (1998 [1985]) introduced the concept of a 'value chain', identifying different strategically relevant activities and interactions of an organization -'chains of activities'-, in order to understand cost-behaviour and (existing as well as potential) sources of differentiation, which is widely used in business management.

28 Adam Smith's assumption of the invisible hand states that the market mechanism can coordinate the economic process because competition functions as an invisible, steering hand. Hence, people who act in their own best interest tend to promote the social interest (it tends to result in a socially efficient allocation of resources), and no government intervention is needed.

It has been widely recognized that this rational, neoclassical model does not reflect practice, and that its assumptions limit its strengths in both predicting and describing actual choice behaviour (see also 2.1). Nevertheless, neoclassical economists generally argue they only take these assumptions for purposes of the analysis of economic behaviour (Friedman 1953, 2007 [1962]) – and do not assume them to reflect actual behaviour. They argue it is other disciplines that should study processes of decision-making and preference formation in practice, like psychology, sociology, and anthropology (Palacios-Huerta 2004). They argue rational decision-making should remain the goal, the ideal of decision-making, as better decisions would be made if we would only be able to make these rationally (Birkland 2001). It is based on these lines of thought that (economic) decision-making and (e)valuation practice mainly applies the neoclassical model and its methods.

3.2 The economic value of environmental goods and services

It has increasingly been argued that the environment and natural resources must be priced in order to prevent their over-utilization. As a result, during the last decades many attempts have been made to value (Costanza 1997) and to price (Navrud 1992) the environment, in many countries all over the world. An important stimulus in this was the (US) Reagan executive order (#12291; 1981) that mandated the EPA[29] to perform a regulatory Impact Analysis including social cost-benefit analysis for major regulations. This boosted research into environmental benefits in the US and also increased attention for environmental (benefit) studies in Europe (Ward 2006). Despite these many studies and wide attention to the issue, the questions what exactly are environmental goods and services, and how to value them if they cannot be bought on the daily market, are highly discussed.

3.2.1 Environmental goods and services

Mainstream neoclassical economic theory considers environmental goods and services like other goods: as commodities that can be defined and replaced (Vatn 2005: 237), and with values that are commensurable and measurable in monetary terms. The neoclassical approach to (environmental) valuation starts from the assumption of a perfectly functioning market, led by the invisible hand of Adam Smith. Perfect markets are characterized by complete information for everyone, no transaction costs and homogenous goods only. The prices of goods on this market reflect the exchange value of these goods expressed in monetary terms. This exchange value is the result of interaction between supply and the demand (the preferences) of individual consumers.

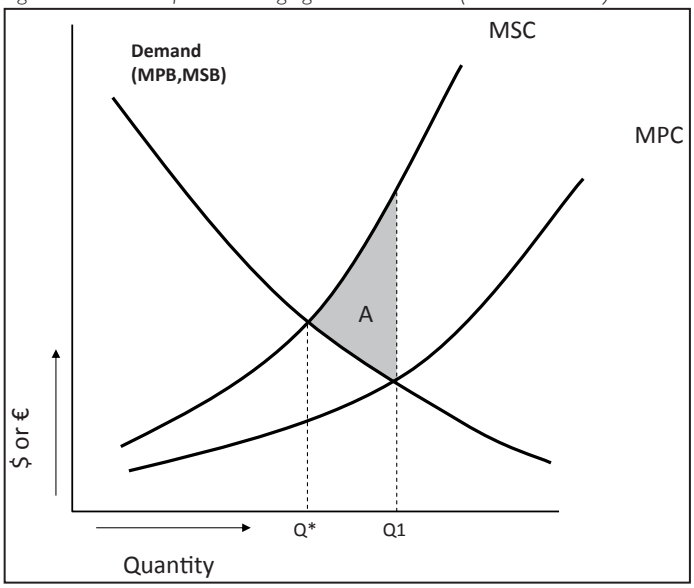
Adam Smith was the first to show that markets are powerful and efficient institutions for the allocation of resources to maximize benefits (Ward 2006). However, Adam Smith's invisible hand only applies when total (private) costs equal the social costs and benefits. This condition is satisfied only in a perfectly competitive market characterized

29 Environmental Protection Agency of the US.

by the efficient allocation of resources[30]. This is where problems arise for environmental goods, as their social cost may not be clear. In reality, markets are practically always hindered by market failures, which may be caused by imperfect competition (e.g. due to (lack of) power), imperfect information, the existence of goods that are not reflected on the market (public or common goods), inappropriate government intervention, or the existence of externalities (Kahn 2005). This appears to happen with environmental goods, and as a result the neoclassical approach describes environmental problems as market failures: as the (economically negative) consequences of an unprized scarcity (Baarsma and Lambooy 2005).

Externalities were first recognized by Marshall (in 1890 [1925]), while his student Pigou (in 1938) extended the concept (Dietz et al. 1994). Externalities are uncompensated (positive or negative) side effects of human actions that are not expressed in a market and that affect the production possibilities or the welfare of third parties (Baarsma and Lambooy 2005). In case of externalities, private costs (MPC) do not equal social costs (MSC), hence (contractual) negotiation will not result in an appropriate price. Figure 3.1 illustrates that if MSC exceed MPC, the optimal quantity of a good appears to be lower (i.e. at Q* in stead of at Q1), compared to a situation in which MSC and MPC are equal. The field A reflects the excess social costs in case of a sub-optimal level of Q (Kahn 2005).

Figure 3.1: Market failure: diverging MSC and MPC (Kahn 2005: 19)



Externalities occur especially with common and public goods, like environmental goods and services. Common or collective goods – as opposed to private or individual goods – can be enjoyed by anyone without (in principle) affecting other people's enjoy-

30 Smith himself recognized that markets are not suitable for all kinds of economic goods and excluded education and health (see Hazeu 2000).

ment, like the air we breathe, or the sea to swim in. Often, complete information is unavailable and polluters and sufferers, as well as causes and effects, are difficult to identify. Many environmental goods and services face problems of overuse, which characterizes them as 'common pool resources' (Ostrom 1990). Such goods and services are valued by many (often all), but their wide and abundant availability results in a lack of incentive to pay for maintenance of the good[31]. As a result, Adam Smith's hypothesis on market functioning does not hold; market processes do not suffice to settle questions on environmental protection or natural resource management (Turner et al. 1994; Ward 2006). Table 3.2 characterizes different kinds of economic goods and services based on excludability and rivalry, as commonly applied in the economics of environmental goods and services.

Table 3.2: Different kinds of economic goods and services (Based on Ward 2006: 77)

GOODS	Excludable	Non-excludable
Rivalrous	Private goods (food, clothing, furniture, cars)	Common goods (drinking water, fish, hunting game)
Non-rivalrous	Club goods (pay television, quiet library)	Public goods (air, national defence, common knowledge, flood control)

Well-known proposals to correct for such market failures are those by Pigou and later Coase. Pigou proposed direct coercion by the government or (Pigouvian) taxes to 'internalize the externality', that would eliminate the difference between MPC and MSC. Coase (1960), to the contrary, argued that government intervention (by taxes, subsidies or standards) is not needed and even counterproductive for the solution of externalities. Instead, a (created) market for the externality would result in optimal externality levels, irrespective of property rights. This so called 'Coase Theorem' had a tremendous impact and led to many studies and analyses of its effects. Many have criticized this theorem, especially its assumption of zero transaction costs and its applicability for public goods and environmental externalities (Kahn 2005).

In this period (the 1970s) the field of Environmental Economics was developed, with the first wave of environmentalism in society (Turner et al. 1994). Many argued that the neoclassical economic approach was insufficient for the study of environmental issues and questioned its underlying assumptions (e.g. Hardin 1968). Environmental Economics starts from the idea that the economic system is dependent on ecological systems and their interrelationships. Economic activity (and growth) in the context of this ecological system is argued to have an absolute limit or boundary, and impacts on natural resources cannot be ignored as these influence human welfare (Turner et al. 1994). A famous adherent of this approach is Daly (e.g. 1973), with his plea for a 'steady-state economy'. Environmental Economics argues that environmental issues inevitably involve externalities and public goods, and therefore "*the market mechanism cannot be relied upon to provide efficient levels of environmental goods and services*" (Turner et al. 1994: 27). To involve these effects in economic analyses, their explicit economic valuation

31 This results in the well-known free rider problem; it encourages individuals to benefit from the efforts of others to maintain a good those individuals enjoy or consume as well.

is needed. The attribution of a market value to natural resources would enable comparison of these goods with other (priced) goods, which is expected to justify and prioritize programmes, policies, and actions; to determine the benefits of environmental policy; and to deal with the effects of market failures by measuring their costs to society (van den Bergh 2001). To identify such market value for non-market goods, the use of indirect or hypothetical markets is proposed. Through indirect markets, the value of non-market goods can be derived via market-goods. If this is not possible, the use of hypothetical markets enables the identification of individuals' WTP/A for certain goods (see below).

The discipline of Ecological Economics applies a more interdisciplinary approach and studies economic and ecological systems from a more explicit systems perspective. It focuses on the interrelationship between human economies and natural ecosystems, and the constraints ecology poses on the economy[32]. Ecological Economics starts from the assumption of incommensurability, and assumes that the interaction between economics and the environment is influenced by important institutional, political, cultural, and social factors resulting in conflicting demands (Gelders 2005). A famous adherent is Costanza. Based on the ideas of Boulding, Georgescu-Roegen and Daly, ecological economics also argues that the market mechanism in itself will not result in sustainable solutions or decisions (van den Bergh 2001).

3.2.2 Valuation of environmental goods and services

As environmental goods and services generally are not reflected on a market, their values (and effects on these values) often are difficult to identify, and their monetization appears problematic (Dietz et al. 1994). Be that as it may, in practice most economists fall back on the neoclassical approach and adaptations from Environmental Economics for the analysis of environmental issues (Navrud 1992; Gowdy 2004; Vatn 2004; Gelders 2005). Environmental goods and services are taken as common goods, with environmental problems as imperfections of the market mechanism: as negative external effects that need internalization for market prices to adequately reflect scarcity. Values are based on the functions that environmental goods and services provide (c.f. de Groot 1987; Porter 1985). Economic (expert) valuation is increasingly used as input in decision-making processes on environmental issues (Ascher and Steelman 2006).

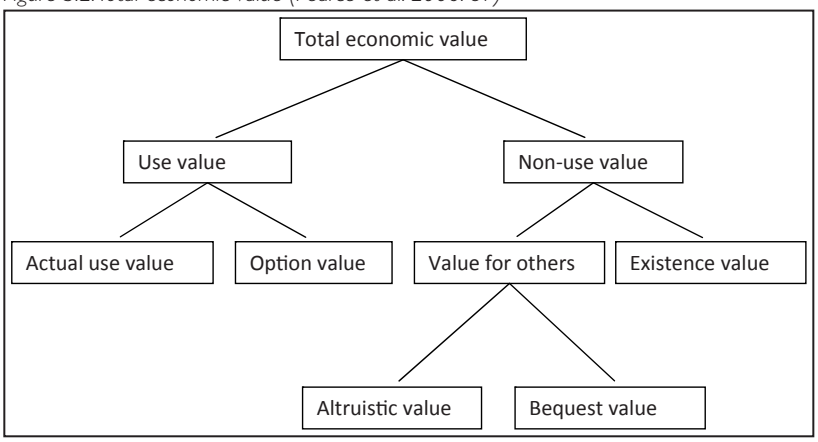
In order to establish a value for these goods, the Total Economic Value (TEV) is identified: a monetary measure for the costs or benefits of environmental change based on estimates of WTP/A. TEV is divided into several sub-values, however, it is recognized that this economic value is but one aspect of the total value of a good or issue. Despite considerable disagreement on the classification of the economic value, a common distinction is that between use- and non-use values (see figure 3.2). Monetary valuation methods are applied that have a theoretical basis in neoclassical theory: costs and benefits correspond with monetary equivalents of the utility-changes for people affected. Dutch examples of such an approach to the valuation of environmental goods and services are studies by de Groot (1992), Ruijkgrok (2000), and Schuijt (2003). Ruijgrok (2000) defines financial, societal, and intrinsic/existence value. Schuijt (2003)

32 Nordgaard (1985, 1989, 2001) among others further developed the idea of a systems approach. By introducing the concept of co-evolution he captured various types of relations between humans and nature.

distinguishes 'total ecosystem value' in primary value, secondary value (~TEV), ecological value, socio-cultural value and intrinsic value.

Many guidelines and manuals exist for the economic valuation of environmental and resource costs and benefits, with a wide variety in focus, quality, and level of detail (Schaafsma and Brouwer 2006). The predominant framework in these guidelines is CBA, based on neoclassical assumptions and criteria. No guideline is available for criteria other than economic efficiency.

Figure 3.2: Total economic value (Pearce et al. 2006: 87)

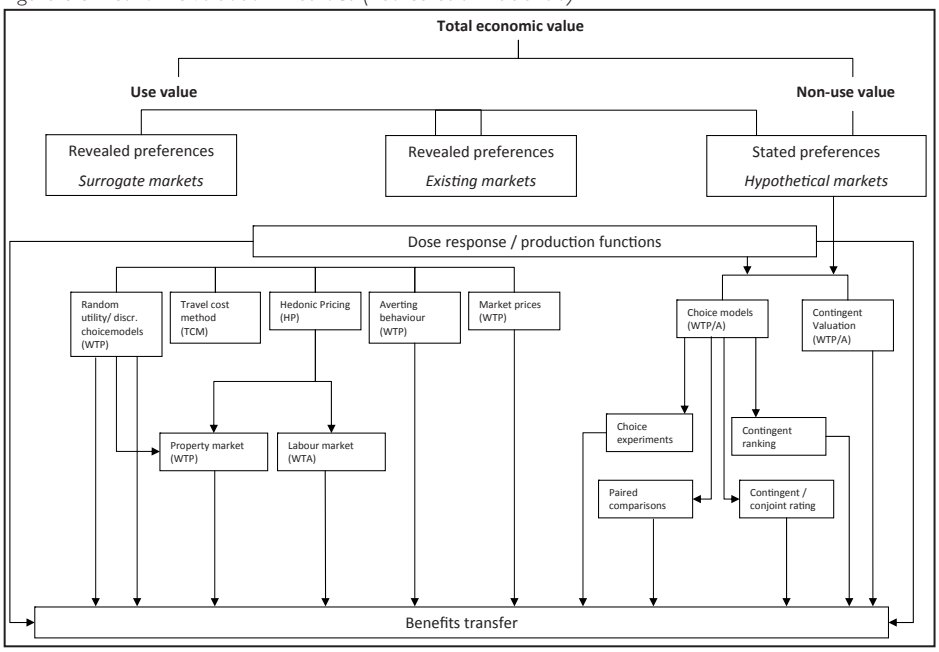


CBA is based on the idea that "*society's values, derived from individual preferences, are expressed for all economically possible choices*" (Ward 2006: 184). It defines benefits and costs respectively as increases and reductions in human wellbeing, based on individuals' WTP/A. CBA was introduced in the US in 1936, to estimate the economic costs and benefits of water management projects under the Flood Control Act. At that time, it was perceived as a neutral instrument, a 'value-free' decision making aid. In more recent times, the method of (Societal-) CBA has developed substantially both in theory and application, often as a result of the specific challenges of environmental valuation (Pearce, Atkinson and Mourato 2006). It is currently recognized as "*the major appraisal technique for public investments and public policy*" (ibidem: 16), and has been applied to a huge range of environmental and natural resource policy questions in various countries in recent years. CBA has been argued to be a democratic method as it records individuals' preferences (rather than expert views), and treats all benefits gained or lost equally (regardless of who receives or pays) (Turner et al. 1994; Ward 2006). For an overview of the steps of CBA concerning the environment, see Pearce et al. (2006), Navrud (1992), or Hanley and Spash (1993).

As no market exists for (most) environmental goods and services, based on insights from environmental economics various approaches have been developed to estimate (elements of) their economic value and involve these values in cost-benefit analyses. These methods are based on (hypothetical) markets and 'shadow pricing': measuring either people's willingness to pay or to accept compensation for losses (WTP/A). (See figure 3.3; overviews are provided by, for example, Turner et al. 1994; Pearce et al. 2006). The main distinction between the various valuation methods is their measurement

of either revealed or stated preferences. Revealed preference methods focus on the identification of the economic value of an associated non-market impact (based on Hedonic Pricing, Travel Cost Methodology, Averting Behaviour (and defensive expenditure approaches), or cost of illness and lost output calculations). Stated preference methods utilize questionnaires which either directly ask respondents for their WTP/A (Contingent Valuation; CV), or offer choices between bundles of attributes, from which WTP/A can be inferred (Choice Modelling[33]).

Figure 3.3: Economic valuation methods (Pearce et al. 2006: 88)



Stated preference methods are the only methods that enable the valuation of impacts on non-market goods. As a result, these methods gained increasing attention for the valuation of environmental goods and services during the last decades, and underwent substantial development (Pearce et al. 2006). Considerable efforts have been made to estimate the TEV of ecosystems (-change). The method of Contingent Valuation, developed in the 1970s (US), is the most recent fundamental addition to environmental (non-market) (e)valuation methodology. It has been increasingly applied in the Netherlands from 1972; since the 1980s the method is increasingly being used in Europe (Dietz et al. 1994).

SCBA – and the various monetary valuation methods – is increasingly perceived as an integral evaluation method for all kinds of (environmental) effects. Institutionalization of the method is on the rise, in process as well as in contents. This, however, is debatable as several aspects of the method are under dispute. Examples are discounting, the valuing of health and life, equity, sustainability, and benefits transfer (Kahn 2005; Pearce

33 Also known as Conjoint Analysis

2006; Ward 2006). The method mainly perceives balance-effects at the macro level, excluding issues of distribution (Boot 2007). Also, it only values economic effects, at a specific moment, and no consensus exists scientifically or politically on the economic valuation of external effects. Especially the incorporation of effects on the environment is a highly discussed issue. The only economic valuation methods to estimate the values of non-market environmental goods and services, stated preference methods, are highly criticized with regard to their validity and reliability. Proponents argue that these criticisms only concern survey design and implementation issues, rather than some intrinsic methodological flaw (e.g. Pearce et al. 2006). Still, underlying many of the criticisms on CV and CBA appear to be more fundamental objections to the very application of economic valuation to environmental issues itself (see below).

3.2.3 Debate: valuable or priceless

There is a growing unease with the way economists (and policy-makers informed by them) generally address environmental issues (Gregory and Wellman 2001; Bromley and Paavola 2002; Vatn 2004). Especially in the 1990s there was much debate on how to value and how to decide on environmental goods and services, and on the application of CBA in general. This debate focused not so much on the adequate value of these goods and services, but on "*the appropriate mode (not only the appropriate level) of valuation for diverse human goods*" (Sunstein 1993: 252). Several people have argued that the method for valuation and assessment influences which values can be expressed, how they can be expressed, and thus which choices will be made (e.g. Schuijt 2003; Courtois 2004; Vatn 2005; Bouma et al. 2008). The commonly applied market framework has been argued as inadequate for addressing environmental issues, as plural motivations exist for such issues. When these motivations are not properly taken into account, people feel insulted (Bromley and Paavola 2002; Sagoff 2004, 2008; Ackermann and Heinzerling 2004; O'Neill, Holland and Light 2008). Also various economists have recognized that the application of CBA to environmental management is "*fraught with problems*" (Hanley and Spash 1993: 20). Vatn (2005) lists three reasons why monetary valuation is not appropriate for environmental issues:

- Information problem: The identification of values that are involved and their transformation into a single scale is problematic as many functions of environmental goods and services are invisible or perceived differently;
- Incommensurability problem: In many cases issues are involved that cannot be measured in money. They cannot be transformed to a single measure that captures all the relevant information;
- Composition problem: Environmental goods and services may not be separated in distinct valuable objects, as they are part of a larger and interrelated system (e.g. ecosystem). Hence such elements may not be valued.

Still, even when monetary valuation and CBA is insufficient, it still is "*the best game in town*", Pearce argues (1998: 97). It would provide the most comprehensive method for the valuation of environmental goods and services (Sunstein 2005). For an overview of the discussion and of various authors for and against CBA and the application of neoclassical welfare economics, see Posner (2000). Opschoor (1974) already discussed difficulties with CBA for environmental valuation based on both theoretical arguments

and empirical findings in Dutch cases. Negative arguments are also provided by, for example, Frank (2000) and Gowdy (2004).

Most controversial in the neoclassical approach to environmental goods and services is the issue of (in)commensurability (Pearce 1998). A single metric (such as a price) is argued not to be a good way to represent environmental values (e.g. Foster 1997). The pricing of environmental goods is argued to be "*neither necessary nor sufficient for coherent and consistent choices about the environment*" (Vatn and Bromley 1994: 131). It would cause loss of information, because not all aspects of environmental goods and services can be reflected in a monetary measure, resulting in either too low or too high prices for such goods. Especially CV and its base in WTP/A has been criticized by many (e.g. Dietz et al. 1994, Jacobs 1997; Ackermann and Heinzerling 2004; O'Neill et al. 2008; Spash 2000, 2008). Many authors argue that WTP/A measures are influenced by too many biases – resulting in high variability in outcomes – to be a realistic estimate. Important biases are imputed to the endowment effect: the effect of the initial allocation of a good/service on preferences. People appear to prefer something they already have to something they do not (yet) have, and as a result losses are valued higher than equivalent gains. Another important critique is that CV would impose unrealistic cognitive demands upon its respondents (Gregory, Lichtenstein and Slovic 1993). Individuals are not accustomed to interpret environmental goods in monetary terms. In a market, one decides to pay the offered market price (or not); one does not have to decide on a market price him- or herself.

Whereas theoretically WTP and WTA estimates should not diverge much[34], in practice WTP often and substantially diverges from WTA. Some experiments have shown extreme WTP:WTA ratios of 1:60 to even 1:90 (Sunstein 1993). The economic literature is undecided why this occurs (Pearce et al. 2006). The consistent number of extreme bids that CV studies receive probably are of influence here, like zero or infinite bids which add up to 50% or more in some studies (Ackermann and Heinzerling 2004). Respondents appear to refuse to make trade-offs between environmental issues and money (Stevens et al. 1991; Jacobs 1997), and reply in terms as "*I struggled with this money business*" (Clark, Burgess and Harrison 2000). Many appear to feel insulted when asked how much they are willing to accept for a specified level of environmental deterioration, *"[…] as if they had been asked to sell a child, or a friendship, or a part of their body*" (Sunstein 1993: 248). Such responses are generally categorized as 'protest answers' and are excluded from the analysis, thereby disenfranchising those respondents (Gowdy 2004). According to Sunstein (1993) these protest answers partly come from the insistence that different social goods cannot be assessed along the same metric (stressing the incommensurability issue again). Therefore, he argues, these goods should be valued in qualitatively different ways to prevent the loss of important qualitative distinctions. Apparently, monetization of non-market goods and services goes against the grain with regard to the values of actors, and the actual value is "*lost in translation*", as Ackermann and Heinzerling (2004) state. As a result, actors are discontent with the eventual assessment.

The problems with results from CV-studies have led various authors to argue that preferences are not fixed. The fact that WTA measures consistently exceed WTP, for

34 Economists traditionally are indifferent to measuring either WTP or WTA. Literature generally has focused on WTP.

example, illustrates that preferences are not formed in isolation but are endogenous to the setting in which they are formed (see 3.4). People's positions do not come fully formed, but are articulated and change through debate and argument during the process (Jacobs 1997). Hence, preferences are constructive rather than revealed (Gregory et al. 1993), and are influenced by the respective institutional context (Vatn 2004, 2005). Contrary to neoclassical assumptions, in practice individuals express plural preferences, or values. These values often are incommensurable and individuals refuse to engage in trade offs, as even thinking about trading them would imply their loss (e.g. friendship, or dignity; O'Neill et al. 2008: 80-81). Sagoff (1998, 2004) distinguishes between the social role of the citizen – concerned with the public interest –, and the social role of the consumer – concerned with individual wants and interests. Citizens and consumers are subject to different situations, norms and rules, hence their preferences differ. According to Sagoff it is the concern (and preferences) of the citizen that should be reflected in decision-making on public goods like the environment, and not primarily the private interests that consumers seek to satisfy in markets. Environmental problems, he states, are not externalities and economic theory cannot be used to measure the value of environmental goods. As a result, a single price to reflect these values cannot be established and "*Institutions other than markets or market imitations are warranted when allocating [such] resources*" (Vatn 2005: 160).

3.2.4 Alternative approaches to environmental valuation

Several alternatives to value environmental goods and services have been developed; particularly collaborative, or deliberative approaches are gaining attention (e.g. Sagoff 2004; Sabatier et al. 2005; Scholz and Stiftel 2005; Getzner et al. 2005; Arzt 2005; Miller and Patassini 2005; O'Neill et al. 2008). For example, O'Neill et al. (2008) propose that deliberative institutions should allow citizens to form preferences through reasoned dialogue (see also Foster 1997); Getzner et al. (2005) discuss various deliberative methods for environmental valuation.

A growing trend is to combine environmental (monetary) valuation with forms of deliberative processes (Sagoff 1998; Brouwer, Powe, Turner et al. 1999; Soderholm 2001; Schuijt 2003; Gowdy 2004). Section 2.1 discussed such deliberative or interactive processes of policy and decision-making. Examples of combinations of these processes are deliberative democracy (Jacobs 1997), reasonable valuation (Hiedanpaa and Bromley 2002), combining CBA and MCA (Messner, Zwirner and Karkuschke 2006), combining social (impact) analysis and economic valuation (Ziller and Phibbs 2003; Buchan 2003; Harris, Nielsen and McLaughlin 2003; Syme, Porter, Goeft et al. 2008), deliberative valuation (Howarth and Wilson 2006), and the more well-known deliberative monetary valuation (DMV).

DMV aims to combine large scale monetary survey techniques and small-scale group deliberation (Niemeyer and Spash 2001; Brown, Peterson and Tonn 1995; Sagoff 1998; Brouwer et al. 1999; Ward 1999; Keynon, Hanley and Nevin 2001; Spash 2001, 2007). This approach is expected to improve the knowledge base of decision-making, to improve (the likelihood of) stakeholder compliance and support, and to strengthen the democratic legitimacy of choices (Spash 2008). DMV takes preferences as being constructed during the valuation process (Niemeyer and Spash 2001). It aims at the

involvement of representatives of social groups, and at finding group consensus on an aggregate social value (Spash 2007, 2008).

An important aspect of such combinations of deliberation and monetization is CBA's connection to – and compatibility with – participatory processes. The economic literature generally argues that the participation of parties involved will produce better policies and project design, hence the focus on stated/revealed public preferences. Still, CBA is often criticized on its assumed lack of participatory features. According to Pearce et al. (2006: 285) this is caused by differing interpretations of participation: CBA is based on an interpretation of 'participation as consultation' – taking account of the preferences of affected parties –, whereas many critics to CBA apply an interpretation of 'participation as influence' – with affected parties influencing the direction and form of the project or policy.

Also, according to Spash (2008: 469) the results of DMV studies may not be those desired by CBA economists (or others, following monism) as these results will show "*different realms of value, reflecting pluralism in public concern over environmental change*". The results of deliberative and monetary methods thus appear difficult to combine; they are based on theoretically different approaches (O'Connor 1998, 2000; Vatn 2005; Spash 2008). Whereas the monetary approach aims for control and a clearly defined (single) value, the deliberative approach allows for pluralism and social negotiation in the process (see also 2.1). It results in valuations that appear inconsistent with neoclassical economic theory. Spash (2008) further argues that this causes most DMV studies to apply only minimal deliberative engagement, and that DMV lacks theoretical underpinning. He even sees evidence for forcing reality into a preconceived model, aiming to "*get people to confirm to a market model of valuation and exchange*" (ibid: 483). Value formation and expression (on the environment) apparently is more complex than generally assumed by economic models (Spash 2000). These insights correspond with the objections of CV-respondents and comments on WTP/A, and also with the problems experienced in combining deliberation and expert information in water management (see 2.5).

Despite increasing attention to the combination of deliberative processes and economic valuation, there seems to be hardly any attention for a deliberative, or collaborative, approach to valuation itself. Still, the above discussion does show the emergence of a wider perspective on value. It has been argued that a different perspective would be needed to understand the actual process of valuation, as the neoclassical approach neglects the influence of social and ecological contexts on choices. Actors and their contexts should be incorporated in the analysis, focusing on the process of valuation (e.g. Schuijt 2003). Section 3.4 discusses such broader perspective in more detail, based on institutional analysis. First, the valuation of water is discussed (3.3).

3.3 Valuation of water

Like other environmental resources, the value of water has been subject to fierce debates (Hoekstra 1998). Water has so many different benefits that its valuation is "*extremely elusive*" (Batten 2007: 345). Many argue that market-based instruments are insufficient to measure the value of water, and Adam Smith himself already recognized the complicated nature of water as an economic good:

> *"Nothing is more useful than water; but it will purchase scarce anything; scarce anything can be had in exchange for it. A diamond, on the contrary, has scarce any value-in-use; but a very great quantity of other goods may frequently be had in exchange for it."*
> *(Smith 1776: 33, cited in Batten 2007: 347)*

Nevertheless, as with environmental goods in general, the neoclassical approach is commonly applied to the valuation of water.

3.3.1 Institutional developments

The past 50 years of water policy and management have shown a shift in focus from public institutions, via collective towards market institutions (Meinzen-Dick 2007; Whitford and Clark 2007). Water governance in Europe traditionally has been dominated by the idea that nature is manageable and that technological innovations can solve problems (Steyaert and Jiggings 2007). From the 1960s onwards, however, environmental problems became a daily issue for many societies. Societal and scientific attention to environmental issues arose, resulting, amongst others, in the field of environmental economics (see 3.2; Dietz et al. 1994). At that time, a central role of the state in providing political and social structure was regarded as necessary to solve problems of water management. An example of this trend is the now famous publication of Hardin (1968) on the 'tragedy of the commons', in which he argued that government ownership was needed to protect common pool resources (see Ostrom 2007; Ostrom, Janssen and Anderies 2007; Whitford and Clark 2007). In those days, public involvement in decision-making was restricted to public hearings in which agency proposals could be refined. Decision-making generally focused on specific types of pollution sources, or specific areas within a water system (rather than the total watershed; Sabatier et al. 2005).

During the 1970s and 1980s, it turned out these state systems did not perform as expected. Technology alone appeared to be insufficient to solve the problems and conflicts in water resource issues. As a result, in the 1990s attention turned to collective institutions, like farmer involvement in local water management issues. Still, when this approach proved not suitable for larger scale applications and continued inefficiencies of water use took place, attention soon shifted to a larger role for market institutions to improve the performance of the water sector. Water markets and tradable water rights were studied (Meinzen-Dick 2007: 15202) and monetization of environmental effects of water management interventions took place (e.g. Bouma and Correlje 2003). Currently, the economic valuation of water is being institutionalized at an increasing level. Water, uncontaminated fresh water, is recognized to be a scarce good and therefore it is treated as an economic good.

3.3.2 Water as an economic good

Water was first framed as an economic good at the 1992 United Nations Conference on Environment and Development (UNCED, Rio de Janeiro)[35]. The fourth of the Dublin Principles formulated at this conference reads:

> *"Water has an economic value in all its competing uses and should be recognized as an economic good." (Dublin Statements 1992, Guiding Principles)*

35 However, the recognition of water as an economic good has been argued to be much older (Rogers 2002).

Ever since the UNCED conference, the interpretation of 'water as an economic good' has been under dispute and confusion abounds. Disclaimers were added that water also is a social good and that water should be affordable to the poor (van der Zaag and Savenije 2006). Debate revolves around the question whether 'water as an economic good' involves the pricing and financial transactions of water (Green 2000; Seyam, Hoekstra and Savenije 2003). Economists generally argue that a water market is a suitable instrument to achieve efficient allocation of water. Non-economists, however, often object to the pricing of water, either because such would not be possible or because water is taken as a free good or even a gift from God[36] (see also 3.2). Many have argued that the market mechanism is not appropriate for the allocation of water as many market failures occur and various activities affect the availability and quality of water (Kahn 2005). According to Savenije (2002), water is a special economic good, different from ordinary economic goods[37]. Therefore, *"[…] the application of regular economic theories to water resources management is not very efficient*." (ibid: 741) A complex set of economic interests must be taken into account, which are "*multi-sectoral, multi-objective, and often non-monetary.*" (ibid: 744) The market alone, therefore, should not determine the price of water, he later argued together with van der Zaag (van der Zaag and Savenije 2006; see also Batten 2007). Also Ostrom (2005, 2008; Ostrom et al. 2007; see also French and Geldermann 2005) argues there is no one panacea to protect the environment and common pool resources. A combination of public, collective and market institutions is needed to fit local biophysical, social, and economic conditions: "*There is no single solution for all water problems*" (Meinzen-Dick 2007: 15202).

Despite the controversy, the notion of water as an economic good has been widely accepted, as demonstrated at for example the 2000 World Water Forum (Bathia 2000) and in policy documents like the European Water Framework Directive (WFD; see 2.4). It is argued water pricing is needed for recovery of the costs of providing water services, and for giving a clear signal to users that water indeed is a scarce good that should be used wisely (van der Zaag and Savenije 2006). The economic approach to water applies a neoclassical perspective, and concepts like virtual water and the water footprint have been developed for its adequate valuation (see below). Rational and efficient assessment and decision-making is the aim, and economic instruments are applied like prices, taxes, and the allocation of property rights (e.g. Whitford and Clark 2007; Batten 2007). Decision-making is to be supported by (S)CBA for the evaluation of different elements of integrated water management (like quality, quantity, safety, and sustainability).

3.3.3 Virtual water

Water is recognized to have a cyclic nature (Seyam, Hoekstra and Savenije 2003) and to be involved in many stages of the production of goods and services (apart from direct

36 Otchet (1999) describes that in the Middle East strong objections exist to charging for water: based on the Koran water is considered a gift from God that is to be shared with anybody who needs it, also if one is not able to compensate. Therefore, it is argued, the government should not charge for the use of water.

37 Savenije (2002) argues water is different from other economic goods due to its special and complicated combination of characteristics; water is vital, essential, non-substitutable, finite, and fugitive, water is a system, it is bulky, it is a public good that is location bound, with high mobilisation costs, and with a non-homogenous market, prone to market failures.

consumption). To study and involve these 'indirect' uses of water in analysis, Allan (2003 [1993]) introduced the concept of virtual water. This is the water virtually embodied in a product; it is the amount of water needed for the production of this product. For example, the estimated world average volume of water required to produce 1t of wheat is 1334 m^3 (Chapagain and Hoekstra 2004: 41). Although initially met with hesitation (Allan 2003), currently the term virtual water is widely used to describe how water-short countries achieve food security by importing crops and livestock-products from water-abundant countries[38]. The concept of virtual water, also called 'embedded water', or 'exogenous water' (Hoekstra 2003), enhances understanding of water scarcity, food security and international trade (Allan and Wichelns 2008).

Some authors have noted similarities between the concept of virtual water and the economic theory of comparative advantage[39] (e.g. Allan 1998, 2003). Wichelns (2001, 2004, 2005), however, argues that these notions are not analogous as the virtual water metaphor addresses resource endowments only, which is not sufficient for determining optimal strategies. Analysis of the comparative advantage of production processes (to achieve optimal production and trading strategies) should also involve production technologies and opportunity costs. Nevertheless, he argues, the metaphor of virtual water can be helpful in raising awareness on the (virtual) use of water and in motivating public officials, researchers, reporters and other citizens to consider alternative allocations of scarce resources[40] (Wichelns 2005).

Hoekstra and Hung (2002)[41] introduced the concept of a 'water footprint' to express the virtual water-use related to production and consumption. This concept expresses the link between consumption patterns and impacts on water (Hoekstra 2003), in contrast to traditional production-sector-based indicators of water use. The water footprint of a country is the total annual fresh-water volume needed (both inside and outside the specific country) to produce the goods and services that are consumed by inhabitants of that country (Hoekstra and Chapagain 2006; 2007a; van Oel, Mekonnen and Hoekstra 2008). The water footprint of a country is mainly determined by the country's volume of consumption, the country's consumption pattern, the climate, and agricultural practice. This causes large differences between countries in their water footprint (Chapagain and Hoekstra 2004; Hoekstra and Chapagain 2007)[42]. The concept of a water footprint gained wide attention, as is demonstrated by the many recent events and sessions on the issue[43].

38 Allan was awarded the 2008 Stockholm Water Prize (of the Stockholm International Water Institute, SIWI) for his work on water related issues, amongst others on virtual water.

39 The economic theory of comparative advantage argues that nations should export products in which they possess a relative or comparative advantage in production, and that they should import products in which they possess a comparative disadvantage in production.

40 Wichelns (2005) however stipulates that such is useful particularly when considering issues concerning production and supply rather than demand.

41 Hoekstra and Hung (2002) also carried out the first assessment of national water footprints. The concept of a water foot print was elaborated on by Chapagain and Hoekstra (2004).

42 Recent studies on national water footprints have shown that international water dependency is substantial. The global water footprint is 7450 Gm^3/yr, or 1240 m^3/cap/yr (Hoekstra and Chapagain 2007), 16% of which is used for the production of export-products. The Netherlands has a water footprint of 2300 m^3/yr/cap, of which 89% is external. Hence the Netherlands is highly dependent on other countries' water resources for its consumption pattern (van Oel, Mekonnen and Hoekstra 2008; Hoekstra and Chapagain 2006, 2007b).

43 Examples are the International Meeting on Virtual Water Trade (2002, The Netherlands), the special session

3.3.4 Integral approach

The WFD has established an important institutional change in European water policy, towards an integral approach and the involvement of economic and societal actors, as section 2.4 described. This approach is increasingly applied in water management and decision-making, and is expected to enhance the decision-making process, to provide more relevant information and to overcome distrust (Apostolakis and Pickett 1998; Ison, Roling and Watson 2007). In this approach, next to experts, also stakeholders provide knowledge and information relevant to the decision-making issue conform current insights in negotiated knowledge production (see 2.1).

However, the deliberative approach has been noted to conflict with the traditional analytical approach taken in the valuation of water (Apostolakis and Picket 1998; Mostert 2003; Rinaudo and Garin 2005; Kallis et al. 2006; see also 2.5), in which stakeholders' interests are assumed to be reflected in decision-making processes through the economic pricing of water. No guidelines are available for the environmental and resource costs and benefits concerning different forms of water use (Schaafsma and Brouwer 2006). Also, SCBA has been argued to have too many limitations for a true integral approach of water management (Boot 2007). Section 2.4 described that water policy in Europe seems to stress scientific, technical and economic analysis as the basis for decision-making, which burdens non-expert or stakeholder involvement. Water managers traditionally have an engineering background, and water policy is mainly built on technical rationality and expert-based planning and decision-making (Rinaudo and Garin 2005; Ison, Roling and Watson 2007; Wesselink 2007b). This fits in well with the rational economic approach of water. Also the WFD has been argued to be over-reliant on technical expertise, scientific information and expertise tools (Ollivier 2004; Kallis et al. 2006). Despite its prescription of stakeholder involvement, the WFD does not define 'public' or 'users', and does not provide any participatory methodology (Ollivier 2004).

As a consequence, in these traditional processes of water management the participation of stakeholders is assumed superfluous. Stakeholders would not have the necessary technical knowledge and expertise. The increasing demands for public participation in water management challenge the conventional role of experts in these processes (Steyaert and Jiggins 2007). As a result, clashes between different sources of knowledge that are involved in the process may take place (Mc Clean and Shaw 2005). As concluded in 2.6, the integration or balancing of these different sources and the connection between traditional and new institutions for valuation, need further study (see Backstrand 2003; Arzt 2005; Petts and Brooks 2006; Fischer 2009).

3.3.5 Valuation of water in the Netherlands

The Netherlands has a long-standing tradition of rational (economic) governmental decision-making on large infrastructural works, including the monetary valuation of environmental effects (Hoevenagel, Kuik and Oosterhuis 1992). In the 1970s and 1980s CBA was strongly developed in the Netherlands, as part of a focus on financial revenues of governmental decisions and a rational perspective of decision-making. After this, for a long

on Virtual Water Trade and Geopolitics at the 3rd World Water Forum (2003; Japan), a session on water footprint and virtual water at the 5th World Water Forum (2009, Turkey), and sessions on water footprint at the World Water Week (2009, Sweden). See also www.waterfootprint.org.

period CBA played no role in Dutch management and decision-making processes. In line with international developments described earlier, in the 1990s attention shifted to market institutions and privatization of public agencies: examples are the privatization of electricity companies and of railway services[44]. The monetary valuation of environmental goods and services once again gained wide ground, and currently Dutch water policy and management applies a focus on market institutions and economic (valuation) methodology.

A major impetus for the use of economic valuation in the Netherlands was the OEI-guideline (Eijgenraam, Koopmans, Tang et al. 2000), which prescribes the application of SCBA as evaluation tool for government investments in large infrastructural projects, following a standardized procedure. The application of SCBA is also recommended for evaluation and decision-making on regional development. The OEI-guideline positions itself within a rational approach of decision-making, aiming at systematic and rational analysis. Specific guidelines were added for the involvement of environmental issues (Ruijgrok, Brouwer and Verbruggen 2004; Ruijgrok 2007), and for nature and environmental projects an adapted guideline was developed[45]. Although still met with scepticism[46], the application of SCBA and economic valuation to incorporate environmental issues in decision-making has increased enormously since publication of the OEI-guideline (Schuijt 2003; RMNO 2008; Hakvoort and Klaassen 2008). This especially concerns decisions on health care and infrastructure, but also for environmental policy plans and water management SCBA is increasingly being applied (RMNO 2008; de Bruyn, Blom, Schroten et al. 2007). The method is applied particularly at a regional level, and the last few years have seen the development of several tools for regional water managers for the application of economic instruments in integral planning procedures[47]. Recently it was observed that SCBA will become more important for (Dutch) environmental decision-making, and that its combination with deliberation may have great potential for this field of policy (RMNO 2008). Examples are studies by Woud, Reinhard and Gaaff (2004) and Reinhard, Polman, Michels et al. (2007). However, even though the OEI prescribes economic valuation and its methods for the integration of environmental effects in SCBA, it does not provide a procedure or guideline on the economic valuation of environmental issues, nor on the involvement of the value(s) of water in analysis and decision-making (Schuijt 2003).

Sections 2.4 and 2.5 described that Dutch spatial water management aims at the integral approach of (spatial) functions and the application of collaborative, interactive methods to involve relevant parties in the process. Both developments, as discussed, face problems with their implementation. Real participation of relevant parties appears to be limited and a true integral assessment is difficult to accomplish. Such has been argued as caused by a still dominant sector approach in both water management and spatial development: legislation and the traditional way of doing things remain in place and hinder the 'new' approach. The current practice of rational and standardized governmental decision-making illustrates this still dominant approach, and the possible conflict between

44 In line with the broader developments however, also in the Netherlands this privatization did not result in the expected higher efficiency and a bigger role for the state gradually is gaining ground again.

45 SNIP: Spelregels Natte Infrastructuur Projecten (Rules of the game for ' wet' infrastructure projects)

46 Several studies have questioned the recommendations of the OEI guideline, for example de Jong and Geerlings (2003), and Van der Veeren and van Cleef (2008).

47 see www.mkbainderegio; www.waterwaarderen.nl; www.nederlandbovenwater.nl/methodieken; www.aquaro.nl; www.watergame.nl; www.levenmetbagger.nl

the 'old' and the 'new' approach identified earlier. Following the neoclassical approach, monetary or monetized values of environmental goods and services are incorporated in an SCBA to support rational decision-making. This neoclassical perspective on value does not allow for the direct involvement or participation of stakeholders, as is the aim in many integral and participative processes. Even though SCBA aims at integral assessment, it considers participation as 'instrumental' rather than as 'influence' (see 3.2).

Environmental studies have shown that stakeholders attribute various values that they do not recognize in currently applied monetary assessment and analysis of environmental valuation. These stakeholder values have been recognized as not fixed and as endogenous to the setting in which they are formed: plural preferences are expressed that are incommensurable and that change during debate (see 3.2). As a result, the monetization of stakeholder values may be not appropriate, nor adequate, for application together with stakeholder participation. It may be not adequate, as it is not suitable to involve plural, incommensurable and endogenous values. It may be inappropriate, as it does not facilitate the (valuation-) processes that stakeholders need to go through and, moreover, as stakeholders themselves do not accept monetization as appropriate for decision-making on their values. Still, practice shows that SCBA and its monetary valuation is increasingly applied, also in the context of interactive governance processes. The practice of interactive processes remains embedded in traditional top-down and non-participative approaches towards (e)valuation, that focus on single measurement (see 2.3). This may explain the problems that are encountered with stakeholder participation and integral assessment in interactive processes of spatial water management as identified in 2.5.

3.4 Institutional analysis

Many have argued that the model of *Homo economicus* is based on unrealistic assumptions that over-idealise and simplify human behaviour. Empirical studies have shown various actual patterns of choice behaviour and decision-making that cannot be explained by the rational choice model based on expected utility (see 2.1). Moreover, the expected utility model cannot identify processes or mechanisms that underlie actual choice behaviour. Based on these insights, it is increasingly recognized that the social and institutional context influences choice behaviour and the values that people attribute to goods/services (e.g. Sunstein 1993; Getzner, Spash and Stagl 2005). Based on these insights, several strands in economics have developed that take more realistic assumptions of choice behaviour, and that incorporate in the analysis the broader influences on individual choice behaviour and decision-making, like psychological and institutional aspects. Examples are the descriptive prospect theory of Kahneman and Tversky (1979) and regret theory, which provides an explanation for the occurrence of seemingly opposite behaviour like gambling (risk seeking) and insurance (risk avoiding).

An institutional perspective on decision-making rejects the assumption of instrumental rationality and stresses the importance of the social and cultural context of behaviour for explaining social mechanisms. Institutions, their character and role, are studied in various disciplines. No common definition has been accepted, as different disciplines take a different approach. Economists, for example, tend to look at institutions as formalized rules – property rights specifically – and study formalized entities like the

state, the market and the firm as main institutional structures. Other disciplines take a wider perspective and may take institutions to be any rule or convention that guide social or individual behaviour. A common distinction of institutions is that between (1) systems of social rules that structure behaviour and social interaction, either informal (through cultural values and norms), or formal (through laws and rules of public organization); and (2) modes of governance, through institutional arrangements, private firms, or contracts. An institutional perspective assumes that analysis of the institutional context of choices can explain or at least provide information on how stakeholders make choices, and why. It thus aims at describing and explaining actor choices and behaviour as regulated by institutional rules, norms, and values (Knight 1925; Eggertson 1990; North 1990; van de Riet 2003). Current insights from psychology underline the relevance of institutions for choice behaviour (see below).

3.4.1 Insights from psychology

The relevance of psychology is increasingly recognized in economics[48], based on the idea that descriptive models of (economic) choice behaviour require the inclusion of cognitive or psychological aspects. Contrary to the assumptions underlying the SEU-model, it is argued that economic models not only need to predict but also explain, and for this purpose influences on choice behaviour like actors and their context are incorporated in economic models. Sen (1977; 1993), for example, strongly criticised the model of *Homo economicus*. The rational perspective would underrate the motivation of human behaviour with its focus on only one aspect of the human 'aspect-personality'. Sen argues that human behaviour is characterized by positionality: someone's perception or focus of information is positionally dependent. In order to do justice to all positional aspects of human behaviour, he adds a moral motive to the description of choice behaviour, which should also be considered in decision-making theory and its underlying assumptions (Sen 1977; 1993). Many social scientists have further developed these ideas. Steedman and Krause (1986), for example, argue that decision-makers must choose between different considerations, describing the individual as a 'Faustian decision taker' (ibid)[49].

A recently rising branch of economics, *behavioural economics*[50], aims to understand economic decisions through the study of human, social, cognitive, and emotional factors, and how they affect market prices, returns, and the allocation of resources (e.g. Ostrom 1998, 2000). Contrary to rational points of view, it is argued that economically relevant choice-irregularities and factual choice behaviour can only be explained by increasing the 'reality' of the assumptions underlying models of decision-making. Behavioural models typically involve psychological variables like mental and social aspects (Elster 1996; Cam-

48 The 2002 Nobel Prize in economics was awarded a psychologist, Daniel Kahneman, which clearly signalled the changing focus in economics from rational to emotional aspects.

49 Drenth (2000) takes this even one step further and argues that motives and stakes are not unambiguous by definition. Rational and moral motives or considerations are incompatible, she argues (see also Heertje 2006). Whereas the theories of Sen and Steedman and Krause a priori exclude the possibility of inner dispute, Drenth states that two different 'characters' (quoting Steedman and Krause) or two different 'personalities' (quoting Sen) exist within one individual, who chooses between these different motives/stakes. Hence, Drenth argues, (individual) behaviour is too complicated, too nuanced, and too plural for an abstract economic-scientific model to express.

50 Or psychological economics

erer and Loewenstein 2004), and find support in recent developments in evolutionary psychology and neurology suggesting a bigger (causal) role for emotions and cognitive processes in decision-making behaviour (Camerer and Loewenstein 2004; Muramatsu 2006). Emotions[51] are an important source of human behaviour (and of satisfaction), it is argued, and often cause behaviour that is different than can be expected from a rational weighing of costs and benefits[52] (Loewenstein 2000). These emotions systematically influence behaviour and are receptive to model building, which enables their involvement in models of choice behaviour (Loewenstein 2000; Frijda 2006). Consequently, in psychology it is argued that these emotions should be involved in models of economic decision-making and less emphasis should be put on higher order cognitive processes. Muramatsu's (2005) model for decision-making behaviour, for example, shows that several emotional processes and states of mind play an important (causal) role on different levels of data processing[53]. She argues that emotions are a substantial part of the 'causal chain of events leading to choice behaviour' (ibid). Muramatsu's model also seems to provide an explanation for factual patterns of choice behaviour like intertemporal choice, decision-making in hazardous situations, and social choice behaviour. Camerer and Loewenstein (2004) argue that preferences are not predefined; instead they are ill-defined, highly malleable and dependent on the context in which they are expressed.

These insights in the psychological influences on economic choice behaviour are underlined by recent study of *endogenous preferences* in economics (e.g. Sunstein 1993). Based on experiences in sociology, psychology, and economics, preferences are recognized to be at least partly determined by social institutions (Bowles 1998; Gowdy 2004). "*The endogeneity of preferences implies that the economic, social, legal, and cultural structure of society affects tastes regarding the consumption of goods, leisure, investment, and all other activities. Preferences help determine outcomes and are, in turn, influenced by the economic and non-economic environment*" (Palacios-Huerta 2004: 602-3). Hence, "*There is no unitary 'preference' that can be described as accurately reflected individual choice*." (Sunstein 1993: 247).

This perspective on preferences is rather different from the neoclassical perspective, which takes preferences as constant, stable, and exogenous; as independent of external influences or the institutional setting (see 3.1). If preferences are endogenous to the setting in which they are expressed then this setting must be involved in the analysis, requiring a broader perspective on economic choice behaviour. The study of endogenous preferences introduces a dynamic element in the traditionally static model of economic decision-making, which cause learning-processes to become important: "*the process of discussion and preference formation must precede preference revelation and*

51 In this perspective emotions are interpreted as immediate emotions, also called passions or visceral factors that are actually experienced at the moment of decision-making. Such emotions differ from 'expected emotions' like regret and disappointment, which are not experienced at the moment of decision-making (but are expected for the future) and have been involved in economic decision-making before (e.g. regret-theory). Immediate emotions were traditionally kept out of economic models because they were assumed to only hinder the rational choice machine (Loewenstein 2000; Loewenstein et al. 2001) with their assumed only temporary influence and their too unpredictable character to model.

52 Elster (1996; 1386) even states that economic science has neglected its "*most important aspect*".

53 Muramatsu (2005) identified three levels of data processing in the mind: detection of the problem situation, searching for alternatives, and making a choice.

aggregation" (Gerber and Jackson 1993: 654). A more dynamic perspective on economic phenomena has been proposed by the branch of evolutionary economics (e.g. Hodgson 1993; Groenewegen and van der Steen 2007). This approach focuses on dynamic processes and takes institutional and technical change not as external circumstances but as endogenous to the system.

3.4.2 Institutional economics

Institutional approaches in economics start from the assumption that an understanding of the institutional structure is needed in order to understand the behaviour of firms, markets, agents and economies in different settings (Groenewegen, Kerstholt and Nagelkerke 1995). It is based on the premise that economics cannot be separated from the political and social system in which it is embedded. Consistent with insights in behavioural economics, evolutionary psychology and neurology, it aims to integrate cognitive and normative aspects in models of decision-making. Institutional economics recognizes that the assumption of instrumental rationality does not hold in practice, as ideas and ideologies play an important role in making choices (Denzau and North 1994). It is argued that man is led by mental models (ideas and ideologies) in his decision-making, which are social and legal rules that are in part culturally defined (North 1992, 1994). These cognitive and normative aspects are expected to provide a possible explanation for motives underlying choice behaviour and for the endogeneity of preferences, which remain unexplained in neoclassical economics. This suggests a bigger causal role for emotions and cognitive processes in models of decision-making (Elster 1996; Februari 2000; Camerer and Loewenstein 2004; Muramatsu 2005, 2006).

Development of the institutional tradition in economics started at the end of the 19th century (Hodgson 1997) with the study of phenomena that could not be explained by the neoclassical model. The neoclassical model is 'institution-free'; institutions are assumed as exogenous variables, not relevant for decision-making behaviour, or for the economy to run (Knudsen 1993; Vatn 2005). It assumes rational choice, maximizing individual utility, stable preferences, decision situations of complete information, no transaction costs, and homogenous products (see 3.1). As discussed, most of these assumptions have been highly criticized: preferences are recognized as not stable and fixed, but as endogenous to external influences; in reality both transaction costs and information costs usually are present; and (economic) decision-making is influenced by all kinds of conventions, codes of behaviour, and organizations: all kinds of institutions. Institutional structures, therefore, do matter for economic analysis. As argued by many, an institutional perspective enables the involvement of influences in analysis that neoclassical economics take as exogenous, like actors and their social and ecological contexts. As such, it enables to study why actors make different choices in different contexts.

Various streams of institutional economic thought can be distinguished; two major schools are Original Institutional Economics (OIE) and New Institutional Economics (NIE). Pluralism in perspectives is increasingly recognized: many different theories are coexisting and, it is argued, should be combined (Groenewegen et al. 1995; Salanti and Screpanti 1997; Williamson 2000; Groenewegen 2004, 2007).

3.4.3 Original and new institutional economics

OIE and NIE differ in their view on the individual (Groenewegen et al. 1995; Groewegen 2004). While OIE abandons the rational actor in favour of human behaviour as a product of culture, NIE is based on an extension of the neoclassical rational actor. OIE focuses on the study of informal institutions and changing institutions; NIE focuses on transactional issues and the explanation (and costs and benefits) of different arrangements.

OIE criticizes the core assumptions of neoclassical economy; rational choice, stable preferences, equilibrium structures and perfect information. Important founders are T. Veblen and J.R. Commons. OIE argues that individual preferences and beliefs are not fixed; institutions create, transform and reinforce individual habits of action and thought, and preferences of individuals are endogenous. The economy is viewed as an open system that receives impulses from social, political, and physical systems: OIE thus recognizes the importance of existing patterns, history, and the context of decision-making processes (Groenewegen et al. 1995; Groenewegen 2004). Both institutional arrangements and the institutional environment are central to the analysis.

NIE gained ground in the 1970s, and grew exponentially from the 1980s onwards (Clark 1995; Williamson 1998). The approach is based on the thoughts of Coase[54]; its name was introduced by Williamson (1975). NIE is strongly inspired by the neoclassical model and shares its central concept – efficiency – and aim of comparative, static analysis and minimization of (transaction-) costs by use of competition. It focuses on the explanation of institutions based on the individual as maximizing utility, methodological individualism, and given preferences. Institutions are defined as external constraints, as consciously designed 'rules of the game', and are explained on efficiency grounds. Within NIE three lines of thought can be distinguished; the property rights approach, the principal-agent approach, and the transaction cost approach (Hazeu 2000; Groenewegen 2007). The property rights approach states that in a situation of no transaction costs, no public policy is needed. Adequate property rights will result in individual bargains for all transactions. The transaction cost approach takes a different stand and focuses on the coordination of transactions at minimal cost. The principal-agent approach aims to combine the two former approaches by designing optimal contracts in situations of diverging principal and agent objectives.

Currently dominant in neoclassically oriented institutional economics is the transaction cost approach (Vatn 2005), also known as 'transaction cost economics' (TCE). Famous contributors to this approach are Eggertsson (1990), North (1990), and Williamson (a.o. 1975, 1998). TCE is based on the core assumptions of neoclassical theory and studies the effects of accepting positive transaction costs. Institutions are regarded as governance structures (like rules and contracts) to organize and minimize costs of transactions. Their major role is to provide a stable structure for human interactions through 'rules of the game' that reduce uncertainty (Eggertsson 1990). North (1990) identified formal and informal institutions as main structures.

Williamson makes an important adjustment to the neoclassical assumptions of NIE by accepting the bounded rationality of individuals, with his argument that the behaviour of actors is shaped by a set of socially constructed institutions. He focuses on contractual

54 Coase's main publications 'The nature of the firm' (1937) and 'The problem of social cost' (1960); see 3.2.

arrangements and business structures, but also mentions culture and social embedding (Williamson 1996, 1998, 2000, 2005)[55]. Williamson (1998, 2000) identifies four levels of institutional analysis of the behaviour of actors, which illustrate the dynamics of rules and regulations (see table 3.3).

Table 3.3: Williamson's (1998) levels of institutional analysis

Level	Explanation
Social embeddedness	Informal institutions, customs, traditions, religion, norms, that influence behaviour (taken as given by most economists) (North's informal rules)
Institutional environment	The formal rules of the game (for economic activity); how formal rules influence economic behaviour. (North's formal rules) (1st order economizing; getting the institutional environment right) Products of politics; legal rules, public organizations, polity, judiciary, bureaucracy of government, laws regarding property rights
Governance structures	The play of the game; institutions of governance (2nd order economizing; getting the governance structures right) Organizations and contracts that coordinate economic transactions (markets, hybrids, firms, bureaus, transactions, contracts) Governance structures (modes of governance/organizational constructions)
Specific institutional structures	The level of markets and prices as presented in Neoclassical economics (3rd order economizing; getting the marginal conditions right) Efficiency (Williamson calls this level 'Resource allocation and employment')

These levels are interconnected and impose constraints and feed back loops on each other. The levels show a downward specification, from the embedding and overarching social system (level 1) towards more specific elements: the institutional environment (level 2), governance structures (level 3) and specific institutional structures (level 4) respectively. The level of social embeddedness of human behaviour encompasses values, norms, traditions and customs, which "*have a lasting grip on the way a society conducts itself*" (Williamson 1998: 27), hence on societal and economic processes. These (also called informal) institutions mostly are socially and culturally established and reflect local beliefs and historically developed practices. The study of this level of institutions is generally ascribed to social theory and OIE. The second level of analysis, the institutional environment, focuses on formal legal arrangements, or 'rules of the game'. These are intentionally developed in order to shape economic activities, for example sector specific institutions or property rights. This level of institutions is mainly studied in NIE, with a focus on the economics of property rights. The third level analyses the

55 North also seems to have adopted the idea of bounded rationality in his later work. Still, NIE is based on predominantly positivistic grounds: it assumes that the objective measurement or identification of data is possible, and the perceptions of individuals are not subject of study. As a result, NIE pays only little attention to the social construction of costs and benefits and the existence of different perceptions on these.

governance structures that are developed within the institutional environment: the 'play of the game'. This level is subject of study in for example TCE, like incentive structures that govern transactions. The fourth level of analysis focuses on the specific institutions developed within these governance structures, like markets and prices, the subject of neoclassical economics. These levels show the focus of different economic perspectives on institutions: OIE, NIE, and neoclassical economics (e.g. Groenewegen and Kunneke 2005). Analysis of institutions at these different levels may enhance study and knowledge on successes and failures of governance and institutional reforms (e.g. Hargadon and Douglas 2001; Kunneke, Correlje and Groenewegen 2005; Prosser 2005; Kunneke 2008).

During the last 20 to 30 years, OIE has regained attention, with important contributors like Hodgson, Bromley, Groenewegen, and Vatn. Classical institutionalism, as Vatn (2004; 2005) interprets it, is based on a social constructivist perspective and thereby challenges neoclassical principles. According to Hodgson (1993), institutions involve 'congealed habits' that not only constrain behaviour but also enable action and decisions by providing reliable and relevant information on the likely actions of others. This information (or knowledge) is context dependent; hence we must accept and "*incorporate into the analysis the reasonable assumption that individual tastes and preferences are malleable and will change or adapt*" (ibid: 235). Vatn (2005: 60) defines institutions as: "*the conventions, norms and formally sanctioned rules of a society. They provide expectations, stability and meaning essential to human existence and coordination. Institutions regularize life, support values, and produce and protect interests.*" Hence, institutions define the social environment, the behaviour of individuals and their interests, but individuals themselves also influence institutions. Important difference with the neoclassical approach is the perception of rationality. Rationality is understood in pluralistic terms: "*what is rational is […] defined by the institutions and roles that apply*" (Vatn 2004: 4). Thus, rationality is "*what is appropriate given the situation or the role one inhibits*" (ibid: 5).

3.4.4 Social-economic perspective on value

Classical institutionalism takes preferences and values as socially constructed. Preferences and values are not assumed to be stable and fixed, but instead as plural and context dependent: as influenced by the social and cultural environment in which they are developed (Hodgson 1993; Hargadon 2001; Holland 2002; Vatn 2005). As a result of this contextual dependency, preferences are subject to change (Hodgson 1993), and competing and non commensurable value orderings may exist (Vatn 2005: 157). Such an approach rejects the neoclassical assumptions of methodological individualism. It applies a notion that comes close to 'methodological interactionism' (Nooteboom 2007; Groenewegen, van den Berg and Spithoven 2010), assuming an individual to be in interaction with his/her environment.

The early American institutionalists like Thornstein Veblen (in 1899), John R. Commons (in 1924), and Benjamin Anderson (in 1911), already perceived value as a social phenomenon that is socially constructed, although they did not completely work out the concept. Veblen criticized the neoclassical utilitarian theory of value and sketched the outlines of an alternative social theory of value. With this he gave rise to a tradition that studied the construction of social value, featuring, among others, Commons and Anderson. This, what I call, social-economic perspective on value enabled the involvement in value study of non-monetary dimensions. Several researchers in the history of

economic thought have worked on a 'social theory of value', however to date these ideas have not gained much ground (see e.g. Tool 1977; Clark 1995).

In more recent times, Mirowski worked on a social value theory in economics. Mirowski, also known as 'the' social historian of neoclassicism, bases his theory on constructivist grounds. According to Mirowski, "*value […] is about much more than prices*" (ibid 1990: 695), and "*cannot be collapsed to a problem of arbitrarily picking a numeraire*" (ibid 1991: 569). He argues that values cannot be reduced to a single source or cause, but instead emerge from the interaction between different social forces. A social theory of value will not capture a 'fixed' reality; instead "*it is intended to describe the interpretative structures of modern market institutions without implying that these structures are permanent, inevitable, or deterministic, […] without presuming there is […] a single correct interpretation at which we can arrive*" (Mirowski 1991: 578). Dolfsma (1997) follows the insights of Mirowski and argues that current theories of value fail to adequately explain the way in which value comes about, as these theories exclude "*the sociological aspect*" of values (ibid: 400). He proposes to perceive values as "*continuously changing, ambiguous and dissimilar for individuals because of the complex and uncertain social environment they are in*" (ibid: 402). He states that "*value is constructed in a social environment*" (ibid: 412) and therefore he argues that a social theory of value should involve people's interpretations of their environment.

Recent experiences with DMV, combining stated preference methods and deliberative processes (see 3.2), reconfirm these insights on the need for a broader perspective on value. As DMV, in theory, aims at consensus in a social process of valuation, this implies that values may be plural and are to be discussed in open deliberation. Experiences with such processes show that issues "*which are typically kept at arms length by environmental economists*" (Spash 2008: 469) seem to occur: multiple values, incommensurable values, and endogenous preferences. Values are expressed that do not allow for a simple, single, figure and as a result, a monetary metric may be problematic. Learning processes take place and values change as the interaction with others and new information will change individuals' judgments (Alvarez-Farizo and Hanley 2006; Spash 2008). Spash (ibid) therefore argues for a more open admission of types of values in analysis, including those based on non-economic motives.

A social-economic perspective on value based on these insights from classical institutionalism appears useful for this thesis' subject of study. The thesis focuses on the identification of stakeholder values and the possibilities to involve these values in a process of collaborative valuation, that is embedded in institutionalized methodology for (e)valuation and decision-making (see 1.4). As stakeholder values have been recognized as not fixed, endogenous, plural, and incommensurable, the societal and institutional influences on these values are relevant for the study of a process of collaborative valuation. An institutional perspective, following classical institutionalism as applied by Vatn (2005; see also Sen 1993; Hargadon 2001; Haase 2007), enables the study of these institutional influences on stakeholder valuations on water. Also, as current problems with both (interactive) water management and regional development are put down to the institutional environment, an institutional perspective would enable the study of a possible connection between a social perspective on value and institutionalized methodology for (e)valuation. Apart from social (-economic) theories on value mentioned

above, an institutional perspective on valuation is not yet covered in literature. Chapter 4 provides this institutional perspective for the purpose of this thesis.

3.5 Conclusion

During the history of modern economic thought, different perspectives on value and valuation have come and gone. Table 3.4 identifies the models on (economic) decision-making and related interpretations of value that were described in chapters 2 and 3. Bentham grounded his theory on hedonism and stated that a good or issue has value if one derives pleasure of pain from that good. While this interpretation of value suited the description of motivations for choice, it did not fit the aim of measuring and comparing values on objective grounds. Therefore, the interpretation of value was changed to a more ordinal and mathematical variable: a variable that could be measured. This model assumed individuals to act and value rationally, based on (subjective) expected utility. Based on this perspective, the subjective expected utility theory is the basis of modern neoclassical economic thought and the application of various decision-support methods.

This approach is characterized by methodological individualism and is based on the model of *Homo economicus*, who behaves rationally and goal-oriented and takes effectiveness and efficiency as criteria for choice. It is a functional approach, attributing value to (economic, scarce) goods based on their function (utility) to society, and assuming objective measurement of this utility. Even though much debate exists, the neoclassical approach is increasingly applied to integrate the values of environmental goods and services like water in economic analyses and decision-making. It allows for the involvement in common economic analyses of goods and services that are not

Table 3.4: Models on choice behaviour / decision-making and their perspective on value

Model	Perspective on value
Hedonic utility	Value is the level of hedonic utility of an object (cardinal variable)
Expected utility (Rational choice model)	Value is the weighed sum of expected utilities (ordinal variable) Value is expressed in actual economic behaviour, and can be optimally and rationally deduced from objective probabilities Strict fact-value distinction
Subjective expected utility (Neoclassical model)	Value is the amount of goods an individual is WTP/A to receive/keep/lose something Value is the provision of utility, by a certain function. It is a fixed and constant fact: preferences are exogenous, neutral data. Value is often assumed as equal to price
Participative modes in decision-making and evaluation based on psychological insights, interactive governance	No explicit notion of value No strict fact-value distinction Preferences are endogenous to the setting in which they are expressed
Social theory of value	Value emerges from interaction between different social forces: value is constructed in a social environment No strict fact-value distinction

reflected on the market. For this purpose, water is perceived as an economic good whose economic value is incorporated in economic decision-making. Also (e)valuation and decision-making in Dutch spatial water management applies this perspective.

Chapter 2 concluded that the field of spatial water management aims for an integral and participative approach, but also that the implementation of this approach faces problems, mainly ascribed to the institutional structure. Traditional legislation and approaches, based on a sector approach and with a technological focus, remain dominant and hinder effective stakeholder participation and integral assessment in spatial water management (see 2.6). Stakeholders appear to perceive their values as incompatible with monetary valuation techniques that are applied for integral assessment. Section 3.3 therefore argued that, despite the many advantages of the approach, the monetization of stakeholder values (based on a neoclassical perspective on value) might not be appropriate, or adequate, for application in combination with stakeholder participation. It may not be adequate, as it is not suitable to involve plural, incommensurable and endogenous values. The neoclassical perspective on valuation does not match with current insights in behavioural economics (concerning influential factors on decision-making behaviour; see 3.4); nor in environmental studies (concerning the various citizen values of environmental issues see 3.2); or evaluation studies (concerning new and participatory modes of evaluation; see 2.2). Second, it may not be appropriate as it does not facilitate the (valuation-) processes that stakeholders need to go through and, moreover, as many stakeholders do not accept monetization as appropriate for decision-making. A growing unease with the way many economists (and policy makers) address environmental issues has been observed. As stakeholders become increasingly involved in decision-making and also their knowledge and values are involved and negotiated in interactive processes, this causes clashes on issues of (e)valuation (see 2.2). In practice, scientific (economic) and technical analyses continue to be stressed as the (institutionalized) basis for decision-making, while stakeholder knowledge is not. As a result, the application of monetary valuation in combination with stakeholder participation may hinder societal support for (interactive) decision-making processes in which such is applied. This may explain the problems that are encountered with stakeholder participation and integral assessment in (interactive) processes of spatial water management. The proper interconnection of these different sources in evaluation and decision-making seems to be an important issue.

Considering the problematic application of the approach in these specific circumstances, a different approach to the process of valuation could be worthwhile. This thesis proposes a more collaborative perspective on valuation based on participative or constructivist grounds for application in interactive processes, starting from the assumption of the endogeneity of values, and taking into account the influence of institutional factors. This approach to valuation should connect to current insights on choice behaviour in (classical) institutional and behavioural economics (see 3.4), and also to current insights in public administration on decision-making processes (see 2.1) and evaluation theory (see 2.2). Chapter 2 described that participative approaches to decision-making and evaluation increasingly focus on the stakeholder and his ideas and experiences, and view evaluation as a process of collaboration between the evaluator and others involved in the issue. For the study of such a different approach to valuation, this thesis applies a classical institutional perspective on value and the valuation process (see 3.4).

An institutional perspective enables the involvement in the analysis of the institutional environment of stakeholder (e)valuation and decision-making on spatial water management. Values are expected to be plural, and endogenous to the setting in which they are formed. Valuation takes place in a process, during which values are developed in collaboration. Apart from social theories on valuation, such institutional perspective on value has not yet been covered in literature. Also, while (elements of) such an approach may be common practice for many administrative scientists, for many economists these insights could be controversial.

Chapter 4 provides a framework for the study of co(-llaborative) valuation. This framework applies the following aspects discussed in this chapter:

- Based on classical institutionalist insights on the social construction of preferences and a social theory of value, the framework provides an institutional perspective on value. Value is taken as socially constructed in its environment, and valuation is taken as a (collaborative) process. The institutional environment is an important source of information for values and valuation processes applied. This is discussed in more detail in section 4.2.
- As identified in 2.6, the framework actively takes into account the existing institutional environment, as new valuation approaches must fit in with existing institutions. For the (e)valuation of water this concerns the practice of neoclassical, monetary valuation (see 3.2). The framework for study and development of an approach of co-valuation applies the four levels of Williamson (1998) for the analysis of these institutions. The four analytical levels may provide insights in the way valuation is organized and how the approach-to-be-developed can be adapted to these. Through a focus on the different levels of the institutional context of the valuation process, this thesis aims to develop a process of co(-llaborative) valuation that connects well with existing institutions and approaches in spatial water management. This is discussed in more detail in section 4.2

4 Framework for co-valuation

This chapter introduces co-valuation and provides a framework for the study of this approach. The approach of co-valuation is based on existing methods for valuation and is closely connected to recent insights in behavioural and institutional economics, environmental valuation studies and interactive governance. The research takes a rather constructivist position and applies an institutional perspective that is different from the rational or objectivist point of view taken in neoclassical economics (see 3.1). Several approaches to some extent similar to the one presented here have been published, for example concerning new participatory modes of evaluation and combining monetary methods and participatory processes (see 3.2). No approaches, however, have been developed for interactive valuation. The approach developed and presented in this thesis concerns such an interactive or collaborative valuation, and focuses on stakeholder valuation of water in the policy context of Dutch spatial water management.

In accordance with the retroductive research the approach of co-valuation was mostly reconstructed after the case study had been executed. Preceding the case there was no elaborated framework for the approach of co-valuation: this was the aim to be developed in action, in a process of learning-by-doing (see 1.5). This chapter therefore provides only a general framework, based on theory and previous research on interactive governance and participative evaluation. Chapter 6 and 7 analyse the case and provide a more elaborate, *ex post* description of the process followed.

First, section 4.1 recapitulates conclusions from previous chapters and synthesises the rationale for study of a collaborative process of valuation. Section 4.2 presents components of the research on co-valuation in Dutch spatial water management, based on theoretical study. This section also provides an institutional perspective on valuation and decision-making, and identifies initial aspects of an approach of co-valuation. Chapter 7 will adapt and elaborate this approach based on experiences in the case study. Section 4.3 presents a framework for the study of co-valuation in the case, which elaborates the general research design discussed in 1.6. Section 4.4 ends with conclusions.

4.1 Synthesis: why co-valuation?

Dutch spatial water management, as chapter 2 explained, is hindered by traditionally sector-based institutions. Sector-based legislation and traditional approaches in decision-making hinder effective stakeholder involvement and integral assessment of spatial functions to take place. Despite theoretically wide acceptance of participatory

modes of evaluation and decision-making, the practice seems to remain embedded in the traditional top-down and expert-based approach to measurement (see 2.2; Weiss 1999; Wadsworth 2001; Sharkey and Shaples 2008). This approach uses a functional interpretation of value, based on the market-mechanism and on neoclassical assumptions of individual choice behaviour (see 3.1). Following this approach, (measurement) instruments and models are applied that support rational and efficient decision-making. Several of these measurement methods enable the involvement of values that are not reflected on the market. This enables the comparison of various values, both market-based and not, in common methodology for assessment and decision-making. Section 3.3 discussed this dominant approach with respect to the valuation of water: water is taken as an economic good and its value is expressed in monetary terms.

Many have objected to this practice, however, arguing that methods based on neoclassical assumptions of choice behaviour would not adequately involve the various values of stakeholders. Indeed, recent insights in psychology, environmental valuation studies, and behavioural and institutional economics have shown that many individual values (or preferences) are plural, incommensurable, and not fixed; they are not readily available for measurement. Instead, these values are endogenous to the setting in which they are expressed (see 3.2), which could hinder objective measurement. Experiences with environmental valuation methods – and their combination with deliberative approaches – have shown that stakeholders attribute various values to environmental goods and services that they do not (always) express in monetary terms, and for which they do not accept monetary equivalents (see 3.2). These experiences revealed aspects of valuation that are traditionally left out of (neoclassical) economics: they illustrate the need for a broader interpretation of value to explicitly incorporate stakeholder values in the analysis (see 3.4). Based on these insights, chapter 3 argued that the strict monetization of stakeholder values may be not appropriate, or adequate, for application in combination with stakeholder participation in spatial water management. It may not be adequate, as it is not suitable to involve plural and incommensurable values. It may not be appropriate, as it does not facilitate the (value-) learning processes stakeholders need to go through and, moreover, as stakeholders do not (always) accept monetization of their values as appropriate for decision-making. This may explain the problems with stakeholder participation and integral assessment in interactive processes of spatial water management.

In this thesis I study the involvement of stakeholder values in interactive decision-making on spatial water management, starting from the expectation that such may improve the decision-making process in various ways (see 1.4). I aim to develop an approach of valuation that corresponds with the constructivist insights on stakeholder values and the participatory insights on processes of interactive governance and evaluation: to develop a process of collaborative valuation preliminary coined 'co-valuation'. At the same time, I take into account institutions and (neoclassical) valuation methodology currently applied in decision-making on water. I do not aim at the development of a new technique or methodology replacing currently applied valuation instruments. Instead, with this research I aim for a possibly different structuring of the valuation process, addressing current insights in related fields of inquiry, and in which existing and proven techniques and methodology may be used. This chapter provides a framework for the study and development of such a process of co-valuation in the case study.

4.2 Components of co-valuation in spatial water management

This section provides the components for the study and development of a process of co-valuation of (surface) water in spatial water management in the case study. From literature on spatial water management, interactive governance and environmental valuation studies, four components for the research are identified, already introduced in 2.6 and 3.5. In addition, this section presents an institutional perspective on the valuation process.

4.2.1 Focus on spatial water management

The research takes place in the context of Dutch spatial water management. Section 2.4 discussed that the domains of Dutch water management and spatial organization seem to meet and show a development towards a field of spatial water management. Both fields aim for the active involvement of relevant stakeholders in decision-making, and for an integral approach that takes various (spatial) domains into account. Both developments are viewed as needed for decision-making on these complex issues. This thesis' research on co-valuation adapts the following components from this context (see 2.6):

1 *The multi-actor setting of decision-making processes; the aim to involve relevant stakeholders in the co-valuation process.*

The involvement of relevant stakeholders in decision-making processes has proved beneficial to complex decision-making issues, resulting in increased attention for interactive governance (see 2.1). Also spatial water management aims for an integral and participative approach, involving many different parties or stakeholders in the decision-making process (see 2.4). This thesis' research adopts these insights and aims for an integral and participative valuation process, in which relevant stakeholders are involved and relevant (spatial) domains are considered. Contrary to neoclassical economic approaches, the research aims to take valuation as part of the interactive process.

The research follows the network perspective on decision-making currently dominant in public administration (see 2.1). A decision-making process is a complex and non-linear process in which many mutually dependent and non-rationally behaving stakeholders are active in different settings. These stakeholders perceive the issue of concern from different points of view and pose different aims, expectations and restrictions on the process. Broad participation of stakeholders and the involvement of their perceptions are needed, amongst others to gather support and to enrich process contents. Hence, the research takes interactive (governance) processes as potentially beneficial to the quality of policy- and decision-making, at least concerning local to regional situations.

An important influential factor for the decision-making process is the setting in which this process takes place. Environmental issues have different contexts (Holland 2002; French and Geldermann 2005), which result in different influences on the decision-making process. In different settings, different stakeholders are involved, with differing backgrounds, and with different (informal) ways of doing things and (formal) regulations concerning the decision-making processes. The 'institutional environment', therefore, is relevant to decision-making analysis. Interactive governance processes enable the

involvement (and study) of this institutional environment through the involvement in the process of stakeholders and their perspectives.

Many definitions of stakeholders and actors exist (e.g. van de Kerkhof 2004). This research takes a stakeholder as any individual, party, organization, authoritative body or other that is affected by, or is able to affect, the issue of concern. A stakeholder can be either individual or organized. This interpretation covers both the often applied definition of 'actor' (as non-organized individual, like a citizen), and of 'stakeholder' (as organized party bearing an institutionalized stake, like a (non-)governmental organization). Concerning the *rationality* of a stakeholder, the institutional view of Vatn (2004, 2005) is applied; what is rational in a specific situation is defined by what is appropriate concerning the institutions and roles of that specific situation. This, again, underlines the relevance of the (institutional) environment. A stakeholder's *stake* can have a range of backgrounds. A stake is not necessarily financially motivated or based on market interests; and a stake does not need to be formally institutionalized. A stakeholder may also have a stake in a decision-making issue based on personal characteristics, like ethical beliefs or following from his or her leisure activities.

2 *The involvement of values and information of these various actors in the co-valuation process; the aim for collaborative value (information) production for evaluation.*

The various stakeholders involved in interactive governance each possess (different) knowledge or information concerning the decision-making issue at hand. Current trends in public administration on the democratization of knowledge argue that these various sources of knowledge are to be involved in the process (see 2.1). The knowledge of citizens or stakeholders is taken just as relevant as is the knowledge of established experts. It is argued that stakeholders and experts should participate in processes of collaborative knowledge production that aim for the development of a body of shared information useful to the decision-making issue as well as relevant to both stakeholders and experts involved. Also the current approach in (spatial) water management aims to involve the knowledge and information from different domains and as provided by different parties and individuals in the process (see 2.4).

However, when it comes to evaluation, much of the stakeholder information that is involved in a process of collaborative knowledge production cannot be reflected in either use, non-use or other categories of values commonly applied in environmental economics (see 3.2). Stakeholder information generally is based on experience and subjective judgments: it is contextual and local (Rinaudo and Garin 2005; Eshuis and Stuiver 2005; Edelenbos et al. 2009b; see 2.1). Stakeholder values usually are expressed in various dimensions; some reflected in formal structures like a market and to be involved in evaluation and decision-making as such, others without generally accepted point of reference (like a market value) to involve in assessment[56] (see 3.2). These kinds

56 For example, house prices reflect the value a water body adds to property values, while the value the same water body may add to the local ecosystem cannot be estimated in such a way. The added value of the water body to recreational businesses may be measured (e.g. increased numbers of ice creams sold), but the added value of (the experience of) eating your ice cream at the lakeside may not.

of values and expressions cannot be directly involved in the expert-based monetary (e) valuation methods applied, at least not in the eyes of the stakeholders.

This research adopts the insights on collaborative knowledge production and aims for a process in which both experts and stakeholders provide information relevant to the decision-making issue. It takes the view that stakeholder values should be involved in evaluation in such a way that stakeholders recognize their (value-) information to be involved. Stakeholders and experts identify a body of information relevant to decision-making in a collaborative process. Evaluation methodology applied in such an interactive process should provide for the involvement of all relevant values and information provided: both the information of stakeholders and experts, in a way that sustains the support of stakeholders for the evaluation process.

This is based on a not strict fact-value distinction (see 2.1). Knowledge is taken as not fixed or value-neutral; it is shaped by and intermingled with values. Input relevant for a decision-making process involves not only information provided by experts – generally identified as (rational) 'knowledge' or 'scientific facts' (see Pielke 2007) – but also information provided by and perceived as relevant by stakeholders involved in the process. Both experts and stakeholders may provide information to the process, which may involve both (objective) facts and (subjective) values. Relevant information to the issue at hand is to be identified in a collaborative process, involving aspects of social learning and joint fact finding (see 2.1). Hence, what matters is how the information is constructed (cf. Holland 2002). In this research I take the view that what matters is to reach agreement, to achieve consensus on a body of information – whether subjective values or hard scientific facts – that is meaningful for stakeholders, experts and decision-makers (van Buuren 2006; Edelenbos, van Buuren and van Schie 2010). Various values or preferences and information relevant to the issue are not pre-existing, but will need to be developed or constructed. Therefore, to achieve a body of collaboratively developed, joint or negotiated information relevant to decision-making, a process of (social) learning will take place (cf. Bromley and Paavola 2002; Blackmore, Ison and Jiggins 2007; Steyaert and Jiggins 2007; see 2.1).

3 Institutional embedding of the co-valuation process in the institutional environment and formal decision-making procedures.

Processes of interactive governance appear to be hindered by their institutional environment. The institutional embedding of these processes has therefore been recognized as needed (see 2.3). Based on experiences with interactive governance in the Netherlands, Edelenbos (2005; and Edelenbos et al. 2006, 2009b) argue that interactive decision-making processes need institutional embedding in formal decision-making at political, executive, professional and policy level. The political, executive, and professional levels concern the process' embedding among different groups or parties involved; the policy level concerns the compatibility of the process with policy documents and lines of thought.

This thesis' research on co-valuation adopts these insights. Based on the experiences with interactive governance, a process of interactive valuation may also be expected to encounter difficulties with its institutional embedding. The research therefore aims to embed the interactive valuation process in formal decision-making procedures on four levels:

- The political level: the embedding of the co-valuation and decision-making process among politicians involved;
- The executive level: the embedding of the co-valuation and decision-making process among executives of involved parties and organizations;
- The professional level: the embedding of the co-valuation and decision-making process among professionals (experts) of involved parties and organizations;
- The policy level: the embedding of the co-valuation and decision-making process in policy documents and lines of thought in both contents and form.

4.2.2 Institutional perspective on valuation

Based on environmental valuation studies and insights from behavioural and institutional economics (see 3.4), the research develops and applies an institutional perspective on value. The fourth component of the research is:

4 An institutional perspective on valuation, incorporating sociological and endogenous influences on the co-valuation process.

The research takes an institutional perspective on value and the process of valuation, and adopts classical institutionalist ideas on a social-economic theory of value (see 3.4). It takes value as a social construct, in accordance with Mirowski (1991), Dolfsma (1997), Loewenstein and Camerer (2004) and Spash (2008), and based on recent experiences with environmental valuation (see 3.2). The research takes value as 'the importance of something for some valuator (or group of valuators)'. The values these individuals or groups attribute may show great differences. As a result, competing and incommensurable[57] preference-orderings may exist (cf. Vatn 2005; Jacobs 1997; Bromley and Paavola 2002; Arzt 2005). Value can be either positive or negative, can be a cost or a benefit, can be tangible or intangible, and can be market- or non-market related. Values defined in this way can be expressed in various dimensions, the monetary being but one of those. Stakeholder values are taken as plural and multi-dimensional, possibly incommensurable and endogenous to the social environment in which they are expressed. Consequently, stakeholder values may not always be suitable for single, objective measurement. Values are influenced – and at least partly determined – by social institutions like economic, social, legal and cultural structures.

Compared to neoclassical economic assumptions, this institutional perspective introduces a dynamic element in the concept of value. Values are not just 'out there' and available for measurement: they are not pre-existing (cf. Bromley and Paavola 2002). Instead, values are *"constructed in a social environment"* (Dolfsma 1997: 412). Values are constructed in a process, which takes place in – and is influenced by – its social environment (cf. Holland 2002). Because of these characteristics, stakeholder values are to be identified and constructed in a collaborative process for their involvement in interactive decision-making processes (Mirowski 1991; Dolfsma 1997).

57 The thesis adopts Sunstein's definition of incommensurability (1993: 248): "*two goods are incommensurable if they are not valued in the same way and if their assessment along a single metric therefore does violence to our considered judgment about how (and not how much) these goods should be valued.*" Thus, incommensurability is not equal to infinite value.

This research takes valuation as 'emerging from the interaction between different social forces' (cf. Mirowski 1991). Instead of a single activity or measurement, valuation is a process. In this process, the value of a certain good or service is constructed and identified (cf. Jacobs 1997; Arzt 2005). Valuation is a (social) learning process, analogous to processes of social learning in knowledge development: valuation is *"[…] constructed in action […]"* and it *"occurs through people's interactions with what composes the social and physical world"* (Steyaert and Jiggins 2007: 575, 582; Bromley and Paavola 2002; see 2.1). Values are variable outcome(s) of a valuation process of construction and identification, in which learning processes take place. In such a process of valuation, different stakeholders collaboratively construct and identify their individual values. These values may change during the deliberative process (Arzt 2005). Therefore, the collaborative process should aim for a possibly shared value; it should aim for consensus[58]. Values can be identified by means of stakeholders' expressions or judgments during a process of negotiation and deliberation, and by the outcome of the process.

The key to understanding the valuation process, therefore, is to understand the stakeholders involved and their choices: they shape the valuation process and the resulting value(s). It requires an understanding of how the stakeholders make valuations and for what reasons, and the characteristics of the institutional environment: it requires an actor perspective. This thesis takes an institutional actor perspective, based on 'methodological interactionism' (Nooteboom 2007; Groenewegen et al. 2010; see 3.4). This is different from the neoclassical actor perspective, which is based on methodological individualism (*Homo Economicus*, motivated by self interest and taking choice as a problem of welfare maximization), and which ignores the influence of the social and economical environment on choice behaviour (see 3.1). Neoclassical economics assumes preferences to be fixed and stable commensurables that can be objectively measured in monetary terms, and takes motives for choices as exogenous to analysis. Neoclassical economics does not study why actors make different choices in different contexts, as it excludes the social and ecological context from analysis (Schuijt 2003: 50). Instead, this thesis takes the view that values are no fixed and objective facts, but that they are subject to various societal influences, like social norms, legal rules, and an individual's worldview; value is interpreted more broadly and more dynamic. Table 4.1 compares this perspective to a neoclassical perspective on value (as presented in 3.1), based on five variables:

- *Involvement*: Who are involved in valuation, how are they involved;
- *Notion of value*: What notion of value is applied, what rationality is applied;
- *Role of information*: What is the role of knowledge, what kind of information is used, and who provides it;
- *Process*: Which steps are taken in the valuation process, what is the position of valuation in decision-making, what methods are applied;
- *Connection to institutions*: How does the valuation process fit into the institutional environment.

58 'Consensus' in this thesis is interpreted as 'a general agreement of opinion', to which no one has insuperable objections. Thus; not everyone has to fully agree on everything, but a majority is no consensus either (cf. Woltjer 2000).

Table 4.1: Institutional vs. neoclassical perspective on valuation

Variable	Neoclassical perspective on valuation	Institutional perspective on valuation
Involvement	Value of economic (scarce) goods. Goods are homogenous Methodological individualism (Homo economicus)	Values attributed by stakeholders (context dependent) Methodological interactionism
Notion of value	Value monism Values are commensurable Values (preferences) are fixed, objective, exogenous Single measurement: TEV is measurable in monetary terms	Value pluralism Values are incommensurable Values are endogenous; constructed and influenced by their social and cultural setting (not fixed, not stable) Values are to be identified and constructed
Role of information	Aim for welfare economic optimum (efficiency) Assumption of instrumental rationality Information is provided by experts; objective and verifiable statements to enhance rational decision-making Strict fact-value dichotomy	Aim for consensus on values and information relevant to decision-making Rationality is bounded and plural Aim for joint production of relevant information by stakeholders and other parties involved to achieve consensus and support No strict fact-value dichotomy
Process	Valuation is single, objective, rational measurement	Valuation is a collaborative process in which values are identified and constructed
Connection to institutions	Institutions are external constraints, not relevant to analysis Assumption of no transaction costs; complete information	Institutional environment and (choice) behaviour are mutually influential; institutions must be actively taken into account in the analysis Transaction costs always present; no complete information possible

Variables 1 to 4 were already introduced in 3.1, with the discussion of neoclassical valuation. Based on experiences with processes of interactive governance and spatial water management (see 2.3 and 3.5), this section adds a fifth variable: the connection of the valuation process with institutions. As discussed in the previous section, institutional barriers to co-valuation may be expected. Consequently, the embedding of the valuation process in existing procedures and ways of conduct in decision-making is considered an important component of the study of co-valuation. The connection to institutions is therefore added as a relevant variable for the study of valuation in table 4.1.

4.2.3 Institutional analysis of valuation

A valuation process does not take place in isolation; it takes place in an influential social and cultural environment (Hodgson 1993; Hargadon and Douglas 2001; Vatn 2005). In this environment, transaction costs are always present, the available information is never complete, rationality is always bounded or even plural, and social and cultural influences

play a role, like formal and informal social habits and codes of behaviour. Various social conventions and customs, individual perspectives, and formal rules and agreements apply, that influence and structure processes of valuation and decision-making. They influence which values are expressed, and which values can be involved in formal (e)valuation and decision-making. In short, there are all kinds of rules of the game or institutions that steer – restrict as well as enable – valuations[59], and therefore these institutions should be involved in decision-making analysis.

A (classical) institutional approach starts from this point of view. An institutional perspective enables the study of the identification and involvement of stakeholder values, and influences of the (institutional) environment on valuation. It also enables the study of the influence of different stakeholders on the valuation process (e.g. Baarsma and Lambooy 2005). The research applies the definition of institutions as defined by Vatn in his study on institutions and the environment:

> *"Institutions are the conventions, norms and formally sanctioned rules of a society. They provide expectations, stability and meaning essential to human existence and coordination. Institutions regularize life, support values, and produce and protect interests." (Vatn 2005: 60)*

The research focuses on these institutions for valuation and decision making in Dutch spatial water management: the rules and conventions that apply to valuation and decision-making and the procedures and methods that are followed, both formal and informal. Institutions influence how (e)valuation takes place: they influence what methods are applied, which values can be involved in evaluation and decision-making procedures; who is involved, how they are involved, what information is involved and who provides this information (cf. Schuijt 2003; Bouma, Francois, Schram et al. 2008). To analyze these institutional rules and restrictions on the process of valuation, the research applies the four analytical levels of Williamson (1998; see 3.4) [60]:

- Social embeddedness;
- Institutional environment;
- Governance structures;
- Specific institutional structures.

These analytical levels identify various (interconnected) levels of institutions in society, which structure different kinds of behaviour. They enable as well as constrain the behaviour of individuals. Depending on the perspective applied, different elements of these levels may dominate a process of (e)valuation and decision-making. Path dependency and lock-in may cause enduring dominance of a certain level, which may result in rigid institutions (Haase 2007). The levels could be viewed as 'lenses' on institutions for evaluation and decision-making that are applied and the values that can be involved in these (cf. Allison and Zelikow 1999). Consequently, blind spots may appear; values that are attributed in society but are not involved in the decision-making institution.

59 Clearly, this thesis takes the 'rules of the game' more broadly than as the term was introduced by North (1990)

60 Whereas these analytical levels help to analyse the field of institutions, the remainder of Williamson's approach is based on NIE and its mostly neoclassical assumptions (see 3.4). This research applies the levels of institutional analysis to study the different institutions in the context of decision-making, but it does so in a more classically inspired institutional approach, disassociating from NIE-based assumptions on decision-making behaviour.

Analysis of institutions for the valuation of water in spatial water management, based on these analytical levels, makes it possible to study institutional influences on these processes. Such seems relevant as institutional barriers to governance processes in general have been observed (Klijn and Teisman 2003; Edelenbos 2005; Termeer 2009a; see 2.3). More specifically, institutional barriers have been observed to hinder effective stakeholder involvement and integral assessment in spatial water management (de Bruin et al. 2004; Van der Heijden and Slob 2005; de Zeeuw et al. 2009; see also van Schie 2009, and 2.5). A process of collaborative valuation in spatial water management may expect similar institutional barriers. An institutional perspective enables taking notice of these possible institutional barriers, to study institutional influences on the process of valuation and to search for possible institutional arrangements for a process of collaborative valuation that may solve these barriers. It enables studying the influence of social rules, regulations and conventions on the values that are involved (and those that are not involved) in a decision-making process, and developing a process of co-valuation that connects to current practice.

4.3 Framework and methodology

The study of co-valuation was characterized by a specific methodology (see 1.5). A case study was set up as a practical experiment, in which the researchers aimed at the development 'in action' of an approach of co-valuation. My role in the case study was one of a participant-observer: I fulfilled a double role, both participating in organizing the interactive process and observing this process and the resulting events in order to study a process of co-valuation. I aimed to distinguish these roles as much as possible by acting only in a facilitating capacity during the process and by verification of reports and outcomes of analysis by participants on a regular basis. To collect information on the stakeholders and their values, next to observation and participation in the process, the research team conducted interviews, document analysis, several workshops, a questionnaire, and an *ex post* evaluation (see also 1.6).

The experiment on co-valuation was steered by an expectation introduced in section 1.4. It was expected that *the involvement of stakeholder values in the process of interactive decision-making will lead to improved results of this decision-making process.* This 'improvement' was interpreted as:

a. Increased consensus among stakeholders on the values that are involved in the process;
b. Easier embedding of these stakeholder values in evaluation;
c. An enriched result regarding the content (because more values are involved);
d. Increased stakeholder support for the outcome.

This expectation was based on current insights in interactive governance, spatial water management, and on previous experiences of the research team concerning interactive decision-making processes. Both among academics and professionals it is generally accepted that in order to achieve plans supported by stakeholders, decision-making processes should be oriented towards participation and consensus. Hence, based on the rationale for interactive decision making (see 2.1), it is expected that the involvement of stakeholder values in the decision-making process will enhance stakeholder acceptance

and appreciation of the values that are deliberated (a). It is further expected that the active involvement and deliberation of stakeholder values in the decision making will enhance stakeholder support for the outcome, as stakeholders will probably accept the process in which such is achieved and the issues that have been deliberated (d). Based on these, the research expects that the explicit involvement of stakeholder values in the early phases of the process will stimulate their involvement in the applied methodology for evaluation as well (b). Currently applied evaluation methodology in spatial water management focuses on expert based and rational scientific information, excluding lay or subjective judgments or preferences. It is expected that stakeholder values may be more easily incorporated in evaluation when this input has already been explicated earlier in the process. This is then expected to result in a more complete, and thus a 'richer' outcome (in contents) as more values will have been deliberated and evaluated in the decision-making process (c).

The expectation is studied through experiences and observations in the case study (from the position of participant-observant in the process; see 1.6), the study of documents developed during and in the context of the case, and the results of an *ex post* evaluation among participants. As a starting point for comparison, the situation preceding the process is taken. Compared to this situation the research analyses whether more agreement was achieved on what is important in the area concerning the decision-making issue indeed (a: consensus); whether the stakeholder values were actively considered in evaluation (b: embedding); whether more values compared to currently applied methodology were involved (c: enrich); and whether more support was achieved compared to the initial situation indeed (d: support). Based on these insights the research will adapt the approach of co-valuation to optimally connect to practice (see chapter 7). Operationalization of the expectations was discussed in 1.6.

Co-valuation is short for the collaborative valuation of water by stakeholders involved in an interactive decision-making process. Important characteristics steering the research on this notion were its focus on collaboration, its aim for consensus, and its assumption that values are constructed and identified in a process of valuation. Values thus are assumed to be entities that are not fixed: instead, values are to be identified in a collaborative process, and the outcome of this valuation process is variable. The approach of co-valuation was to be developed during the case study. Based on the institutional perspective on valuation, table 4.2 identifies some initial aspects of an approach of co-valuation. These aspects guided the iterative process in its aim for a development 'in action' of co-valuation. Note that this table was not developed prior to the research: it is reconstructed from the process set up. Analogous to the learning-by-doing approach (see 1.5), the idea of co-valuation was experimented with and further developed during the case study. Chapter 7 presents the eventual approach of co-valuation as this was developed based on experiences and lessons learnt in the case study.

To study and develop an approach of co-valuation, the researchers drafted a general framework in the early phases of the project. As the research was retroductive in nature (see 1.5), no clear steps were identified prior to their execution. The project aimed to develop spatial scenarios based on the values of stakeholders, and supported by both stakeholders and experts. As it was not known in advance which stakeholders would be involved, what values they would apply, or which difficulties would arise, the process set-up was open and iterative, constantly reacting on activities in the context

Table 4.2: Initial aspects of co-valuation

Variable	Institutional perspective on valuation	Initial aspects of a co-valuation process
Involvement	Values attributed by stakeholders (context dependent) Methodological interactionism	The values and perspectives of stakeholders are used to steer a process of scenario-development (following retroductive, iterative research methodology, and process-development in action) Values are constructed and identified in a process of valuation
Notion of value	Value pluralism Values are incommensurable Values are endogenous; constructed and influenced by their social and cultural setting (not fixed, not stable) Values are to be identified and constructed	The process of valuation is a dynamic, collaborative activity During the valuation process negotiation and mediation with and among stakeholders takes place
Role of information	Aim for consensus on values and information relevant to decision-making Rationality is bounded and plural Aim for joint production of relevant information by stakeholders and other parties involved to achieve consensus and support No strict fact-value dichotomy	The process of valuation aims at consensus; at a supported outcome Stakeholder and expert information are combined (cf. joint knowledge production)
Process	Valuation is a collaborative process in which values are identified and constructed	Institutional approach: constructivist, bounded rationality, context dependent; incommensurable and pluralist values Iterative set-up: development in action and adaptive to contextual developments
Connection to institutions	Institutional environment and (choice) behaviour are mutually influential; institutions must be actively taken into account in the analysis Transaction costs always present; no complete information possible	Embedding of the process and (intermediate) results at political, executive, professional, and policy level

and on actions of stakeholders. The exact activities and steps would be decided on during the process, in relation to the setting at that time. Table 4.3 provides a general framework for the study of co-valuation of water in spatial water management, based on the research design presented in 1.6 and as this was developed by the research team in the first phases of the project (see project plan: EUR, TNO and Tauw 2007). Compared

to the research design (table 1.1), the column with activities is more detailed in this framework. The column 'values' is still rather empty, as the approach for the involvement of values would be developed during the process.

To conduct the process in this way, we expected the stakeholders to be provided with ample opportunities to be involved in the decision-making process, to express their values and to develop scenarios for the area that could count on their support. To be adequately prepared, we intended an extensive study of the area and policy background first. To gain more insight in the stakeholders and their concerns, and to inventory their

Table 4.3: Framework for the study and development of co-valuation (Ws.=workshop)

Initial expectation on co-valuation	The involvement of stakeholder values in the process of decision-making is expected to improve results of this decision-making process (increased consensus, facilitated embedding, enriched result, enhanced support)	
Step	**Activities**	**Values**
1.Prior	– Study of area, policy analysis, project background – Interviews; convening assessment – Literature study	Identification
2.Start	– Development of supported project plan for the process, with project organization, aims, rules of the game, roles and tasks of different parties, results of interviews, planning and deadlines – Kick-off meeting	
3.Scenario development	– Stakeholders develop scenarios and specify their values in a series of interactive workshops – Experts provide suggestions for improvement – Alternating workshops of stakeholders and experts who discuss each others' findings, to develop scenarios supported by both stakeholders and experts – Specification of values: development of scenarios based on the values of stakeholders	Specification
3a. Ideal scenarios	– Ws.1: Stakeholders develop ideal scenarios – Ws.2: Stakeholders transform ideal scenarios to integral scenarios – Experts discuss and improve feasibility of scenarios	
3b. Assessment	– Ws.3: Stakeholders value elements of the ideal scenarios – Ws.4: Stakeholders develop new scenario based on highly valued elements – Experts discuss feasibility and improvements of new scenario	
3c. Specification	– Ws.5: Stakeholders discuss expert advice and specify scenario – Expert valuation of scenario – Ws.6: Stakeholders specify scenario and establish values	
4.Outcome	– Combine all values of the scenario in a single overview – Stakeholders develop final advice and present to city-council – Researchers do *ex post* evaluation and judge results of the process in relation to the initial expectation on co-valuation	Registration, justification

willingness to participate, we intended to conduct interviews with inhabitants of the area, representatives of governmental and non-governmental organizations and other parties involved. With the interviews we also wanted to get an impression of the values of stakeholders. To get the various governmental organizations committed, we intended to establish a supported project plan that would explain the project aims. This would provide organizations with the opportunity to express their concerns and restrictions. We expected this to provide the representatives with the feeling of being involved. In a series of workshops we intended the stakeholders to develop spatial scenarios based on their values. We expected a process of diverging values, assessment of values, and later converging to stimulate the stakeholders to specify and adapt their values. The expression of values in spatial plans we expected to help the stakeholders realize the consequences of their values and to search for common ground. We wanted experts to support the stakeholders to improve feasibility of the scenarios. Finally, we intended to combine all values identified in a single overview to provide information for the decision-makers (see also 1.6).

4.4 Conclusion

Co-valuation takes valuation as a collaborative process in which values are constructed and identified by participants in an interactive decision-making project. A process of valuation involves (social) learning, adaptation of values, and negotiation. This is based on an institutional perspective on value and a not-strict fact-value distinction. An approach of co-valuation aims for consensus among participants on a body of values relevant to the decision-making issue under consideration, more or less in accordance with a process of collaborative knowledge production, in which relevant parties negotiate over a body of value information that is relevant to the decision-making. This body of information may involve both (subjective) values and (objective) facts. It is about the establishment of a body of value information that is meaningful to stakeholders as well as relevant to experts to involve in decision-making. It is expected that the involvement of such collaborative process of valuation in the decision-making process will improve this process. To experiment with the involvement of stakeholder values, we conducted an interactive project that used the values and perspectives of local stakeholders for scenario development. This chapter presented a framework for the study and development of an approach of co-valuation, in the context of Dutch spatial water management.

From literature on and experiences with interactive governance, environmental valuation studies and current approaches in Dutch spatial water management, three components of the research on co-valuation are deduced. The approach of co-valuation aims for (1) the active involvement of relevant stakeholders; (2) the collaborative establishment of a body of value information relevant for the decision-making issue; and (3) the institutional embedding of the valuation process in formal decision-making procedures. Based on literature on behavioural and institutional economics and recent experiences with environmental valuation studies, a fourth component was formulated; (4) an institutional perspective on valuation, incorporating sociological and endogenous influences on the valuation process.

The research takes a constructivist position and applies an institutional perspective on value and the process of valuation, disassociating from the rational neoclassical economic point of view that is commonly applied in economic valuation methodology. The institutional environment of the valuation process is studied following four analytical levels of Williamson (1998). An institutional perspective enables the study of institutional barriers that are encountered with interactive (governance) processes, to study institutional influences on valuation processes and to study possible solutions for the (institutional) barriers interactive valuation is expected to overcome. Based on the institutional perspective on valuation, the chapter identified initial aspects of a process of co-valuation that steered the iterative research in the case study.

The research was primarily retroductive in nature, and therefore the chapter provided only a general framework. The process set-up was open and iterative, constantly reacting to activities in the context and to actions of stakeholders. The approach of co-valuation was developed 'in action', while executing the case study, in order to adapt to the circumstances. Chapter 6 analyses this case study and provides a description of the activities that were executed in the co-valuation process.

5 Case study: Around Arnemuiden

To experiment with an approach of co-valuation, involving stakeholder values on water in spatial water management, a case study was conducted: the project Around Arnemuiden[61]. Section 1.5 discussed that the research applied a specific methodology that influenced my role in the case as well as the role of the case study in the research. As I was heavily involved in conducting the project, this chapter can provide an *inside* view on the process and experiences. The case functioned as an experiment to develop an approach of co-valuation 'in action'. Based on the experiences in the case, chapter 7 presents an adapted approach of co-valuation.

This chapter provides a description of the case. First the background of the case is explained: the societal and policy context in which it took place (5.1). The chapter then describes the interactive decision-making project conducted in 2006 and 2007 (5.2), and explains how the situation returned to business as usual (5.3). The case description follows the framework for study of co-valuation provided in chapter 4.

5.1 The local context

The historical background and policy context of the project Around Arnemuiden are significant for understanding the project, its aims and its difficulties. The background explains why the project was executed in its specific way. This background portrays a local government unable to develop a spatial plan that is supported by its inhabitants. The municipality of Middelburg focused on grand and ambitious housing plans and the expected short-term benefits, while the local stakeholders and inhabitants of the town of Arnemuiden posed other values on the area. This ended up in a deadlock situation with the local inhabitants obstructing any municipal initiatives for redevelopment of the area. In order to escape from the stalemate, a consortium of governmental organizations and external project organizers[62] started an interactive decision-making project in which

61 The execution of the case study and related research was funded by 'Leven met water', a Dutch knowledge impulse programme aiming at the study and implementation of changes in water management. (www.levenmetwater.nl)

62 The consortium consisted of the Municipality of Middelburg, the province of Zeeland, the Directorate-General for public works and water management (Rijkswaterstaat), the government service for land and water management (DLG) and the Water Board, with The Netherlands Organization for Applied Scientific

all relevant parties were involved: the project Around Arnemuiden. This project aimed to develop an advice for reorganization of the area that was supported by both the stakeholders and the governmental organizations involved. The project aimed to achieve this support by starting scenario development with stakeholder values and perspectives on the area. Figure 5.1 shows the city of Middelburg, the town of Arnemuiden, its surroundings and the project area.

Figure 5.1: Overview of the project area and surroundings

How could it have come this far? What happened to the inhabitants that they were so reluctant to any changes in their surroundings? And what caused the municipality to end up stuck in this situation? To answer these questions we must go back to Middelburg, 1997[63]. What follows is a lengthy description of relevant developments in the context of the project, summarized in table 5.1. Section 5.2 describes the interactive process conducted under the header of Around Arnemuiden.

5.1.1 New people, new energy

In 1997, important organizational changes took place in the city of Middelburg and its surroundings. By order of the province of Zeeland a municipal reorganization came into effect, enlarging the administrative area of Middelburg with the town of Arnemuiden and part of the lake Veere (including the hamlet of Kleverskerke; see figure 5.1). A new

Research (TNO), Tauw (a technical consultancy in water management), and the Erasmus University Rotterdam as external project organizers.

63 This research takes 1997 as a starting point for policy analysis. Although other points in time could have been applicable (consider 1953, the year of Zeeland's catastrophic water disaster and highly influencing peoples attitude to water ever since; see 2.4), the year of 1997 marks important institutional reforms at the municipal level in the area, reshuffling previous formal and informal relations.

Table 5.1: Chronological overview of events preceding the project Around Arnemuiden

Year	Event
1996	Dutch organization for Municipalities criticizes functioning of municipality of Middelburg
1997	Municipal reorganization; Arnemuiden becomes a district of the municipality of Middelburg New city-council, Board, and Mayor (more Christian parties) New plans and ambitions for the city of Middelburg Administrative crisis gets under way
1998	Presentation of Quality Atlas Middelburg 2030
2000	Mayor of Middelburg resigns
2002	New Mayor of Middelburg Dutch law on dualism in municipal administration comes into effect Municipal elections: half of the city-council is replaced
2003	Governmental reorganization of the municipality of Middelburg Municipal planning document on the region of Arnemuiden
2004	Provincial document Around Lake Veere, including plans for the region of Arnemuiden
2005	Evaluation of the Quality Atlas: adjustment of goals
2006	Municipal elections Municipality lets go of plans for water in the region of Arnemuiden; continuation of plans for building houses and start acquiring land Start interactive project Around Arnemuiden

Board and city-council[64] were elected. Due to the reorganization the number of small Christian parties increased, resulting in new political relations and various new Board members and councillors.

Prior to these organizational changes, in 1996 the Dutch organization for municipalities[65] had criticized the functioning of the city-council and Board of Middelburg. It was argued their malfunctioning had caused developments in the city to falter: the number of citizens decreased while the percentage of elderly increased, no houses or education for young people were available, employment declined, businesses and government agencies moved out of the city due to a lack of skilled employees, and recreational facilities were outdated and insufficient. Following the criticisms, the newly established Board presented an ambitious policy program that aimed to improve the relationship with citizens and a – so-called – Renaissance of the city. The policy program aimed for 'energetic management', careful planning, improved communication between the Board and its civil servants, and the early involvement of the city-council, of citizens and of stakeholders in important projects. The changes in staff allowed for new and long-term ambitions and a new Mayor was contracted to head the city's revitalization.

This new Mayor appeared rather ambitious and new energy filled city hall. To test the new municipal policy and plans, the Board needed a plan for the city's development. Early 1998 they contracted a Dutch architect and planning firm[66], headed by a renowned spatial planner, to develop this plan: the 'Quality Atlas Middelburg 2030' (BVR 1998). To

64 In Dutch: College van B & W and gemeenteraad respectively
65 In Dutch: Vereniging van Nederlandse Gemeenten
66 BVR, headed by Riek Bakker

reach agreement on problems and solutions, this firm from the very start aimed to involve relevant municipal servants, external professionals, stakeholders, citizens and social organizations, which suited the goals and aims of the newly established Board and city-council well. The firm organized city conferences, city debates, discussions with different groups of stakeholders, expert meetings and workshops. Such an open planning process was new to the municipality of Middelburg. It was hoped that the broad cooperation would generate new information, new ideas and societal support. So far so good.

5.1.2 Administrative crisis

By contracting an external firm for development of the Quality Atlas, however, the civil servants of Middelburg felt neglected. They did not support the planning process and soon they complained about the newly developed, intimidating relationship between civil servants, (some of) the aldermen and the Mayor. This marked the start of what developed into a serious administrative crisis in Middelburg.

The Mayor was accused of initiating a culture change in the municipality, and restricting civil servants' duties and responsibilities. Many civil servants felt stressed and got sick as a result[67]. The civil servants' labour union became involved and local as well as national media discussed the issue. Especially the Mayor's behaviour was subject of debate and soon the conversation turned to gossip[68]. In July 1998 two opposition parties, supported by a city-council majority, tabled a motion expressing their concern over the conflict between the Board and the civil servants, which they blamed on the municipality's new direction. In September 1998, the responsible (state) Minister became involved and the province initiated a study on the Mayor's functioning. This study ultimately cleared the Mayor of any accusations, but the conflict continued until well after and eventually resulted in the Mayor's resignation as will be dealt with later.

The municipality hired an independent consultancy firm[69] to study the effectiveness of the municipal organization, which they reported as conservative and lacking the capacities to adapt to changing political and societal needs. The consultancy firm recommended the municipality of Middelburg to start working at project level and to improve communication. Based on these criticisms, municipal employees were trained in project management and municipal reorganization took place in 2003 (see below).

5.1.3 Quality Atlas Middelburg 2030

In the meantime, the planning firm had finished its study (end of 1998). The Quality Atlas proposed an ambitious plan to improve the quality of the city of Middelburg and the surrounding area. Its major elements were an improvement of the area around the railway station with various new buildings, the construction of new housing areas at the borders of Middelburg, enhanced recreational facilities in the wider area, and an expansion of Lake Veere towards the city of Middelburg. This would require the flooding of local polders currently inhabited by farmers and the construction of a substantial dike around the hamlet of Kleverskerke (see figure 5.1). It was expected to provide the inhabitants of Middelburg with updated facilities, improved employment, and attractive houses.

67 E.g. local newspaper PZC, July 7th; October 14th; November 11th 1998
68 E.g. national newspaper Volkskrant, October 16th; October 17th 1998
69 Berenschot

The planning firm presented the Quality Atlas to the Board and informed citizens at a city conference. Representatives of previously involved stakeholder groups participated in a discussion on the Quality Atlas. After the conference, the municipality organized a phase of consultation during which citizens could express their concerns, pose objections or express their approval. A political discussion of the Quality Atlas (and all reactions) by the city-council was planned two months later. Previous to the public presentation at the city conference, however, the municipality already reported on the Quality Atlas to a small group of citizens whose houses were planned to be demolished and replaced by a theatre. These citizens felt attacked and were furious about the process through which they were informed. They reported in the local media, again, still preceding the official presentation of the Quality Atlas.

Various stakeholding parties and individuals posed objections to the Quality Atlas during the official presentation, the discussion with stakeholder groups and the later phase of consultation. Many considered the ambitious plans too expensive and therefore not realistic. Inhabitants and farmers of the hamlet of Kleverskerke felt neglected, as their hamlet did not appear on the maps in the Quality Atlas[70]. They objected to the proposed expansion of Lake Veere as it would require flooding much of their properties and agricultural lands. Also, they feared for the quiet and peaceful character of the hamlet. One of the aldermen noted that the value of houses in Kleverskerke would increase substantially due to the proposed recreational developments. The inhabitants, however, made clear that they did not care at all as they happened to live there for other reasons, which were the natural and peaceful surroundings[71]. Also inhabitants of the nearby towns of Arnemuiden and St-Joosland feared for the local identity and infrastructure of their towns in case many new houses would be built. Finally, the farmers' organization felt neglected in the process and feared the loss of agricultural land in the area.

Despite the clear lack of societal support, in March 1999 the city-council of Middelburg approved the Quality Atlas, though requiring further consultation with the agricultural sector. The city-council particularly praised the municipality's new direction of active communication with citizens as, in their perspective, was carried out with the development of the Quality Atlas.

5.1.4 The crisis untangles: administrative developments

The position of the Mayor was increasingly subject of debate and protests. Relations between Board and city-council deteriorated and in 2000 two aldermen and two councillors, all from the labour party[72], resigned. The Mayor lost his political support and later in 2000 the crisis culminated in a city-council vote of no confidence[73] against the Mayor and his subsequent resignation. In 2002 a new Mayor was found.

In 2002 and 2003 important changes again took place in the municipal administration of Middelburg. Next to the newly appointed Mayor, in 2002 municipal elections were held and half of the city-council was replaced. The new Board aimed to increase

70 In the local media, the Mayor then in function called this 'a little mistake' (national newspaper NRC, 17 April 2001).
71 NRC, 17 April 2001
72 PvdA
73 In Dutch: motie van wantrouwen

citizen involvement in its policy, which later coalitions reconfirmed (Middelburg 2006). For example, from 2002 onwards the municipality publishes a citizen annual report, reporting on possibilities for citizen participation, procedures for complaints and objections, and the perceived quality of municipal services. Also, every district of Middelburg was assigned a district alderman, whose task was to improve communication with citizens and with district groups[74]. Two more developments with important implications should be noted: the 2002 introduction of the Dutch law on dualism in municipal administration[75] and a governmental reorganization of Middelburg in 2003.

To start with the last, at the instigation of the afore-mentioned consultancy recommendations, reorganization of the municipal administration took place in order to improve services. With this reorganization, the municipality intended to change the previous dominance of controlling and professionalism into a focus on planning. Policy departments were separated from executing departments, including reorganization of their civil servants, removal of a management layer, and a huge reduction in the number of managing positions and of departments (Middelburg 2002). The other important development took place at the national level: in 2002 the Dutch law on dualism in municipal administration came into effect, which had a great impact on political relations in the local democratic system. This law aimed to revitalize municipal administration through a more clear and transparent separation of institutional roles and responsibilities (at the municipal level), and a more clear separation of administrative and control functions, which were assigned to Board and city-council respectively[76].

Hence, next to the already pressing hectic of changes in staff and a major reorganization, the administration of Middelburg had to introduce this new dualistic system in its government programme. Only little support for this change was present among the Middelburg city-council and Board, which retained a conservative allocation of roles and tasks. As a result, only few administrative changes took place. In 2006 the city-council's role remained only limited – far from its newly proposed 'control' function – and aldermen still highly influenced policy and decision making (Heijkoop 2006). The effects the law on dualism aimed for, enhancing the transparency and accessibility of the municipal organization for citizens, were not achieved in Middelburg (ibid)[77].

With new people in a new organizational structure of roles and tasks, in 2004 the municipal administration made a symbolic new start and moved to its newly built office, one of the first results of the implementation of a sub-project from the Quality Atlas.

5.1.5 Policy developments related to Arnemuiden

During these dynamics of crisis, administrative developments and repeated changes in staff, policy developments did not stop. Still surrounded by conflicts, in 1998 the city-council had approved the ambitious Quality Atlas and later coalitions reconfirmed this document as guiding for policy and decision-making in the municipal area. The Quality Atlas consisted of several sub-projects, which were studied in more detail and got

74 In Dutch: wijkwethouder and wijkbeheergroep respectively

75 In Dutch: wet dualisering gemeentebestuur

76 This law has been criticized for its argued unrealistic demands of the city-council, proposing a mere supervising and mobilizing role.

77 Based on the experiences in this case study these insights can be reconfirmed for 2009.

underway in the years that followed, despite sometimes severe opposition. Lengthy discussions took place on, for example, the construction of a new theatre, which led to another administrative crisis in 2005[78]. Based on a 2005 evaluation of the Quality Atlas' achievements, several goals were adjusted in the light of new insights and social developments (Middelburg 2005). From here, the section focuses on sub-projects and (policy) developments related to the town of Arnemuiden and its surroundings.

The Quality Atlas proposed ambitious plans for the town of Arnemuiden and its surroundings. A substantial part of the surrounding polder area was planned for new housing. Recreational facilities in the area needed improvement and expansion. In order to extend Lake Veere towards Middelburg, parts of the area were planned to be flooded: parts currently occupied by habitation, farmland, agricultural and recreational businesses. These plans were elaborated in a municipal planning document[79] (Karelse van der Meer 2003). As noted earlier, these plans invoked severe obstruction from the local inhabitants. In the meantime, also a provincial document had been presented, called Around Lake Veere[80] (Stuurgroep 2004). This document was developed in a cooperation of municipalities and other related (governmental) organizations surrounding the lake. It focused on plans and activities surrounding Lake Veere and identified several areas as 'hot spots', requiring further attention and planning. One of these concerned the recreational area northeast of the town of Arnemuiden, also dealt with in the Quality Atlas Middelburg 2030.

This left the inhabitants of Arnemuiden confused. Both the Quality Atlas and the provincial document made claims on the area surrounding Arnemuiden and related documents had been published as well (municipal planning document, municipal project plan, evaluation of Quality Atlas with adjusted goals). The inhabitants did not understand the status of these many plans or the relationship between them, nor did they like any of the plans proposed. Uncertain about the future, local entrepeneurs and farmers were doubtful about investing in their businesses and had difficulties to get funding. Inhabitants were not happy with their lack of involvement in the planning process and felt not taken seriously by their municipal representatives. They showed an increasing lack of trust in their municipal representatives and in the municipal administration in general[81].

In 2005, the municipality of Middelburg realized it would not be able to develop a supported plan for the area surrounding Arnemuiden on its own. Unable to deal with the many criticisms, the municipality eventually decided to let go of the plans to flood extensive parts of the area (to extend Lake Veere; Middelburg 2006). The housing ambitions for the area, however, were not abandoned. The municipality started acquiring land for these housing plans, even before political approval (Middelburg Dienst Ruimte 2006). Pushed by 2 progressive civil servants – one municipal[82] and one provincial –, a supporting provincial executive[83], and in collaboration with some research parties who searched for an interesting case, it was then decided for an interactive decision-making

78 Volkskrant, September 15th 2005
79 In Dutch: deelgebiedsvisie
80 In Dutch: gebiedsvisie Rondom het Veerse Meer
81 Based on interviews conducted in the project Around Arnemuiden; see 5.2.
82 The municipal civil servant involved in initiating the project, however, had changed positions at the time the project got started, resulting in the lack of a strong municipal adherent at the project's start.
83 In Dutch: Gedeputeerde van Provinciale Staten

project to take place, which was later coined 'Around Arnemuiden'. In February 2006 a 'kick-off' for this project took place, bringing together the governmental partners: the municipality of Middelburg, the province of Zeeland, the regional Water Board, Rijkswaterstaat and DLG, with Erasmus University, TNO and Tauw as external project organizers. Table 5.1 provides a chronological overview of the events preceding the project Around Arnemuiden, described in this section.

5.1.6 Arnemuiden

The town of Arnemuiden has a long and lively history dating back to at least the 12th century, originating at the shoreline of the river Arne[84]. Hardly imaginable today, 15th and 16th century Arnemuiden was an important trading centre and participated in the famous *Hanze* trade network. As the town was located at a strategically and economically powerful position, trading ships from all over Europe visited Arnemuiden with supplies for the cities of Middelburg, Dordrecht and Gouda (The Netherlands), Bruges, Ghent and Antwerp (Belgium). During the centuries that followed, however, the harbour of Arnemuiden and the river Arne silted up, the fleet moved to the harbour of Vlissingen, and as a result trade gradually moved to Middelburg. The once prosperous Arnemuiden became isolated from international trade routes and was left with local fishing and secondary fishery industries. The centuries that followed saw fishing and trade gradually replaced by farming on newly developed polder areas. By the 1960s, most fishery activities had disappeared and Arnemuiden was surrounded by agricultural (polder) land.

Nowadays, Arnemuiden is a district of Middelburg with 5440 inhabitants (CBS 2008), mainly young families. Employment is relatively high with building industries and retail as main employers. The town hosts a few shops and its surroundings are predominantly used for agriculture and small-scale recreation; a restaurant, a camp site and a small (inland) harbour are present. The town is known for its traditional culture, nowadays still (rarely) characterized by national costumes[85]. Religion dominates social life and is predominantly Protestant; 40% of the inhabitants subscribe to an ecclesiastic organization and Arnemuiden hosts 7 active churches. Politics is predominantly conservative with a dominance of small Christian parties, and community life is active with much voluntary work and many active committees (Middelburg 2004). The community is rather closed, still characterized by the traditional and highly appreciated fishermans' culture, as appears from the popular historical museum and the historical dock, and the many small signs of fishery life in gardens and windows.

In 1997, Arnemuiden became part of the municipality of Middelburg, to the strong discontent of its inhabitants. They would have preferred to remain independent and feared for the future of the town's specific identity. As described, shortly after the municipal reorganization, the Quality Atlas Middelburg 2030 was developed. Even though this took place in an interactive process including inhabitants of Middelburg and other stakeholding parties, the inhabitants of Arnemuiden did not feel involved at all[86]. This left the inhabitants

84 The river Arne, and the town of Arnemuiden, owe their name to 'Ar(n)' an old German word for water that is often used for rivers in Europe. Other examples are Aar (The Netherlands); Ahr (Germany); Aar (Sweden); Arno (France); Arne (Jura); and Oare (Great Britain).

85 In 1996 about 100 (female) inhabitants still dressed in national, home-made costumes on a daily basis.

86 This may be caused by the almost simultaneous occurrence of the incorporation of Arnemuiden with Middelburg and the development of the Quality Atlas, resulting in the lack of participation of the inhabitants of

of Arnemuiden feeling neglected and highly averse to the spatial plans. The later release of more governmental documents on the area (province 2004; municipality 2003, 2005, 2006), which were developed on a less interactive basis, only strengthened the opposition of the inhabitants. Especially the local district group – created after the municipal reorganization and mainly consisting of the town's previous Board – played an active role in this and repeatedly objected to both governmental and private proposals[87].

The inhabitants of Arnemuiden currently have quite a reputation among the civil servants of Middelburg. They are perceived as reluctant and not open for discussion. At the start of the project Around Arnemuiden, civil servants warned the researchers not to involve the inhabitants of Arnemuiden, especially the members of the district group[88]. When, however, the researchers organized a meeting with this group, they were welcomed by a small group of friendly retired men, who were highly concerned with the future of their town and its inhabitants. The district group resided in what used to be the municipal office of Arnemuiden – a historical building dating from 1865 – and offered coffee in cups still presenting the weapon of the former municipality of Arnemuiden. The researchers were given a guided tour of the museum with old maps illustrating the town's history. The men showed piles of maps with correspondence and documentation on previous governmental plans for the area, partly frustrated but also proud that they had stood firm in their beloved town.

One more remark on the situation in Arnemuiden must be made. Arnemuiden is located at Walcheren, province of Zeeland, situated in the Southwest of the Netherlands. While most of Zeeland was flooded with the disastrous event of 1953 (see 2.4), Walcheren was spared[89]. As a result, water, the sea, water safety, and re-flooding polder areas once claimed from the sea are not as sensitive issues as they are in other parts of Zeeland. Stakeholders in the area around Arnemuiden considered water as an important strength of the area. They did not consider (re-) flooding agricultural land a threat; a farmer participating in the project even proposed such for his own land (see 5.2). This attitude is rather different from the general perception of (sea-) water in the province of Zeeland[90].

5.2 The project Around Arnemuiden

It was in this setting and against the background of this societal and policy history that the project Around Arnemuiden got started. Because of this specific setting, the project was set up in a particular way. The researchers expected the active involvement of stakeholders in the decision-making project to ease their obstructive behaviour (see 1.4). To

Arnemuiden in the process.

87 The relationship of suspicion between Arnemuiden and Middelburg has even been dated back to the historical conflicts in the Eighty Years' war, when Alva ordered to destroy (Protestant) Arnemuiden in order to favour (Catholic) Middelburg.

88 The civil servants involved clearly did not understand the aims and ambitions of the interactive process at this stage.

89 Walcheren was, however, flooded in 1944 as a result of the inundation in World War II. Still, this flooding did not impact people's lives and fears of the sea in the area as seriously as it did in the 1953 event.

90 Goosen (2006:7-8) showed that 'giving land back to the sea' has been more of an issue in Zeeland than it has been in other (coastal) provinces of the Netherlands.

generate their support, they aimed to give the stakeholders a central role and provide them with the possibility to develop plans for the area based on their own values and perspectives. How this would be achieved, in a process preliminary coined co-valuation, the researchers intended to establish during the process, 'in action' (see 4.3).

The project took place between February 2006 and December 2007: as part of the research team, I was involved from April 2006. I actively participated in the process from the position of a participant-observer: I was part of my own research (see 1.5). After December 2007, I was no longer involved in discussion of the project outcome, but I took some incidental interviews and continued observing the activities that followed until November 2009.

This section first describes the aim of the project and its set-up in relation to the project's background. The section then presents the process conducted, following the framework that was set up for the development of co-valuation, presented in 4.3. The organization of participants and of the process, the efforts to embed the interactive process and its results in the municipal procedures, and the results of the scenario development are discussed. The description is based on my participation and observations in the project, and on documents developed and activities conducted in the project, like interviews, a questionnaire, the series of workshops and an *ex post* evaluation.

5.2.1 Aim of the project

The project Around Arnemuiden aimed to develop an advice for reorganization of a rural area northeast of the town of Arnemuiden (see figure 5.2). As section 5.1 described, planning of this area has a turbulent history of plans proposed by governmental organizations, which generally aimed at a revival of (water related) recreational functions and the development of housing in the area. To date, none of these plans have been implemented, partly due to the obstructions of stakeholders who preferred to maintain the area in its current rural state. The issue had become highly controversial and ended up in a situation of deadlock. Still, governmental organizations – the province, the municipality and the Water Board – were of the opinion that redevelopment of the area was needed. They recognized that various parties in the area possessed the knowledge, means and responsibilities that would be needed for a decision to be made and which, therefore, should be involved in the process to succeed. They recognized that support for decision-making was needed from all of these parties involved (Duijn 2005; Edelenbos and van Schie 2009).

To mediate between these parties and to come with an advice that would be supported by the obstructing inhabitants, some governmental organizations decided for an interactive decision-making project (as discussed in 5.1). An external team of TNO, Tauw, and Erasmus University was contracted to manage this process, further referred to as 'the researchers'. Governmental organizations were gathered in a consortium[91] that commissioned the project and supervised its process. This consortium came to

91 The consortium consisted of the Municipality of Middelburg, the province of Zeeland, the Directorate-General for Public Works and Water Management (Rijkswaterstaat), the government service for land and water management (DLG) and the Water Board, with The Netherlands Organization for Applied Scientific Research (TNO), Tauw (a technical consultancy in water management), and the Erasmus University Rotterdam as external project organizers. Also the farmers' organization joined the consortium's meetings, as it was considered an important party in the region.

Figure 5.2: Location of the project area

agree that the interactive project would aim to involve all governmental and non-governmental organizations, inhabitants, NGOs and other local parties bearing a stake in the issue, and to achieve their support for both the process and its outcome. This was to be achieved through the involvement and combination of the information these various parties possessed (both experiential- and expert knowledge), to establish a shared body of information. This body of information would support the joint development of scenarios for reorganization of the area (see components of the research, 4.2).

To overcome the obstructions of inhabitants and the feelings of distrust between the municipality and the inhabitants, the interactive project initially focused on the values of inhabitants as a source of information for scenario development. The researchers aimed to identify the values of these stakeholders, and to use these as a starting point for scenario development. The project further aimed at the development of integral scenarios that addressed all spatial functions of the area. Whereas the content of the scenarios to be developed was left open to the participants, the consortium agreed that the project would inventory the stakeholder values of water in particular, exploring the possibilities for the construction of more water in the area like reconstructing the historical river Arne[92].

5.2.2 Prior to the start

Preceding the actual start of the interactive process, the researchers conducted a study of the area and project background, a policy analysis and literature study. This provided

92 It was settled that the values and perceptions concerning water in the area would be expressed in the future organization of the area. This followed the philosophy of the financing institution, aiming to give water 'a new place' in spatial organization, and the municipal ambitions to develop more water for recreation in the area. This could well be no more water than currently present, as long as this would adequately express the stakeholder value(s). Even though the construction of more water in the area became to be known as the 'reconstruction' of the historical river Arne, this river used to flow at a slightly different location.

information on the area relevant to the project (see 5.1). The researchers intended to gain more information through interviews and this study provided ideas where to start. The researchers conducted 60 semi-structured interviews with intended participants in the process: citizens of Arnemuiden, inhabitants of the project area, farmers, land owners, entrepreneurs, representatives of NGOs and expert organizations, civil servants and policy and decision-makers. They made an initial list of interviewees that was extended via a 'snowball method', asking interviewees who would be interested or relevant to be interviewed as well. The interviews took approx. 2 hrs and were held with the interviewees at home, or at one of the participating organizations' offices. With the interviews, the researchers intended to assess the interviewees' willingness to participate in the process; to inventory the perceived strengths, weaknesses, opportunities and threats of the area; to explore what was at stake and for whom with regard to redevelopment of the area; to inventory controversial issues, wishes and restrictions on the redevelopment; and to gain a first general idea of the stakeholder values on spatial elements of the area and on surface water in particular.

Many interviewees appeared to be willing to actively participate in the process; especially once they heard that they could provide their own perspectives and previous governmental plans would be put aside. Most notably, all farmers and landowners in the area intended to take part in the project. The researchers tested the values that were identified in the interviews in a questionnaire, filled in by participants of the first workshop (see below).

5.2.3 Start of the project

The interviews revealed that many stakeholders appeared interested to participate. Also, various governmental organizations, NGOs, expert organizations, and other local parties intended to take part, resulting in a big and varied group of participants. At the start of the project, the researchers divided these many participants into groups, they developed a project plan for the process to be conducted, and paid attention to the embedding of the project in the existing system (see 4.2), successively discussed below.

Groups of participants

The researchers divided the involved parties and individuals into six groups, each with its own role and task in the project. They expected this division to ease the management of the large and varied group of participants, to enhance the transparency of the project organization, to improve the level of support for the project, and to embed the process and its outcome at different societal and governmental levels (see below). Table 5.2 shows the different groups, their members and tasks in the project.

The *advisory group* was most important in the interactive process as this group would develop the advice for reorganization of the project area. The advisory group consisted of the local stakeholders: all farmers and landowners in the project area, interested inhabitants and local businesses of the area and the town of Arnemuiden, and representative organizations like the district group, the local fishermen's organization, and the historical fisheries association. In total, a group of 35 people generally attended the workshops of the advisory group.

This group got support from the *expert group*, consisting of professionals on various spatial subjects like water management, infrastructure, housing and farming. The

experts involved were representatives from the professional organizations involved in the project (both governmental and non-governmental). The researchers envisaged the expert group to repeatedly discuss the ideas developed by the advisory group, and to improve the feasibility of the scenarios. Through the experts' involvement they intended to involve their specialized knowledge and also to generate support for the project in their organizations. Approximately 15 experts attended this group. It is notable that the experts had a supportive role in the process, clearly different from conventional planning and water management processes in which governmental experts are used to fulfil a leading and rather dominant position (see 2.4).

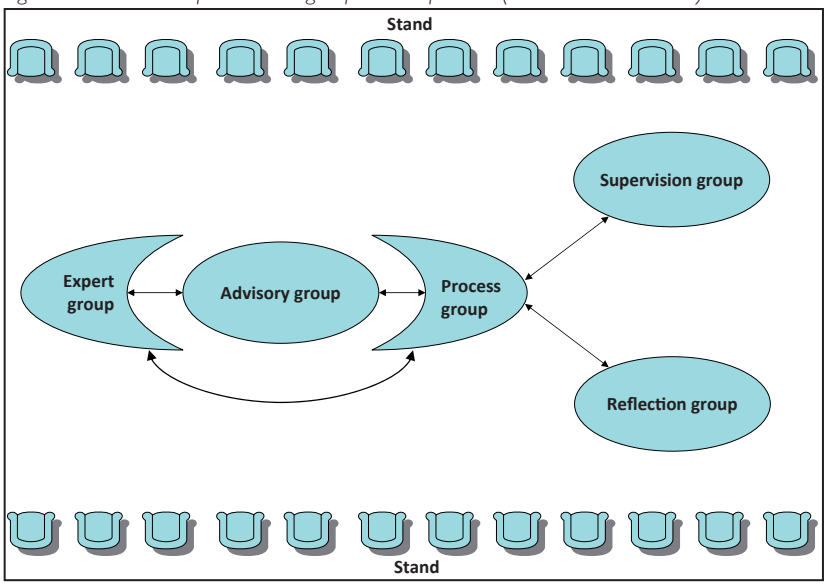
Four more groups were active (see table 5.2). The *process group* took care of the daily management of the process and functioned as intermediary between the expert group and the advisory group as no direct communication between these groups took place. Also, the process group managed public communication on the project including the publication of 3 booklets on intermediate results. Both the process group and the *supervision group* were concerned with the political and executive embedding of the interactive process and its outcome. Amongst others, the provincial executive and the responsible alderman were involved in this (Edelenbos, van Schie, and Gerrits 2009). The *reflection group* was established for communication with supervising researchers and the co-financing organization. Finally, people interested but not willing or able to actively participate could attend the meetings and workshops in a *stand*, enabling them

Table 5.2: Groups identified in the project Around Arnemuiden

Group	Members	Task
Advisory group	Stakeholders bearing a direct stake in the development area, organized as well as non-organized (inhabitants, farmers, associations, companies, etc.)	Development of an advice for redevelopment of the project area
Expert group	Experts with a professional stake in the area, from governmental and non-governmental parties involved	Assessing the ideas of the advisory group and contributing by suggesting improvements based on their expertise
Process group	Executives of the administration of Middelburg, the province of Zeeland, Rijkswaterstaat, TNO, Tauw and EUR	Support the process by mediating and taking care of the daily management
Supervision group	Representatives of the consortium members	Guide the process through the political level of decision making and decide about every next stage in the process
Reflection group	Researchers, director of co-financing organization	Critically scrutinizing the innovative quality of the process and providing the process group with advice
Stand	Everybody interested to listen and observe the process, from the general public to the city-council of Middelburg and the scientific community	Enables everybody interested to take notice of the process, be present at meetings, and be informed on the progress, without the consequences of active involvement

to listen to discussions and be informed on the process. For example, five councillors of the city-council of Middelburg regularly attended the workshops from this position, in order to prepare their future decision-making on the outcome. Figure 5.3 shows the relationship between the different groups identified.

Figure 5.3: Relationships between groups in the process (van Schie et al. 2007)



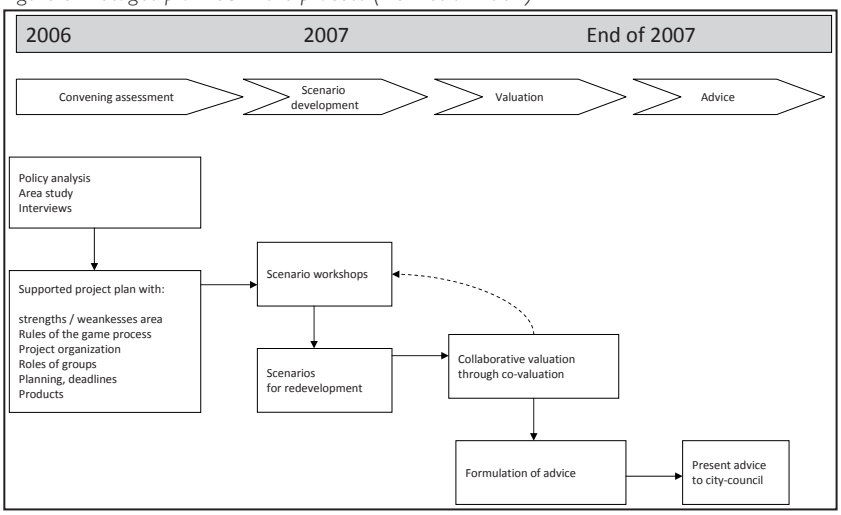
Development of a supported project plan

Together with the consortium parties, the researchers developed a project plan that functioned as a start for scenario development. The project plan provided the rules of the game for the interactive process: restrictions and conditions as posed by law and policy documents, the roles and tasks of the different groups involved, agreements on end results and deadlines, and rules of behaviour and process management.

The project plan established several stages in the process the researchers intended to conduct, illustrated in figure 5.4. After the initial stage of interviewing, study of the area and development of the project plan ('convening assessment'), the researchers envisaged a stage of scenario development, followed by valuation of the scenarios and finally formulation of the advice. The project plan provided ideas on workshops, the development of scenarios, communication and reporting on (intermediate) results. The researchers intended to develop a project plan that was supported by all governmental organizations involved in the project, to gain their support for the process at this early stage. The project plan also reported on a 'reference scenario' that the researchers developed together with the process group. This scenario expressed what would probably happen in the area in case the interactive project would not have been conducted, and could provide as a base case for comparison with the project results.

The project plan also included the wishes, restrictions and controversial issues for redevelopment of the area as posed by stakeholders in the interviews. The interviews revealed that the stakeholders saw water, water related nature and water recreation as strengths of the project area. Most of the interviewees felt that these strengths should

Figure 5.4: Stages planned in the process (EUR et al. 2007)



be used to improve the area. The researchers identified several shared ideas and noted that the stakeholders attributed different kinds of value to water in the area (at this stage). The stakeholders related the (positive) value of water to the area's history, to nature, to recreation, and to housing in the area. The researchers expressed these in four themes for scenario development: water & history; water & nature; water & recreation; and water & housing. The researchers planned to test and if necessary adapt the themes at the first workshop and in a questionnaire to be filled in by the advisory group.

The researchers organized a 'kick-off' meeting to symbolically start the interactive project. This meeting was open to the general public and was organized in the local community centre of Arnemuiden. At this meeting, the consortium commissioning the interactive decision-making project presented itself; officials of the province, the municipality and the co-financing organization provided information about the project; the supported project plan was established; and several governmental representatives were provided with the opportunity to publicly establish their support for the process. Also, the group of experts met and the researchers provided them with information on their expected role in the project.

Embedding of the interactive project

Based on previous insights on the problematic interconnection between interactive processes and formal (representative) procedures in spatial water management (see 2.3 and 2.5), the researchers aimed to actively embed the interactive project and results in the (representative democratic) decision-making procedures in the project area. The researchers constructed and organized connections at 4 levels: the political, executive, professional, and policy level of decision-making (see third component of research, section 4.2). The different groups of participants created in the project were, amongst other things, intended to embed the interactive project at these levels (see also Edelenbos, van Schie and Gerrits 2009).

The *political* level concerned the adjustment of the interactive process to the regular ways of political decision-making by representatives. Previous research has shown that embedding at the political level is important to prevent parallel traditional policy-making

trajectories, hence the researchers paid due attention to this level (cf. Edelenbos 2005). The role of political officials in interactive projects depends on how they interpret representative democracy. In the project Around Arnemuiden this concerned the city-council of Middelburg. The researchers intended to actively involve the councillors and asked them to participate in the process. The municipal alderman and civil servants, however, decided that this would conflict with the traditional control function of the city-council and prevented the active participation of councillors in the process. Nevertheless, five councillors were interested and took on the role of auditors, observing discussions and workshops (from the stand). The researchers also organized several feed-back moments during the process to keep the city-council informed (cf. Edelenbos 2005).

The *executive* level concerned the embedding of the interactive project in the administrative and executive institutions, expressed in, for example, the roles of the responsible alderman and the provincial executive. For this purpose, the researchers established the supervision group in which the municipal alderman, the provincial executive, and high-level executives from the Water Board and other participating (governmental) organizations participated. Via the supervision group they were informed on the process and they advised the researchers on the project's executive aspects. The supervision group identified rules and restrictions on the project and participated in the development of the project plan. With this, the researchers aimed to ensure embedding of the project in the executives' representative organizations. During the process, (some of) the executives involved were provided with opportunities to publicly express their commitment to the process, for example in booklets that were published on intermediate results.

The process group was intended to embed the process among civil servants of some of the governmental institutions involved: the municipality, the province and Rijkswaterstaat. The process group took care of the daily management of the project. The civil servants involved actively participated in the development of the project plan and the rules and restrictions for the process. Also, these civil servants had the responsibility to activate and keep informed their organization's executives (which were involved in the supervision group), and other people involved from their organizations, like the head of their department. Civil servants were key figures in the process and to ensure their commitment the researchers decided for their active involvement in several groups; civil servants were active in the supervision group, the process group, and the expert group.

The *professional* level concerned the embedding of the interactive project in the professional or expert domain. As discussed in 2.4, the domain of professionals dominates policy- and decision-making in spatial water management. In interactive processes, however, professionals are 'but' one of the possible parties involved and providers of information, and as a result the role of professionals in planning processes changes (see 2.1). This role may not be common to, or appreciated by them; making the interconnection between the interactive process and the professional domain an issue of high concern. In the project, professionals or experts were gathered in an expert group. Via this group the researchers aimed at the involvement of professional knowledge, and also at the embedding of the project results in the experts' organizations, which would probably be involved in the later execution of spatial plans for the area. As discussed, the experts had a responsive role in this group rather different from their common roles and tasks in decision-making.

The *policy* level concerned the connection of the project outcome to existing policy documents and democratic institutions; whether the results could be processed

in the regular decision-making procedures. The outcome of the project had to fit in with the boundaries and conditions defined by earlier policy decisions (documents) and legislation. At the beginning of the interactive project, therefore, the supervision group and process group set project boundaries and rules of the game following current policy documents and earlier decisions in the project plan. Important policy documents for the project were the municipal Quality Atlas and the provincial document on the area (see 5.1). During the project, the municipal activities on a (second) revision of the Quality Atlas became of special concern, as this would involve planning for the same area. Discussions on the status of the (expected) interactive outcome arose among the municipal participants, as they were unfamiliar with such products and were uncertain about their status in the representative democratic system. As the revised Quality Atlas was expected at the end of 2007, as was the outcome of the interactive project, the municipal alderman and civil servants proposed to combine the political discussion of both. They expected that this would enable discussion of the advice in the municipal ways of conduct. The researchers had meetings with the (municipal) manager responsible for the revised Quality Atlas, and adjusted the form of the advice accordingly.

5.2.4 Scenario development

The researchers organized a series of workshops with both the advisory and the expert group separately. The advisory group developed spatial scenarios based on their values and perspectives, after which the experts reflected on these and provided suggestions for improvement. The advisory group then discussed these suggestions and adapted the scenarios, which were returned to the experts for discussion, and so forth. The researchers functioned as intermediaries between the groups and took care of proper communication. No combined workshops for the advisory group and expert group took place as the researchers expected the experts to dominate such meetings, preventing the stakeholders in the advisory group to speak freely. Also, in the interviews stakeholders had noted they were not interested (or even refused) to discuss with experts or representatives from governmental organizations.

The process of scenario development was steered by a focus on stakeholder values, especially their values for water in the area. The researchers aimed to identify and verify the stakeholder values, and to facilitate the advisory group to develop integral scenarios for redevelopment of the project area, based on these values. For this purpose, the researchers organized a series of 6 workshops. These workshops took place at the local community centre; they took 2-3 hrs each and were well attended. During the workshops, the researchers inventoried the participants' values of different spatial elements in the area, they checked these values several times, and safeguarded the involvement of these values in the scenario development.

The first workshops focused on the diverging of ideas; in later workshops converging and specification of the ideas took place. To stimulate the creative process, the participants and researchers wrote storylines and illustrators visualized the ideas with maps drawn during the discussions[93]. The researchers repeatedly checked for the participants' approval during the workshops. Participants received all intermediate results for confirmation, and

93 Illustrators from Tauw and DLG, both consortium members of the project, facilitated the workshops.

they collaboratively adapted intermediate findings during the next meeting if necessary. The series of workshops consisted of three overlapping stages, subsequently discussed below: ideal scenarios (a), assessment (b), and specification (c). As mentioned, expert workshops were organized in between stakeholder workshops, to discuss and possibly improve the (intermediate) findings of the advisory group. The results of the different stages in scenario development were established in 3 booklets; the first presenting the results from the interviews (van Schie, Rijnveld and Kalverboer 2006), the second presenting the ideal scenarios (van Schie, Rijnveld, Edelenbos et al. 2007), and the third presenting the final advice for redevelopment of the area (van Schie, Edelenbos, Rijnveld et al. 2007).

a. Ideal scenarios

Based on the results of the interviews, the researchers had identified four themes for scenario development. They intended the advisory group to develop ideal scenarios for the area based on these themes, which would express ideal futures for the area, still unrestricted by practical or technical limitations.

At *workshop 1*, the advisory group filled in a questionnaire to check the outcome of the interviews. The advisory group approved the four themes and voluntarily divided itself into four subgroups to develop ideal scenarios based on the themes. Each subgroup was supported by a facilitator and an illustrator, who drew maps of the plans developed. The advisory group was asked to dream about the area, to envisage ideal futures. This stimulated them to think 'out of the box', beyond the infamous governmental plans developed earlier, and to come up with new ideas based on their own perspectives (De Groot, Winnubst, van Schie et al. in prep.). The participants discussed their ideals for the area and also any controversial issues that came up, and the facilitators recorded both agreements and differences of opinion. Together with the illustrator, the participants located their ideals on a map, which stimulated them to think about the consequences of their dreams, differences and similarities, and possibilities to combine dreams. After the workshop, the illustrators adapted the maps and the facilitators of the subgroups wrote story lines that expressed the dreams and ideals developed during this workshop. The story lines also explained the different spatial elements of the scenarios (water, landscape and nature, agriculture, recreation, infrastructure and housing).

At *workshop 2*, the subgroups discussed the story lines and maps of the scenarios and adapted these if needed. They then discussed the different elements of the scenarios: the facilitators asked the participants why the elements they had selected were important, and which were more important than others. The facilitators tried to uncover the participants' reasons for including specific elements. This made transparent and enabled discussion about the values of participants, and explicated the consequences of values (and spatial ideals) for others, who possibly had other values. The participants discussed the spatial consequences of their ideals, adapted the map, and addressed all spatial functions of the area in order to develop integral spatial scenarios. Finally, the advisory group formulated questions to the experts about technical possibilities and the feasibility of their ideas.

After the second workshop of the advisory group, the researchers presented the four ideal scenarios and story lines to the *expert group*. The experts discussed the questions of the advisory group, and noted positive and negative aspects of the scenarios. They discussed practical and technical limitations and made recommendations to improve the feasibility of the scenarios (see van Ast, Gerrits, Edelenbos et al. 2007).

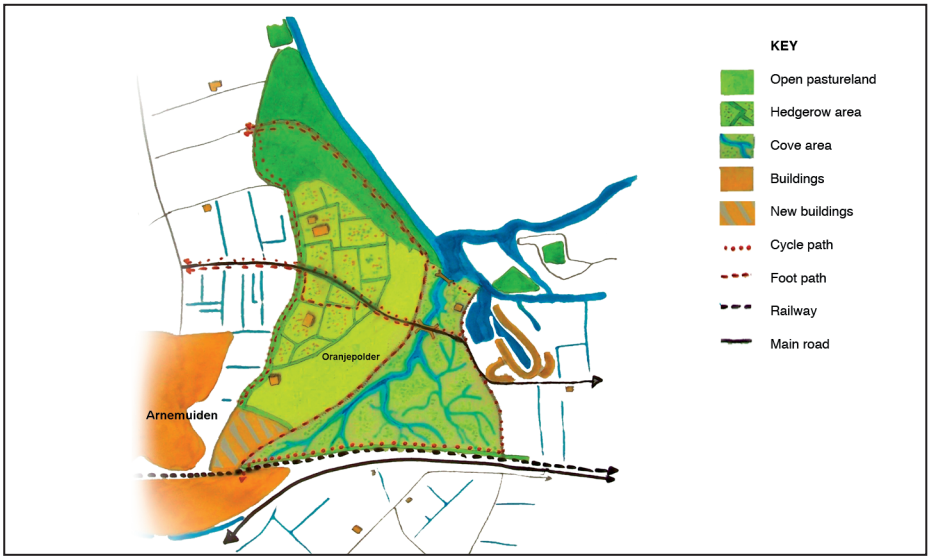
b. Assessment

At *workshop 3*, the advisory subgroups discussed the expert suggestions and adapted the scenarios. Four ideal scenarios were approved, each accompanied with a story line (see figure 5.5).

All participants in the advisory group then assessed the four ideal scenarios in a 'valuation exercise'. Previous to the workshop, the subgroup facilitators had made lists of

Figure 5.5: Four ideal scenarios developed in the first phase of scenario development (van Schie et al. 2007; illustrators: E. de Kock and M. Gerritsen, Tauw)

Ideal scenario water & nature



Ideal scenario water & history

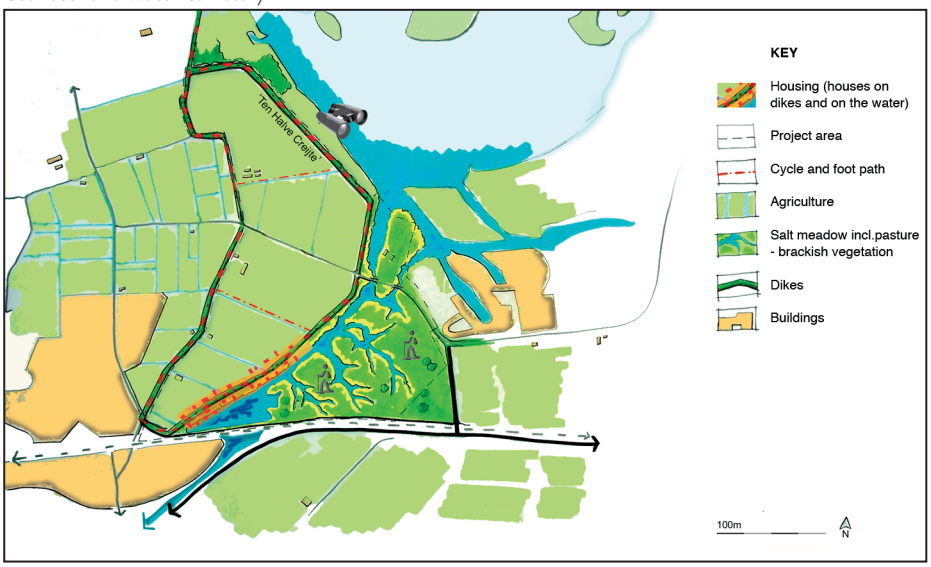
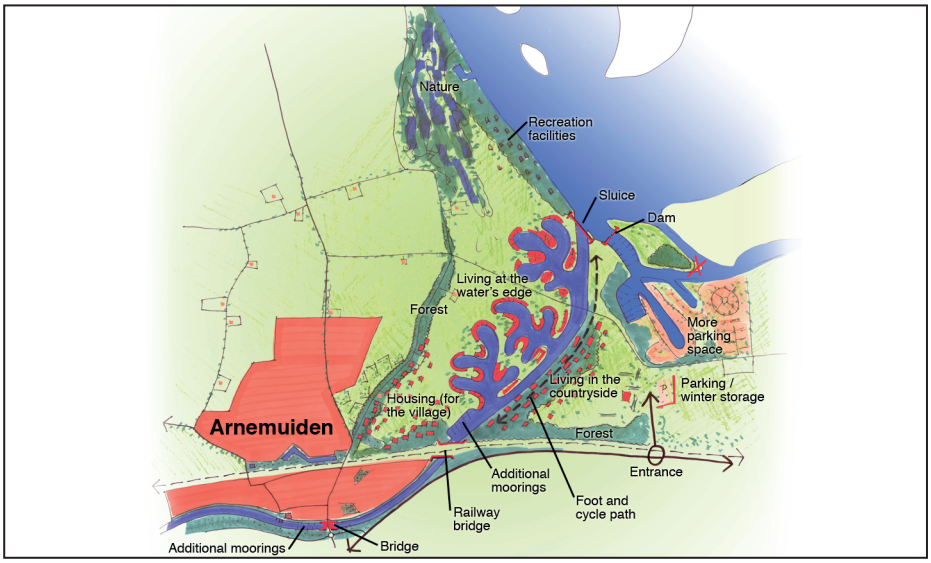
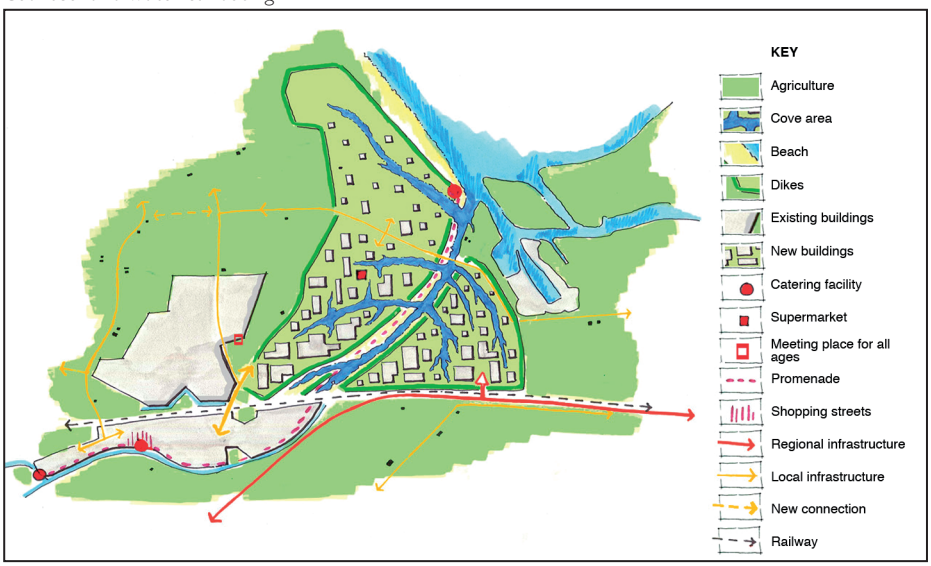


Figure 5.5: Four ideal scenarios developed in the first phase of scenario development

Ideal scenario water & recreation



Ideal scenario water & housing



the spatial elements of the scenarios (concerning water, landscape and nature, agriculture, recreation, infrastructure and housing), and the various reasons of participants to include these, as identified in workshop 2. These various reasons (even for the same spatial element) showed the different perspectives on the area. The subgroups subsequently presented the four ideal scenarios to the complete advisory group, showing a map of the scenario and the list of spatial elements and reasons (that the researchers had made), printed on big sheets of paper. All members of the advisory group then 'valued' the

different elements of the scenarios. They did this through the distribution of stickers to elements of the scenarios they liked, which they placed on the lists of spatial elements. For each scenario, they got a limited number of stickers each, and were asked to distribute these among the elements they liked most (on the big sheets of paper). The lists of spatial elements also provided the subgroup's reasons for including the specific element in the scenario, and the participants now were forced to envisage these reasons, and to decide which reason they agreed with and would receive their sticker. For example, for the scenario water & history, the subgroup provided for the element of water (as illustrated in table 5.3) the following reasons. They envisaged more water in the area because the town of Arnemuiden had originated along, and because of, water; because more water would improve the area's attractiveness for both holiday-makers and inhabitants; and because more water would enhance the quality of the area. The participants could also

Table 5.3: Example of list of spatial elements (and reasons) of the ideal scenarios, developed in the valuation exercise (workshop 3)

Excerpt from table on ideal scenario water & history (van Schie et al. 2007: 54)
(T=total. Reasons mentioned were identified by the subgroups; stickers were provided by all members of the advisory group, who had a restricted nr of stickers to distribute. Numbers can only be analysed on their relation to one another.)

Spatial element	**Reasons**	**Nr of stickers**
Development of new river Arne from Lake Veere towards the town of Arnemuiden	(a) Arnemuiden originated along, and because of, water	5
	(b) Water will improve the area's attractiveness for holiday-makers and inhabitants	17
	(c) Water will enhance the quality of the area	6
		T:28
The Oranjepolder remains in use for agriculture	(a) Agriculture has been important in the area for over 350 years and will remain to be so	2
	(b) Agriculture strengthens the local character of the area	1
	(c) The area needs agriculture	-
		T:3
Development of a creek area with network of hiking and cycling paths	(a) To provide recreation facilities for various social groups	1
	(b) To enhance recreation revenues	6
	(c) To visually express the quality and interesting history of the area	4
		T:11
Limited development of housing area near dikes and the new (inland) port	(a) To provide starters with the possibility to live in A.	5
	(b) To finance the other developments proposed;	1
	(c) Scale of new housing must fit the area	1
		T:7
Development of new highway infrastructure	(a) To solve current traffic problems around Arnemuiden	9
	(b) To keep the area accessible with the new developments	1
		T:10

decide not to distribute their sticker, and they were provided with one red sticker per scenario to express their dissatisfaction with a spatial element. Moreover, the participants could add a reaction, or elements they missed, on little notes. Table 5.3 shows an example of the lists of spatial elements and reasons that were used for stickering, and the numbers of stickers that the participants distributed (see van Schie et al. 2007).

Through this distribution of stickers, the participants showed which spatial elements of the ideal scenarios they liked (and disliked) most; they expressed their valuation of the spatial elements. As they went by the scenario maps and lists in groups, they discussed the scenario with their subgroup peers, observed differences and similarities with the scenario they developed themselves, and discussed which elements appealed to them most. Via the stickering, the advisory group identified the key elements that best represented their values and preferences for the future development of the area. Table 5.3 shows that most stickers were distributed to the spatial element of (more) water.

c. Specification

The researchers analysed the results of the third workshop to establish the most highly valued elements, and the elements that were disliked or even controversial. They analysed this in a predominantly qualitative manner, concerning the distribution of stickers and without use of statistics. The number of participants and distributed stickers did not justify such use. Moreover, the valuation exercise was intended to arrive at the most highly valued spatial elements (at this time in the process), and not a strict ranking.

The results of the valuation exercise in the third workshop showed a high agreement among participants in the advisory group on spatial elements. Only few elements were valued negatively (the red stickers). Most participants positively valued the same elements of the ideal scenarios, yet for different reasons. The distribution of stickers showed that water was highly valued in the area, reconfirming previous findings (interviews, questionnaire). Although for different reasons, most participants were of the opinion that water should be more important in the area, in one way or another. The maps of the ideal scenarios show this as each proposed a new body of water at a rather similar location (see figure 5.5). Still, the results of the third workshop also showed disagreement among participants about the intensity of developments in the area, for example concerning the amount of water in the area, or the number of houses to be built. For each spatial element of the scenarios, the distribution of stickers showed this variation.

Based on the results, the researchers established the 'acceptance range' for each spatial element. For example, the participants highly valued water in the area from only 'shallow creeks' (low intensity), up to 'navigable water' (high intensity). An even lower (no water) or higher (convert whole area into water area) intensity, the participants did not approve. As the results showed a high level of agreement and no controversial issues appeared to be present, the researchers used the highly valued spatial elements to compose two new themes for scenarios: one representing a less intensive development, and one representing a more intensive development of the area. The first would comprise only shallow water; the second deeper, navigable water.

At *workshop 4*, the researchers presented the 'acceptance range' for the spatial elements of the area as identified from the workshop 3 results. They proposed to rearrange the advisory group and to develop two new scenarios, starting from either a less intensive or a more intensive development of the area. The advisory group approved, and

voluntarily separated into two newly arranged groups. Again, each group was supported by a facilitator and an illustrator. As water was such a highly valued element, this element was used to restart discussion on a new scenario: first the groups would establish 'what the water would look like'. Then they would arrange other spatial elements to develop integral spatial scenarios. The illustrators drew maps of the new scenarios and again the facilitators composed an accompanying text explaining the values expressed and reasons for the specific elements of the scenario.

The researchers then presented these scenarios to the *expert group* again. The experts discussed the scenarios during two meetings: first they identified problems, and in a second meeting they discussed possible solutions and improvements of the scenarios. They agreed with the establishment of the two new scenarios, and argued that a clear decision was needed for redevelopment of the area in either an extensive or an intensive fashion. The experts provided insights from their various fields of expertise and made suggestions to increase the feasibility of the scenarios. They provided texts for adoption in a report on their findings (see van Ast et al. 2007). At these meetings, the researchers also asked the experts to assess or evaluate the scenarios. It became clear that the municipality was used to decision-making based on (short-term) cost-benefit-analysis, involving predominantly financial measures and index numbers. The experts perceived such measures as needed for assessment of the scenarios. The researchers organized some extra meetings with (selections of) the expert group to discuss these issues. Together with the experts, and supported by an external specialist, the researchers identified the financial measures as far as this was possible with the scenarios[94].

The researchers then combined the measures identified with the expert group and the values that the advisory group had provided during the workshops. They added both bodies of information in a table, presenting all different perspectives and values involved in the scenarios. To connect to customs in the municipality, this table applied an SCBA format and presented benefits and costs of the scenarios, broadly defined as pros and cons of the proposed measures. Contrary to a regular SCBA, however, this table consisted of various kinds of values and effects, including qualitative improvements

Table 5.4: Excerpt from the combined table developed in the project (for the complete table see van Schie et al. 2007: p.73-76) (Note that the researchers made such overviews for all spatial elements and for both scenarios; this table provides an illustration only.)

Increase in value	Measured needed (proposed)
Improved spatial quality Increased landscape value Increased historical value (identity of area) Incorporation of existing and new facilities in scenario (visibility) More natural landscape, openness, panorama More diversity in types of landscapes Effects on number of tourists Effects on property values	Screening of railway line and other (new) facilities (?E) Extension of hedges-landscape in Oranjepolder (app. 100,000 Euros) Landscape development in Suzannapolder (?E) Development of old dikes with specific trees (app. 35,000 Euros) Develop shores of Lake Veere with open and varied landscape; cutting trees (?E) Develop compensation for cutting trees (app. 700,000 Euros)

94 Note that no full SCBA was executed in the project: the scenarios and information available were not detailed enough to conduct such an analysis.

and reflecting conflicts and differing points of view. As an illustration, table 5.4 shows an excerpt of the table that was developed. It concerns part of the table on the element 'landscape and nature', from one of the scenarios. The table shows that various elements of the proposed scenarios could not be priced (yet) as they were not specific enough. Most 'increases in value' as identified by the advisory group, could not be priced either, as these concerned non-market goods and stakeholders did not think of them as monetary assets. The increase in value resulting from, for example, a more open landscape (due to cutting trees) was substantial to the advisory group, but could not be expressed in money.

The next expert meeting, however, saw much discussion over this table. The experts were not used to such broad interpretation of values, costs, and benefits. They preferred a short-term financial assessment as they were used to make, based on an overview of operating costs and (direct) investment costs and benefits, and excluding local stakeholder points of view. It turned out that a shared understanding and appreciation of the method for (monetary) evaluation to be applied was lacking among the experts, and it appeared unclear what kind of (assessment-) information was to be provided to decision-makers. The researchers then organized a more general discussion about assessment methodology and SCBA, facilitated by an external expert on the issue, but the expert group achieved no consensus on this subject. They refused to include the combined table in their final report and decided to provide decision-makers with only technical and specialised information on the scenarios. Also municipal civil servants were not satisfied, resulting in their continued requests for a 'financial paragraph' on the scenarios. The experts came to agree on a final report on their findings concerning the scenarios eventually, but it took considerable efforts from the researchers to get them committed.

At *workshop 5*, the advisory group discussed the suggestions of the experts, and further specified the two scenarios. The researchers presented the results from the discussion with experts, and the resulting combined table on the scenarios. The advisory group was not that satisfied with this table as they feared political decision-making would only focus on the financial information included. Nevertheless, they accepted the need for financial measures for decision-making to take place and decided to include the table in their advice to the city-council. They adapted and specified the values underlying the scenarios (and represented in the combined table), and further specified the texts accompanying the scenarios. The illustrators further adapted the maps of the scenarios based on the discussions. An additional illustrator was present at this workshop and made sketches of parts of the scenarios, which inspired and motivated the advisory group to specify their scenarios once more.

Finally, at *workshop 6*, the advisory group made some last changes to the scenarios, and prepared the advice and its presentation to the city council. They came to agree that a member of the advisory group would present the advice to the city-council. Together with the researchers, they celebrated the success of the series of workshops with fresh pie and a cup of coffee.

5.2.5 Outcome

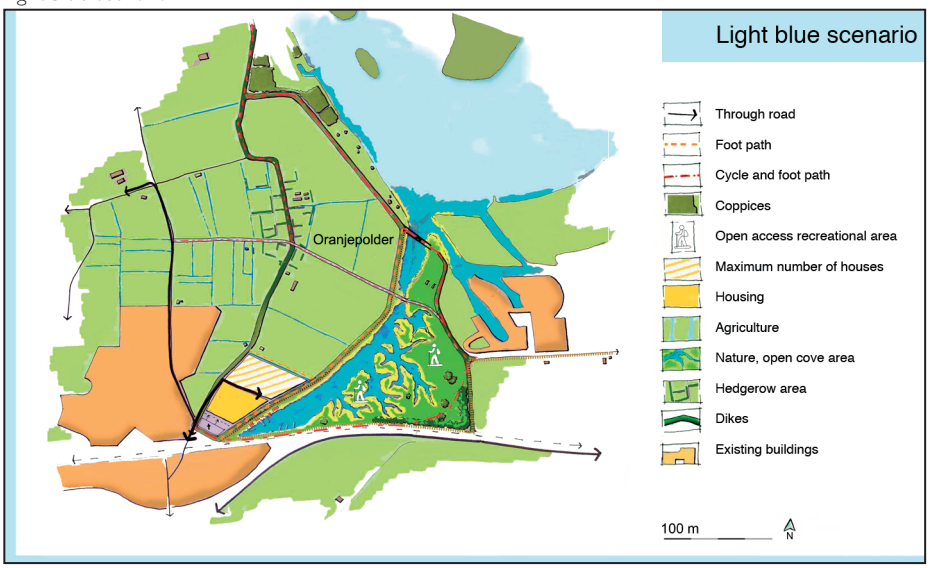
The advisory group decided to present both final scenarios to the city-council, as they represented two different views on the area. They did not want to choose either of them, or combine them into one scenario for the area. Instead, they wanted to leave the choice to the city-council, to decide for either of the two scenarios. For both scenarios,

the advisory group had established an elaborate description of the spatial functions and the (stakeholder) values related to the proposals (see van Schie et al. 2007). They also added the combined table to the advice, to show decision-makers the many different values involved in the scenarios and to support their decision-making.

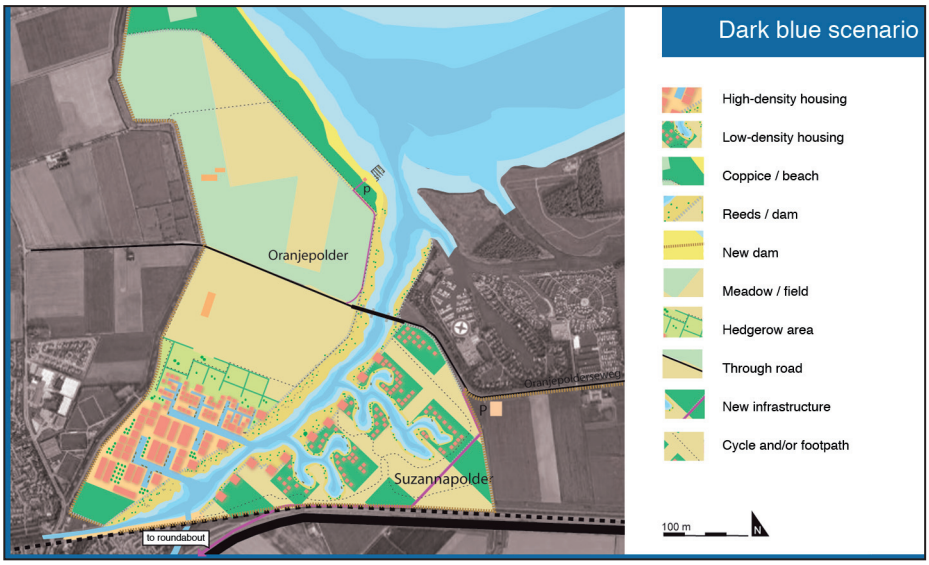
Figure 5.6 shows the two final scenarios as they appeared in the advice to the city-council. Both start from a new position of water in the area and propose a redevelopment of the area consistent with the water. Both are integral scenarios that include

Figure 5.6: The two final scenarios of Around Arnemuiden (van Schie et al. 2007; illustrators: E. de Kock and M. Gerritsen, Tauw)

Light blue scenario



Dark blue scenario



all different spatial functions of the area. The 'light blue' scenario proposed a new body of shallow water in the area, in combination with nature development, maintenance of current agricultural lands in the area, a modest residential area and much open space. With this development, the advisory group intended to establish the cultural, historical, landscape, and nature recreation values of the area. The 'dark blue' scenario proposed a new body of deeper water, in combination with recreational facilities, substantial residential areas, and improved facilities for inhabitants. With this development, the advisory group intended to stimulate the area's potential for recreation and residence.

The final scenarios show interesting similarities to the plans governmental organizations had proposed earlier for the area, and which were so fiercely obstructed (see 5.1). Although the location of several objects and spatial elements differs, the spatial elements themselves show clear similarities. Examples are a substantial body of new water in the area, more houses in the vicinity of this water and improved facilities for water recreation. A major difference, however, is the focus on facilities for Arnemuiden and the values and perspectives of the inhabitants of the area.

As the advice was a recommendation only, the city-council would have to decide on its adoption. With help from the researchers, the advisory group summarized their advice to the city-council as follows:

> *"Taking into account the interactive and transparent process of scenario development - based on stakeholder knowledge, values and experiences, and on expert (sector specific and technical) knowledge -, and considering the high level of coherence in and argumentation for the scenarios, the advisory group requests the city-council of Middelburg to unambiguously and consistently decide on the spatial organization of the area, following either of the two scenarios proposed." (van Schie et al. 2007, my translation)*

Also included in the advice was a 'declaration of support' for the outcome, formulated by the supervision group of the project. This declaration stated that:

> *"We, members of the supervision group Around Arnemuiden, support the process that was executed […]. We hereby declare that the advice was developed in a concise and interactive process, involving various stakeholding parties and individuals. […] The process was decently embedded among experts, civil servants, executives and politicians. We recommend the city-council to take due notice of the scenarios developed, […] and to include these scenarios in the revision of the Quality Atlas Middelburg 2030, in order to develop a thorough assessment of the future of the area northeast of Arnemuiden." (van Schie et al 2007, my translation)*

The participants in the advisory group presented the advice to the city-council on the evening of December 19th, 2007, at a formal meeting that symbolically ended the project Around Arnemuiden. For this purpose, the municipality organized a municipal 'information market', generally used to inform the public on municipal issues and provide them with the opportunity to ask questions and to personally discuss issues with civil servants and aldermen. This, again, took place at the community centre of Arnemuiden and over 100 inhabitants, former participants and others interested were present. A representative of the advisory group handed over the advice to the Mayor of Middelburg, after which the responsible alderman expressed his support and complimented the participants and the consortium on their achievements. A representative of the city-council promised that they would keep an eye on the further discussion of the advice and expressed their hopes for a proper settlement. After the formal presentation, the advisory group discussed the scenarios with their fellow inhabitants, with councillors

and other visitors. As a small present, the process group had made a jigsaw puzzle of the maps of the scenarios, which was handed to all visitors. It showed both scenarios on either side, and symbolized the puzzle 'from dream to scenario'.

After the advice had been presented, the researchers conducted an *ex post* evaluation to test the level of support for the final scenarios once more. This evaluation queried whether the participants found the final scenarios to reflect their values, and whether they appreciated the process in which their values were involved in the scenario development. Both were confirmed. Also involved civil servants and experts filled in an evaluation that queried similar questions from their point of view. These groups appeared less content with the process and the outcome (see 6.5).

5.3 Return to business as usual

The presentation of the advice to the city-council of Middelburg marked the official end of the project Around Arnemuiden: the task of the researchers was finished and they handed any further responsibilities concerning the follow up over to the municipality. After the advice had been offered to the city-council, however, it remained silent for a long time. Publication of the revised Quality Atlas was postponed several times and so was the city-council's decision on the advice which, as discussed, were planned to be combined. The inhabitants and former participants in the interactive project were not informed on this postponement of decision-making, or on the procedures to be followed: the municipality stopped communication on the process and any further plans for the area. Not only were the previous participants no longer informed, neither were the researchers. Documents (temporarily) disappeared from the municipal website, and any publication on the project was discouraged or even – in a single case – prevented.

Meanwhile, relations between the district group of Arnemuiden and the municipality of Middelburg had worsened. The municipality decided to take a stance after repeated objections to (minor) municipal plans and proposals concerning the recreational area outside Arnemuiden (neighbouring the project area; see figure 5.2). By letter, the municipality announced that they would no longer regard the district group as a stakeholder concerning the future planning of the respective area. The district group, in turn, was highly upset and internal discussions followed on the proper way forward. Eventually this led to the resignation of 7 out of 10 members of the group, who felt not taken seriously by the municipality and their representatives[95]. One of their frustrations was the municipal lack of reaction to the results of the project Around Arnemuiden[96].

In December 2008, the municipality presented the revised Quality Atlas (Middelburg 2009a, 2009c), including a paragraph on the interactively developed advice. Compared to its predecessor, the revised Quality Atlas paid more attention to social aspects and strongly reduced its ambitions on the construction of houses. The advice developed in the project Around Arnemuiden was incorporated under the header of 'housing and living environment'. In a few sentences, the Board expressed its preference for the lesser intensive scenario because of its fit with the adjusted housing ambitions. Hence, even

95 Local newspaper PZC, September 5th, 2008
96 Pers. comm. by 2 of the resigned district group members, dd. March 5th 2009

though the municipality initially had pressed the need to include as much houses as possible in the plans, it now considered the advice to contain too much houses. Also, it was argued that both scenarios would not be feasible on a short term, because of a lack of 'financial-economic support' (Middelburg 2009a: 12; see also Middelburg 2008). No mention was made of the other spatial elements in the scenarios, neglecting the integral character as well as the steering principle of both scenarios: water. The ambition of housing and recreation in the area was argued to 'need more study' (ibid: 12), neglecting the integral study made of this subject in the advice. The researchers decided to interfere and confronted the municipal civil servants with this strongly fragmented representation and the resulting risk of losing societal support for the interactively developed scenarios. However, the civil servants argued they were not able to act otherwise, due to the formal sector-based decision-making procedures of the municipality.

In summer 2009, the municipality presented a new policy document for the area surrounding the city of Middelburg (Middelburg 2009b). This document presented the adapted ambitions of the municipality for the area, including a relocation of housing plans. It made no mention of the advice Around Arnemuiden, and presented no explicit plans for the project area. It *did*, however, mention the Quality Atlas including a map and expressed the intention to finish this plan.

In November 2009, the city-council still had not discussed the advice, which left the inhabitants insecure about the future of the area. Due to the presence of some councillors at the workshops of the project the city-council clearly was aware of the advice and had to decide how to respond. The developments, however, did not show political concern. There was no information available on the municipal website anymore. The researchers feared that the advice had been in cold storage and eventually would be ignored. Eventually, on January 18th, 2010, the Board of Middelburg discussed and accepted the revised Quality atlas (Middelburg 2010). We can conclude that the Quality Atlas and the interactively developed advice were not discussed in combination, as had been agreed in the project. The College included its own (limited) interpretation of the advice in the revised Quality Atlas, and in this form the Board accepted the document.

6 Analysis of the case Around Arnemuiden

In the interactive decision-making project Around Arnemuiden, stakeholders developed an advice for spatial reorganization based on their values. Through action-oriented research and participant-observation, the researchers aimed to develop an approach to include stakeholder values in the interactive process of decision-making (see 1.5), based on the expectation that this would improve decision-making (see 1.4). Chapter 4 presented a framework for the development of this approach, preliminary coined co-valuation, and identified four elements of spatial water management that were taken into account in the approach. First, the project aimed at an integral approach and the involvement of multiple stakeholders and second, at the involvement of their sources of information in the process. Third, to develop an advice that could be processed in the existing decision-making procedures, the researchers aimed to embed the process and its outcomes in its institutional context through the application of 4 levels of embedding. Fourth, the research took an institutional perspective on value, incorporating sociological influences on the valuation process, and studied the connection of the valuation process to institutionalised methodology for (e)valuation (see 4.2).

This chapter analyses the valuation process developed and conducted in the case, following the five variables of a valuation process identified in 4.2: the involvement in the process (6.1), the (notion of) stakeholder values (6.2), the role of information in the process (6.3), how the process of valuation took place (6.4), and how this process connected to existing institutions on valuation (6.5). Table 6.1 summarizes these variables of the valuation process as it was conducted in the project Around Arnemuiden. The chapter then analyses the difficulties of organizations and of experts involved in the process (6.6), and ends with conclusions (6.7). Based on the analysis in this chapter, chapter 7 presents an adapted approach of co-valuation of water in spatial water management.

6.1 Involvement

Section 5.2 described that a consortium of governmental organizations decided to organize an interactive project, as some of them were convinced of the need for redevelopment of the area. The project area consisted of the polder area northeast of

Table 6.1: Characteristics of the valuation process conducted in the project Around Arnemuiden

Variable	Main points
Involvement	±45 stakeholders (inhabitants, farmers, local actors, etc) in the advisory group; ±15 experts of relevant organisations in expert group; representatives of governmental organisations in process group and supervision group
Notion of value	Focus on the rationality and values of stakeholders; various values (of water) identified and constructed in a collaborative process
Role of information	Incorporation of stakeholder values and local knowledge, and specialised (expert) knowledge. No strict fact-value distinction applied; aim to achieve a body of information relevant to both stakeholders and experts involved. Stakeholders achieved consensus on values and information relevant to scenario development, and accepted expert knowledge. Stakeholders and experts achieved no consensus on a body of information relevant for decision-making.
Process	Valuation was a process that consisted of several overlapping stages, which the researchers actively adjusted during the process. Methods applied are interviewing, scenario development in interactive workshops, visualizing, negotiation / reasoning, a valuation exercise, reframing and economic valuation by use of index numbers.
Connection to institutions	Four levels of embedding (political, executive, professional, and policy) were applied to connect to institutions. The municipality expressed the tendency to apply (short-term) financial assessment

Arnemuiden. This area comprises agricultural land, some farms, a few houses, a small farmyard campsite, and some recreational areas. The immediate surroundings consist of more farmland, the town of Arnemuiden (a district of the municipality of Middelburg), and some recreational facilities (holiday cottages, a recreational harbour, another campsite, a restaurant, and a hotel). Next to its agricultural function, the area is mainly used for small-scale (water) recreation: cycling, walking and various water related activities take place. Consequently, direct stakeholders in redevelopment of the area are the inhabitants, landowners, farmers, local (recreational) businesses, the citizens of Arnemuiden, other users of the area like holiday-makers, and societal organisations representing other uses or stakes.

The researchers conducting the interactive process applied a multi-actor approach, and aimed to actively involve relevant stakeholders and the various sources of information from these stakeholders in a participative process (see 4.2). The project aimed to involve considerably more – and more diverse – stakeholders compared to previous planning processes in the area. All parties and individuals holding a stake, or feeling involved in the issue, were invited to participate in the interactive process. The researchers intended to give these stakeholders a central role in the advisory group (see 5.2), and therefore they put much effort in the construction of this group. The researchers spread information on the project widely, aiming to inform as many people relevant to the project as possible. The researchers made an initial list of stakeholders based

on which they started interviewing and recorded the willingness of these intended participants to join. Via the 'snowball-method', asking interviewees who they believed would be interested or relevant to be involved as well, the researchers extended the list of interviewees and stakeholders. Following this approach, an advisory group of approximately 45 participants was composed. The group of participants was a little different in every workshop, and while participation remained open to newcomers, no major new parties entered during the process. As much effort was put in assembling the group, this confirmed the researchers in their opinion that the group of participants adequately reflected the inhabitants and the local situation. Participants were informed on the investments (in time and energy) asked of them; participation took place on a voluntary basis. Meetings and workshops therefore took place in the local meeting hall, and local events and important data – like football matches and holidays – were taken into account while planning meetings. Adapting to these local customs and ways of doing things proved little effort and supported the presence of relevant stakeholders during workshops and their commitment to the process. The workshops were well attended and stakeholders enthusiastically took part in the activities.

Other groups involved in the process took a less central role, and mainly functioned to support the activities of stakeholders in the advisory group in some way or another. The group of experts (gathered in the expert group) was carefully established to reflect various fields and sectors and to represent several organizations. The governmental organizations in the consortium provided experts for this purpose, and the researchers interviewed experts from various governmental and non-governmental organizations to gather information, inform them on the project and invite them to participate, and to thereby include more expertise in the expert group. The experts fulfilled a supportive – and not initiating – role in the process that was rather uncommon to them. A group of approximately 15 experts repeatedly discussed the scenarios developed by the advisory group. Through the involvement of this group of experts, the researchers aimed at the involvement in scenario development of their specialised knowledge, and at the embedding of the project and its outcomes among this group of professionals, who represented stakeholding organizations and who would probably be involved in the later execution of the spatial plans (see 5.2).

The project involved several other parties and individuals to actively manage the embedding of the interactive project and results at political, executive, professional, and policy level (see 5.2). These parties were involved in the establishment of initial restrictions on the process (in the project plan), but they were not active in the scenario development. The attempts to embed the interactive process at different levels through the involvement of different parties, is discussed in section 6.5. Table 6.2 lists the participants in the project Around Arnemuiden: the stakeholders and both governmental and non-governmental organizations.

Previous spatial planning of the area by governmental organizations had focused mainly on municipal and provincial aims and goals, exhibiting a desire for more houses and recreational revenues. The Quality Atlas Middelburg 2030 proposed far-reaching plans for the area, which focused on the needs of the municipality of Middelburg and the province of Zeeland (see 5.1). The inhabitants of Middelburg had been involved, though sparingly, in the development of the Quality Atlas and also of a provincial document, which both included the area surrounding Arnemuiden. None of the stakeholders in

Table 6.2: Participants in the project Around Arnemuiden

Party	Involved in the project
Governmental organizations: – Municipality of Middelburg – Province of Zeeland – Rijkswaterstaat – DLG – Water Board	Alderman, municipal civil servants, Provincial executive and provincial civil servants in supervision group and process group
Non-governmental organizations: – Regional farmers' organization (ZLTO) – Regional environmental organisation (ZMF) – Forest management organisation (SBB)	Ca. 15 experts in the expert group
Stakeholders: – Citizens of Arnemuiden – Inhabitants of the project area – Farmers in the project area – Land owners in the project area – Recreational harbour – Water recreational organization – Holiday cottages representatives – Hotel Beter Uit – Restaurant d'Oranjeplaete – Local Airport 'Midden Zeeland' – District group Arnemuiden – Holiday-makers (n.a.)	Ca. 45 stakeholders in the advisory group (On average 35 of these attended each workshop)

the Arnemuiden area mentioned above had been involved, however, nor were they actively informed on the process. Interviews with stakeholders revealed that they did not recognize their perspectives and values in the governmental plans and felt neglected in the planning process. This had caused their objections to the Quality Atlas and the proposed plans for the area northeast of Arnemuiden (see 5.1).

The interactive project aimed to develop integral spatial scenarios that addressed all spatial functions. Hence, in contrast to the restricted focus of previous governmental plans, the scenarios would address all spatial functions in the project area: water, nature, infrastructure, industry, agriculture, recreation, housing, and social structure. Both the aims of governmental organizations and the values of the stakeholders would be included in this. During the project, this more integral approach to redevelopment of the area made the municipality recognize that issues other than housing could be dealt with in the project as well. Soon the civil servants also stressed the infrastructure issue during project meetings, another pressing subject for the municipality. At the end of the project, however, the municipality was not able to consider the integral character of the scenarios. Municipal civil servants described the scenarios as 'housing' plans in their communication to the city-council and the public (see 5.3). The integral character and the central role for water in the scenarios were neglected. Although initially open to a more integral approach, in the end the municipal civil servants returned to the traditionally sector based approach in decision-making (see 2.5). Section 6.5 discusses this in more detail.

6.2 Stakeholder values

The project applied the rationality of the stakeholders involved in the advisory group: the researchers aimed to develop scenarios that followed the stakeholders' rationale and values for the area. The researchers tried to identify and explicate the stakeholder values and preferences as detailed as possible during the process (see also 6.4 on the valuation process). The identification of stakeholder values turned out to be rather straightforward. Adequate attention and sensitivity to the stakeholders' positions and points of view during discussions was helpful in developing a list of values. The use of maps, drawings and illustrators during the workshops appeared helpful to identify values, to discuss their importance, and their consequences for other values. The researchers checked, adapted and specified the stakeholder values at several moments during the process of scenario development and by use of various methods, summarized in table 6.3. In addition, I checked and adjusted the findings based on my participant-observation in the process (see 1.6).

During the interviews, the researchers inventoried the stakeholder values of spatial elements of the area (water, nature and landscape, agriculture, recreation, infrastructure, and housing). These interviews revealed that stakeholders highly valued water in the area, especially in relation to the (water related-) history of the area, (water-)

Table 6.3: Methods applied for identification of values

Method	Aim
Interviews (60)	First and general inventory of stakeholder values (of water)
Questionnaire	Check on results of interviews
Series of workshops (incl. part-obs.)	Continuous specification and adaptation of stakeholder values
– Workshop1:	Diverging values
– Workshop 2:	Converging values
– Workshop 3:	Valuation exercise: selection of most important values
– Workshop 4:	Specification of most important values
– Workshop 5:	Explication of values (in table for evaluation)
– Workshop 6:	Specification, reasons for valuation
Ex post evaluation	Check on process and outcome validity: are relevant values adequately involved in the process and expressed in the outcomes

nature, (water-) recreation, and (water related-) housing in the area. These values were confirmed in the questionnaire at the first workshop and with observations during the workshop series. Hence, the stakeholders related water to other spatial elements and this resulted in various values; they valued water for different reasons.

During the series of workshops, the stakeholders further specified these values. The first workshop was intended to diverge the values of stakeholders, to stimulate them to specify their values. The second workshop then aimed to converge these values again; to find common ground and shared values. The stakeholders repeatedly stated their concern for water at the workshops. Each of the ideal scenarios proposed a sub-

stantial amount of 'new' water in the area, in a quite similar location (see 5.2). It became clear that the advisory group liked water to have a more important role in the area.

At the third workshop, the participants explicated their values in more detail. With stickers and little notes they selected spatial elements of the four ideal scenarios they found most important. They also expressed their reasons for this valuation. This valuation exercise revealed that the stakeholders highly agreed on important spatial elements in the area and on what the area should look like in the future. It thus provided a selection of the most important values. Also, no really controversial elements were involved. This enabled the development of shared (spatial) results. After the third workshop, the researchers used the broad appreciation of water for the composition of two new scenarios that the advisory group further developed. Based on the new position of water, the stakeholders developed two new scenarios in the workshops that followed (see 5.2).

At the fourth workshop, the stakeholders further specified and adapted these values, and expressed these in the new spatial scenarios. At the fifth workshop, the stakeholders explicated these values for inclusion in the combined (evaluation) table. Finally, at the sixth workshop, the stakeholders once more discussed and specified their reasons for the values they identified and used for scenario development, to strengthen their advice and line of reasoning to the city-council.

Participant-observation during the workshops and the later *ex post* evaluation reconfirmed the insights from the interviews and questionnaire. The *ex post* evaluation also expressed the stakeholders' satisfaction with the final scenarios and the values that were incorporated in these. Still, despite the high level of agreement, reasons for their valuations differed among participants. Some valued the presence of more water for its recreational possibilities, others for its historical characteristics, or its effects on environmental improvement of the area. The sequence of methods revealed different 'kinds' of stakeholder values. Table 6.4 provides an overview of the values identified in this process. This table was drawn up only after completion of the project Around Arnemuiden; it is based on all data collected in this process including the interviews, questionnaire, workshops, (participant-) observation, the outcomes of the project and *ex post* evaluation[97]. During the scenario development, the different values of water were used only in the words of participants ('explanation' column); the different categories of values ('values' column) I identified for analytical purposes only. Even though stakeholders verified these categories, they proved too abstract to actively consider in scenario development. The table also shows the values attributed by experts and governmental and non-governmental organizations involved.

Several remarks can be made on the process in which the stakeholders in the advisory group developed these values. First, the stakeholders did not consider the value of water in isolation. Instead, they mostly related this value to the wider surroundings and other spatial functions. The interviews and questionnaire showed that most stakeholders valued water in relation to nature, recreation, history, and housing. The researchers used these elements to structure the start of the scenario development (see 5.2). During the

97 Note also that this table does not provide *the* value of water in general; the table shows the values that are attributed by the stakeholders involved in this project. The values would be different at a different moment and with different participants, or concerning a different area.

Table 6.4: Values attributed to water in the area (in alphabetical order)

Values	Explanation	Main valuators
Ecological value	Water as element of the physical (water) system; also reflected as: Natural (-historical) value Biological value	Water Board, Rijkswaterstaat Environmental organizations (SBB, ZMF) Stakeholders
Esthetical value	Presence of water will improve the beauty and attractiveness of the area	Stakeholders
'Experience' value	Presence of water enhances the experience of an open and varied landscape, the (historical) natural landscape	Environmental organizations (SBB, ZMF) Stakeholders
Financial-economic value	Presence of water will raise house prices, increasing revenues for the municipality	Municipality
	This will increase chances for improved local facilities and employment	Stakeholders
(Cultural-) Historical value	Presence of water underlines historical role of water and fisheries in the area and in the lives of inhabitants	Stakeholders
Recreational value	Presence of water will enhance recreation, increasing revenues	Municipality, Province
	More (water) recreation can be enjoyed	Stakeholders
Social value	Presence of water will enable family members and other generations to enjoy the area (grandchildren on the beach)	Stakeholders

process of scenario development, the values of water proved more diverse and could not all be assigned to spatial functions or uses, for example cultural-historical value.

Second, several of the stakeholder values of water were interconnected. To continue the example: the cultural-historical value of water was connected to:

- the esthetical value of water (as it was considered 'beautiful' to restore the historical landscape);
- the ecological value of water (it was considered this would also improve the area's water system);
- the recreation value of water (it was expected such would enhance recreation in the area);
- the financial value of water (enhanced recreation was expected to raise revenues).

The attribution of these different values to water differed per individual. Still, stakeholders did not identify themselves with only one value but generally attributed various values to water in the area (see table 6.4).

Third, most stakeholders expressed their values of water in qualitative terms, usually descriptions related to certain activities or other spatial functions. For example, one interviewee noted: *"I'd prefer a sandy beach with water to swim in for my grandchildren to play."* The stakeholders did not apply monetary terms, nor did they accept such when proposed (by the researchers): they argued such a figure would not reflect the actual value. Nor did they accept standardized monetization, for example of the recreational value of water (the economic effects of water with respect to recreation). The participants did not recognize such a measure as adequately expressing *their* recreational value of water that comprised other elements, like watching their grandchildren playing at the beach, or the ability to take a walk along the shore. The stakeholders were of the opinion that these different values could not be compared or weighed: watching grandchildren playing at the beach could not be measured against – for example – swimming. Nor did they perceive monetized and non-monetized values to be comparable. Therefore, in the project the values expressed by stakeholders were not monetized; instead their qualitative descriptions were used and negotiated during the scenario development. The *ex post* evaluation revealed that the stakeholders had appreciated this way of processing their values.

Fourth, various values evolved during the process of scenario development. Stakeholders formulated their values only when asked for and frequently adapted their value(s) when confronted with other participants' values and perceptions during the workshops: a learning process took place. This happened during the development of ideal scenarios, the valuation exercise, and the development of the final scenarios. The adaptations in values were revealed through the continuous rewriting and assessment of the list of values (and reasons) underlying the scenarios that was subject of the workshops. The stakeholder values thus were no fixed and *a priori* known measures. Instead, stakeholders learned from each other on relevant subjects and adapted their own values. In such a (value-) learning process, a body of values was constructed that the participants agreed as important to the scenario development. In this process of value construction, the researchers stimulated the stakeholders in the advisory group to reach a consensus on a body of values they perceived as relevant for scenario development and decision-making for the area. For this purpose, the researchers had intended the stakeholders to experience a process of diverging, converging, selecting, specifying, and explaining their values (see table 6.3).

Consequently, the valuation of water by stakeholders in the project was a process of identification. 'The' value of water in the project area – as applied in scenario development – was a combination of several values: a value-configuration[98] of water was composed. A value-configuration implies that different sub-values together comprise the value, the importance of a good or issue, to some valuator or group of valuators. It may well be that these values are not yet explicitly clear to the valuators at the start of the (valuation) process: it is only during the process of valuation that this configuration is formed and deliberated. In the project, the (stakeholder) value of water was no fixed notion and could not be *a priori* defined or specified: *the* value to be measured was not available. Hence, a standard analytical division (like use/non-use applied in neoclassical

98 I am grateful to Wim Hafkamp for the suggestion of this useful term (pers.comm, Tilburg, April 2007).

economics; see 3.1) was not useful to include these values in the analysis. The value(s) included depended on the stakeholders involved in the project and on the values they reached a consensus on. Moreover, the values that stakeholders identified and constructed were influenced by the environment: the value of water was related to other spatial elements and functions in the area and to their own situation. Consequently, valuation in the project was a process characterized by collaboration, construction, learning, adaptation, and a search for consensus, which took place in, and was influenced by, a specific (institutional) environment. This value learning process was needed to achieve the support of stakeholders for the values that were eventually incorporated in the advice (van Schie, Rijnveld and Duijn 2007).

6.3 Role of information

The interactive project focused on a controversial decision-making issue, in which opposing stakes and values occurred (see 5.1). Previous governmental planning had focused on expert information, and the inhabitants and other stakeholders in the area felt uninvolved. The interviews revealed that the inhabitants did not consider the experts as authoritative for decision-making on the area. They felt that their (local) knowledge, based on years of experience in the area, was ignored.

The researchers intended to provide stakeholders with a central position in the process, having the responsibility to develop spatial scenarios for the area. The process focused on the input of these stakeholders; their ideas, perceptions, values, and knowledge were central to the scenario development (see 5.2). Furthermore, the researchers intended to include and combine information from both experts and local inhabitants in the interactive project. This was based on a not-strict distinction between facts and values, and on ideas of collaborative knowledge production as described in sections 2.1 and 4.2. The researchers aimed to develop a body of information that was shared and perceived as relevant for decision-making by both stakeholders and experts. Inhabitants provided their knowledge through participation in the advisory group; experts provided their knowledge during meetings with the expert group. Both groups involved parties and individuals that were generally considered as knowledgeable in the area (see also Edelenbos, van Buuren and van Schie 2010).

The advisory group involved, amongst others, local farmers knowledgeable on the agricultural lands in the project area. They provided knowledge that had not been included in previous planning for the area, for example concerning fresh water supplies. Also other participants in the advisory group posed issues relevant to them in utilizing the area and its facilities, and provided wishes on improving the quality of living. Their involvement provided new and relevant information to the planning process, which had not been included before and which was not known to experts involved. Contrary to previous planning for the area, the interactive project actively involved stakeholders in the definition of the appropriate project area and project subjects. In the interviews, several stakeholders noted their concern for the project area – as defined at that time. They considered this area too complicated due to the many plans already present and private (business) decisions. The stakeholders preferred to consider a slightly different area and also to take into account activities in the surroundings. After approval by the

consortium, the researchers changed the project area accordingly. Also the project plan involved issues the stakeholders had raised in the interviews: the stakeholders posed restrictions on the project just like the governmental organizations. This concerned, for example, the improvement of recreational facilities and improvement of the infrastructure. The advisory group achieved a shared body of information they considered as relevant to the issue.

The expert group involved, amongst others, the district group of Arnemuiden (see 5.1), whose members were generally considered to have a great deal of knowledge on the area and the recent policy history. Also the municipality provided several experts on sectoral issues they considered relevant to the issue, like infrastructure and housing. When the expert group discussed rather specialised issues, new experts from participating organizations were introduced into the process. Through the expert group, the researchers aimed to include the specialised and technical knowledge of relevant experts. The experts, however, had difficulty reaching agreement on several issues. The scenarios of the advisory group appeared less detailed than they had expected them to be. The experts were unfamiliar with their role of providing suggestions, and preferred to assess (technical) possibilities as they were used to do. They were hesitant to contribute texts for a joint report, afraid that they would be held responsible afterwards. The researchers eventually developed an expert report (van Ast et al. 2007), nevertheless, it took much effort to achieve a supported text.

The activities of both groups, however, did not result in a body of shared information. The advisory group accepted the expertise of experts on specialised issues, like water management constructions, and incorporated their findings in the scenario development (see 5.2). The municipality of Middelburg showed a strong tendency to apply (short-term) financial assessment to support its decision-making, also when this is no legal obligation. Municipal civil servants and experts stressed the need for a financial overview (from a municipal point of view), which they called '(S)CBA'. They perceived this as necessary for any decision on spatial planning, even very early in the planning process. Because of these requirements, the researchers invested extra time to discuss financial aspects of the scenarios, and organized several extra meetings with the group of experts to discuss the development of an SCBA (or related analysis) with the help of an external expert on this issue.

This, however, was not straightforward, as several assumptions underlying the interactive project were opposite to the principles underlying SCBA (see 3.4). For example, the scenarios provided general ideas ('sketches') for the area, not containing detailed plans or measures. Detailed costs could not yet be identified at this stage. Also, the project had no specified goal concerning the contents: this was deliberately left up to the participants in an open planning process. The project boundaries were undefined, leaving unsettled which investments and returns should be included in the analysis. This left unclear what an SCBA could analyse or compare at this stage. More fundamentally, while an SCBA aims at objective analysis of the effects of alternatives, the interactive project had explicitly aimed for the incorporation of subjective values in the planning process (see 5.2).

During discussions with municipal civil servants and experts on their requests for financial assessment and 'SCBA', more problems came to the fore. The municipality appeared to have no clear requirements for an SCBA or related analysis, and the experts

had different interpretations of SCBA. For example, some expected the researchers to find subsidies for financing the spatial plans, while others focused on the realization of revenues from the selling of houses, both interpretations diverging from the objective method of SCBA. Moreover, the experts were uncertain about the kind of information they should provide to the decision makers at all. The municipal experts were used to – and were generally expected to apply– financially based decision-making only: non-monetized effects should not be included. Even though the experts recognized that such a financial overview would not cover all relevant aspects in the analysis, the majority of experts refused to act differently than their usual way of doing things. They argued decision-makers were to be provided with financial information on the scenarios only. Still, the experts did not feel in a position to provide this financial information, nor did they feel responsible for doing so. As a result, no body of collaborative knowledge or information was established.

To support the discussion, one of the facilitating organizations in the process group drew up an overview of expected costs of measures proposed in the scenarios as far as this was possible at this stage. This provided a general overview of the investments needed and possible consequences of the scenarios based on index-numbers. The researchers added the (qualitative) stakeholder values identified in the process of scenario development (see 6.2) to this overview, to develop a complete evaluation. This overview presented the expected effects of the scenarios from various perspectives (as expressed during the interactive process): both the stakeholder values and the expected costs and benefits of measures.

No agreement was reached on this subject. The advisory group would have preferred not to involve any financial information, as they feared political decision-making would focus on this information only. The experts did not agree on the inputs of the advisory group. They argued these perspectives were not relevant to the issue, and stuck to a rather strict fact-value distinction. They refused to include the overview in their end report as they argued it comprised no sufficient or adequate information for decision-makers. They feared too much weight would be given to the numbers and did not want to be held responsible. Municipal civil servants were not satisfied either, resulting in their continued requests for a 'financial paragraph' on the scenarios developed. Hence, a lack of understanding on the project's aim to incorporate and combine different kinds of values remained among the majority of the experts and civil servants. *Ex post* evaluation reconfirmed their disagreement with the eventual overview and their unfamiliarity with the tasks expected from them in the interactive project.

It may be concluded that municipal civil servants stressed the application of institutionalized methodology for (e)valuation and decision-making in the project. In the municipality this concerned a restricted rational assessment, based on financial information. This limited the focus of the evaluation and restricted the values that could be included: excluding the non-monetized stakeholder values. Furthermore, it may be concluded that civil servants were dominant in the process, both in setting restrictions to the scenarios (development of project plan, setting of preconditions) and in the assessment of these scenarios (assessment methods to be applied, way of political discussion).

6.4 Process

Section 4.3 provided a framework for the project that the researchers developed in the first phase of the project. As discussed earlier, the approach of co-valuation to identify and involve stakeholder values was studied 'in action' (see 1.5 and 4.2). Figure 6.1 shows the activities that were conducted during the project, extending figure 5.4 from the project plan (Edelenbos and van Schie 2009).

Figure 6.1: Activities in the project Around Arnemuiden (Edelenbos and van Schie 2009)

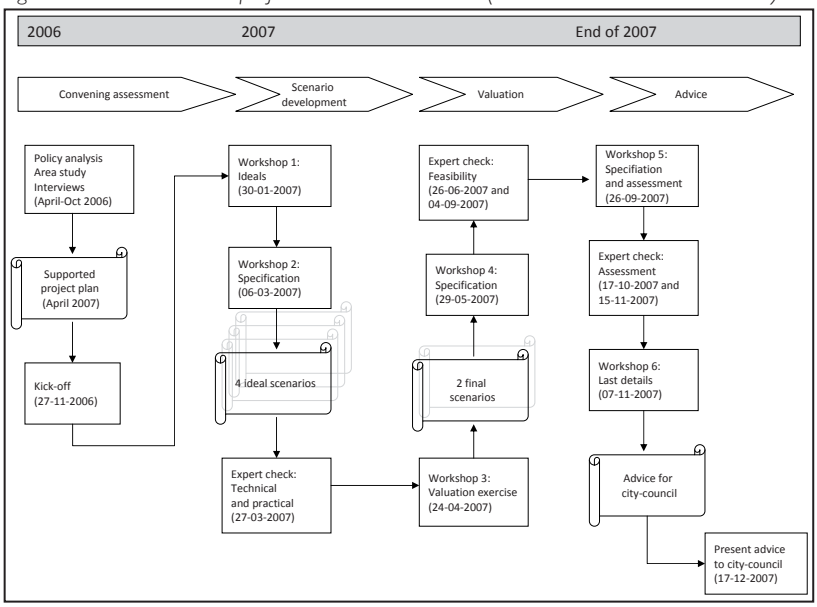


Table 6.5[99] provides a detailed overview of the methods applied and activities carried out to identify and include stakeholder values in the project (see also van Schie et al. 2008; van Schie, Duijn and Edelenbos 2009). The project started with a very general process set-up. After this, steps were actively adjusted and evolved during the process as the researchers saw fit. The execution of steps overlapped, and during the process the set-up was actively adjusted and developed in reaction to developments and to actions of other parties involved. Various methods were applied during these steps, for example interviewing, scenario development in interactive workshops, visualizing, and reframing. In general, these activities followed the initial framework. Nevertheless, the table, and also figure 6.1, show that several adaptations were made during the process, as compared to the initial set up (see figure 4.3).

Several interventions of participating parties took place and in reaction, the researchers repeatedly adapted the process. The development of a supported project

99 The right column of table 6.5 shows the results of the activities that were applied in scenario development. Due to the integral approach of the process these not only concern water but reflect results om all spatial elements and funtions in the project area.

Table 6.5: Steps in the valuation process conducted in the project Around Arnemuiden

Step	Aim	Methods and activities	Values	Results for scenario development
1.Prior	Broad inventory of values (dreams and threats) among stakeholders concerned, and reasons for these; Inventory of willingness to participate, possible conflicts (contrasting perspectives), interdependencies	Interviews Policy analysis Questionnaire	Inventory of formal and informal (sub) values and perspectives on the decision making issue	Stakeholders wanted: - spatial change - important role for water - water is valued in relation to nature, history, recreation, and housing
2.Start	Development of shared project plan (shared problem formulation, goals, preconditions and restrictions, process) Start of active embedding at political, executive, professional and policy level	Interviews Policy analysis Involvement of relevant parties	Establishment of formal and informal preconditions (based on values) Embedding of perceptions from different points of view in the process	Province want recreation Municipality want housing Stakeholders want: - fit to spatial context - high-quality developments - open landscape - no industry or metropolitan developments - improvement of infrastructure
3.Scenario development a.Ideal scenarios	Discussion and specification of important values: Development of preliminary ideal scenarios Searching for overlapping values and interests	Workshops advisory group on scenario development, writing storylines, active discussions, divergence of values	Expression of different values and spatial consequences Divergence of values / perceptions Value learning	Specification of the above values of water

Table 6.5: continued

Step	Aim	Methods and activities	Values	Results for scenario development
	Expression of (sub) values and visualisation	Workshop advisory group, active discussions and feed back, scenario development, map drawing. Expert group workshop to answer questions and suggest improvements	Relating values to spatial elements Visualisation of values and discussion of consequences Specification of values Value learning	idem
	Specification of values and scenarios Reality check with experts	Workshop advisory group; scenario development Workshop expert group	Specification of different values and their (spatial) consequences Search for reframing and consensus; value learning	idem
b.Assessment	Identification of spatial elements Valuation of elements; selection of most highly and broadly valued spatial elements and their argumentation	Workshop advisory group Valuation exercise: valuation by use of stickers	Identification of most important values and most widely valued spatial elements of scenarios Development of argumentation for spatial reorganization based on values Value learning	Esp. water is important in the region, either in low or high intensity; 2 new scenarios Stakeholder values of water: ecological, esthetical, ethical, experience (cult-hist), financial, recreational, social
c.Specification	Verification of identified values Development of new scenarios; converging values Reframing and reality check by preconditions	Workshop advisory group; map drawing, description of spatial elements with map and argumentation based on values	Discussion of consequences of values Confrontation with initial preconditions; reframing and consensus seeking Convergence of values/ perceptions Value learning	Specification and adaptation of the values of water

Table 6.5: continued

Step	Aim	Methods and activities	Values	Results for scenario development
	Experts' feasibility check	Workshop experts Identification of financial measures	Involvement of expert perspectives and values	Monetary values of physical effects, measures needed Dominance of municipal perspective
	Connection to formal procedures	Measurement of index numbers with expert/ spatial planner	Involvement of values required by formal procedures	Index numbers
4.Outcome	Establishment of values from all perspectives; expected financial and non-financial effects (Explication of different perspectives on the decision making issue)	Combining all values in one table (monetary, quant., qual.)	Valuation of alternatives from all perspectives/points of view involved	Stakeholders accept values involved Experts do not accept non-monetary values as legitimate for decision-making Focus on financial aspects to compare alternatives
	Perspectives in decision-making issue as input for weighing and decision-making	Extra meetings with experts on SCBA and (e)valuation methodology	Involvement of values in assessment	Advisory group includes combined information in end report. Expert group refuses.
	Ex post evaluation	Questionnaire to all stakeholders, experts, and civil servants involved	Evaluation of participants' appreciation of values involved and representation in end results	Stakeholder values are reconfirmed Experts' discontent is reconfirmed

plan took much longer than expected, and was finished only in April 2007 (in stead of December 2006 as planned).
The settlement of rules and restrictions (from existing policy) in the project plan proved complicated and controversial, and took some fierce discussions in the supervision group to settle. Several organisations tried to influence the process through strict restrictions on the outcomes (see 6.6). Also, based on the interviews the researchers had proposed to slightly alter the project area, which provided several participating organisations with the possibility to reopen discussion about this subject. At this stage and also during later stages, the farmers' organization repeatedly delayed the process in its attempts to include specific measures and regulations for farmers in the area (see also 6.6).

The process of scenario development appeared more dynamic than the researchers had expected. Scenario development and the valuation of spatial elements were a combined and cyclic process. The advisory group continuously formulated, adapted, specified and applied values in the development of scenarios. The process of joint fact-finding also was a continuous process, in both the advisory and expert group, in which questions and controversies were identified and discussed. Contrary to the researchers' aims in the project plan, these steps appeared to be ongoing activities during the whole process of scenario development. Later in the project, especially some interventions of the municipality concerning the role of experts influenced the process. The researchers organized extra meetings with parts of the expert group to study financial aspects of the scenarios and the possibility to conduct an SCBA. Towards the end, the role of experts and the municipality demanded increasing attention from the researchers. Section 6.6 discusses this in more detail.

6.5 Institutional embedding

Section 2.5 concluded that spatial water management processes seem to be hindered by traditional and sector-based institutions. To develop an approach of co-valuation that connects to the existing institutions, the research studies this institutional environment. This section analyses the institutions that interact in this field through the four levels of Williamson (1998; see 4.2). To actively embed the approach of co-valuation in the institutional environment, the researchers aimed to connect this approach to the institutions on several practical levels: the political, executive, professional, and policy level. This section also discusses the project's achievements on these levels of embedding.

6.5.1 Levels of institutional analysis

By using Williamson's (1998) four analytical levels of institutional analysis, institutions at different levels can be identified. Table 6.6 identifies the institutions that interact at these four levels concerning the valuation of water in spatial water management in the case study.

This field of institutions shows the shift towards interactive governance in water management (see 2.4). Nevertheless, this participative approach remains unspecified. The WFD, for example, prescribes stakeholder involvement, but does not specify its notion of public participation, or how the institutions for water management should operate in a participative process. Rather on the contrary, the WFD focuses on expertise and professional interests (Olivier 2004), reconfirming the traditional expert-

Table 6.6: Institutions active in the context of the project Around Arnemuiden (cf. Williamson 1998)

Williamson's levels of institutional analysis	**Institutions in the context of Dutch regional development and water management**
Social embeddedness Informal institutions, customs, traditions, religion, norms, that influence behaviour (According to Williamson this level is taken as given by most economists)	Local influences on perspective on water: – history of fisheries of the area; identity – history of the region (floods), locally no major fears for water; no flooding in 1953 Struggle for independence of Arnemuiden, incorporation with Middelburg in 1998 Political sensitivity, level of power, status Municipality applies traditional perspective on evaluation and decision-making Civil servants fear loss of control
Institutional environment The formal rules of the game (for economic activity); how formal rules influence economic behaviour Products of politics; legal rules, public organizations, polity, judiciary, bureaucracy of government, laws regarding property rights (Williamson calls this level 1st order economizing; getting the institutional environment right)	Practice of evaluation is dominated by neoclassical and environmental economics; economic valuation based on rational and economic arguments. Institutionalization of environmental problems; environmental goods and services are involved in economic analyses through monetization Dutch decision-making: focus on monetary assessment. OEI-guideline obliges to apply SCBA to inform decision-making on big infrastructural decisions and stimulates this for smaller-scale decisions and in water management Water management: dominance of integrated water management approach with an economic focus: water as a scarce (economic) resource (Dublin Principles, WFD) Public participation is institutionalized in a legislative framework. Interactive governance on various levels: direct democratic procedures. European WFD requires active participation of all parties involved, and encourages an economic management approach

Table 6.6: continued

Williamson's levels of institutional analysis	Institutions in the context of Dutch regional development and water management
Governance The play of the game; institutions of governance, governance structures (modes of governance/organizational constructions) Organizations and contracts that coordinate economic transactions (Markets, hybrids, firms, bureaus, transactions, contracts) (Williamson calls this level 2nd order economizing; getting the governance structures right)	Popularity of economic concepts like virtual water, water footprint Governance system based on representative democracy: representatives look out for stakeholders' interests Traditional and technocratic approach, experts/professionals providing information for decision-making (monetary values), either independent or government based
Specific institutional structures The level of markets and prices as presented in neoclassical economics Efficiency criteria (Williamson calls this level 3rd order economizing; getting the marginal conditions right)	Neoclassical economics is the predominant approach in (e)valuation and decision-making and in the provision of information to support decision-making: Focus on monetary valuation of environmental goods to involve in economic analyses; (market) prices, monetized values, index numbers Application of methods to reveal or identify monetized values of non-market goods Municipality of Middelburg requires cost-benefit analysis, also in early phases of decision-making

based approach in water management (see 2.4). Also, despite the wide acceptance of various new and participatory modes of evaluation, section 2.3 noted that in practice evaluation often remains embedded in the traditionally top-down and non-participatory approaches to measurement, also in interactive decision-making processes.

An economic approach and the involvement of monetary (or monetised) values dominate formal decision-making in Dutch spatial water management. Institutionalized methods and instruments focus on economic analysis in water policy and management. Water is considered an economic good to be incorporated in economic analyses via valuation methods based on monetization. This is posed at the European level (with the WFD), is encouraged at national level (with the Dutch OEI-guideline requiring to perform an SCBA to support decision-making on large infrastructural decisions), and is recommended at Dutch regional levels, especially concerning spatial organization and water management issues (see 2.4/5). Economic valuation to incorporate the environment and (the use of) natural resources in economic analyses is increasingly applied – in order to prevent over-utilization –, also for water management decisions. This is reflected in the popularity of concepts like virtual water and the water footprint of nations (level of 'governance'; see 3.3). There is no specific procedure or guideline available for the economic valuation of water and its inclusion in the analysis and decision-making process, nor is its combination with participation and interactive processes described.

This is also the case in Dutch spatial water management, as is shown in table 6.6. Even though interactive approaches of decision-making are increasingly recommended for spatial water management, the stages of evaluation and decision-making are dominated by a rational, expert- and sector- based approach (level of 'institutional environment'). The establishment of recent additions to the OEI-guideline on environmental valuation in Dutch decision-making only reconfirms this traditional praxis of monetary, expert-based, (e)valuation. SCBA has been recognized as based on a different definition of participation compared to interactive processes (see 3.2; Pearce et al. 2006), which hinders the application of an interactive approach towards evaluation.

Spatial water management in the municipality of Middelburg also appears to be dominated by a traditional expert culture and a rational-linear relationship between expert information and decision-making: experts provide information based on which representatives and decision-makers make their decisions (level of 'specific institutional structures'). This is reconfirmed by the municipality's traditional attitude towards decision-making and the role of experts, and their reliance on the representative democratic system, in which representatives (either elected or appointed) make decisions based on their mandate.

Concerning the level of social embedding, it may be mentioned that the public perceives water as a strength of the area: as part of its identity and as connected with the area's fishing history. Finally, the dominant role of Middelburg in planning of the area is a sensitive issue, which can be traced back to the 1998 incorporation of Arnemuiden in the municipality of Middelburg.

6.5.2 Embedding of the interactive process at different levels

The institutional analysis shows several potential problems for processes of interactive governance in this context, as other research has noted (see 2.3). To connect the project Around Arnemuiden to the institutional environment, the researchers created and

organized a connection between the interactive process and the existing representative democratic (decision-making) system at four practical levels: the political, executive, professional, and policy level (see 5.2). Section 5.2 discussed how the researchers intended to achieve this embedding.

Overall, the organization and maintenance of an interconnection between the interactive project and regular governmental decision-making appeared to be difficult, and the embedding of the project was troublesome at various levels. The executive, and particularly the professional and policy level of embedding of the interactive project turned out to be weak (Edelenbos, van Schie and Gerrits 2009). Governmental organizations struggled with the incorporation of the results of the interactive project in their systems. This reconfirms observations made in other research (see 2.3 and cf. Termeer 2009a). Executives, civil servants, and professionals were hesitant to take an active role and to commit themselves to the interactive process. They stressed their traditional roles and functions from a representative democratic point of view, and did not tolerate any direct forms of intervention. Also, due to the recent administrative crisis in Middelburg and the fragile relationship with the public (see 5.1), civil servants, executives and politicians were careful not to raise unrealistic expectations concerning the Quality Atlas and related plans. Even though the embedding at the political level was strong, this apparently did not result in executive or policy embedding of the process (Edelenbos, van Schie and Gerrits 2009). Table 6.7 summarizes the findings on the project's embedding at different levels.

Table 6.7: Levels of embedding during the process (Edelenbos, van Schie and Gerrits 2009)

Level	Status end 2006	Status end 2007	Development during process
Political	Weak (-)	Strong (+)	++
Executive	Strong (+)	Moderate (±)	-
Professional	Moderate (±)	Weak (-)	-
Policy	Strong (+)	Weak (-)	--

The connection at the *political* level was rather strong. Some of the councillors were willing to fulfill the role of auditor in the interactive process, even though the municipal alderman and civil servants had preferred to keep them more passively informed. They were present at several workshops and took notice of the process and outcomes. The direct role of the councillors paid off at the end of the project when the results were presented to the city-council. A representative of the city-council stated that they would keep an eye on further discussion of the advice (see 5.3). This pressurized executives and civil servants not to neglect the results.

The *executive* embedding was strong at first, with enthusiastic and committed representatives of both the province and the municipality. In the supervision group, the provincial executive initially was a leading figure who motivated other participants, for example the municipal alderman. Local elections in 2006/2007, however, resulted in a new alderman, and later that year provincial elections also brought a new executive. This challenged the executive embedding of the project as these replacements did not understand the history, setting, and purpose of the project. The new alderman and executive had difficulty with the open way of communication within and about the project, for example concerning the way they could show commitment in the booklets

published on the project (see 5.2). The executives (in the supervision group) remained rather passive during the process and did not initiate any citizen initiatives themselves. The researchers invested much time and energy to commit the new people to the project, and towards the end the executive embedding appeared to be restored a little. The supervision group formulated a statement supporting the outcome of the interactive project (see 5.2). When the advice was presented to the city-council, the alderman nervously presented the results, publicly committed himself to the outcomes, and complimented the researchers and participants.

Simultaneous to the replacement of both the alderman and the executive, a key municipal civil servant was replaced due to illness. Also this newcomer had to be informed on the project in order to get him committed. The researchers did not fully succeed in this – partly because municipal support for the interactive project had already suffered from the replacement of another civil servant who had initiated the project (see 5.2). The civil servant concerned remained rather cynical on the project's aims and ambitions. This worsened the – already fragile – executive embedding of the project, as this civil servant had the task of keeping the alderman and his municipal department committed (even including municipal experts involved; see below). This proved problematic towards the end of the project, as municipal civil servants and experts appeared reluctant to accept the outcomes of the project. At various meetings, their perspectives dominated discussions on the goals and boundaries of the project, and on the (financial) evaluation of the results. Some civil servants believed that they were only causing their own downfall if they were to adopt the advice, which they perceived as unrealistic.

The *professional* embedding of the project was a burden during the whole process. Municipal and provincial experts dominated the first few meetings of the expert group. Even though initially they were skeptical about the abilities of the advisory group to develop sound scenarios, this attitude quickly disappeared when the results proved rather sound. During later meetings, experts from the Water Board and Rijkswaterstaat became more actively involved and provided the process with more constructive feedback. Experts of the Water Board prepared a policy paper that was discussed in the Water Board's council, and an (already existing) inter-organizational working group worked on a traffic plan for the area (van Ast et al. 2007). Nevertheless, the experts kept having difficulties in altering their traditional role. The *ex post* evaluation revealed that they experienced their task as very different compared to their normal (professional) tasks; a connection between the interactive process and the internal tasks of the involved organizations was missing. Also, the experts did not appreciate their indirect communication with the advisory group and would have preferred to explain possibilities and impossibilities directly. The majority stuck to the traditional view that experts, rather than laymen, should initiate and develop (spatial) plans (see 2.1).

As the embedding of professionals proved difficult, this obstructed the interconnection of the project to representative democratic praxis. This was partly due to the organization of the process; the researchers could have started 'activating' the experts earlier[100] and could have given more attention to the learning process the experts had to go through. Due to their late start, the experts were not ready for their expected role in

100 After being interviewed (May-December 2006) and their presence at the kick-off (December 2006), the experts' active involvement in the planning process started only in March 2007.

the interactive process and they were hesitant to take part. Their stance was also caused by the administrative and executive culture (within the municipality mostly), being predominantly introverted and focusing on 'real' expert information, (scientific) facts. Some experts, mainly from the municipality, experienced the interactive process as an attack on their own job and professionalism, which explains their reluctance to actively participate.

The project's connection at the *policy* level was influenced by the turbulent policy history in the area and simultaneous political developments. Section 5.1 described the 10 years preceding the interactive project, characterized by an administrative and political crisis and governmental reorganization in the municipality of Middelburg. With the start of the project, municipal civil servants still had to get used to the new organization of departments and new responsibilities. A connection between the interactive project and the conditions set in previous policy plans, of which the Quality Atlas and the provincial document were most important, appeared difficult to achieve. The establishment of initial conditions to the project caused considerable discussion among the executives and civil servants involved; the municipality presented a long list of preconditions that had to be taken into account, in an attempt to influence future outcomes. After lengthy discussions, the conditions were separated in 'soft' and 'hard', the last ones originating from legislation and policy lines that had passed through political decision-making, and only these marking the playing field for the interactive project. Towards the end of the project, the municipality stressed the preconditions again. Especially the project's relationship with the Quality Atlas proved difficult and a much disputed subject within the municipality. Municipal civil servants brought with them the burden of the Quality Atlas, which remained to be a sore subject and lacking public support. The alderman was of the opinion that the advice had to be part of the Quality Atlas and a space was reserved for this. It was agreed the city-council would decide upon the advice in combination with their decision on the revised Quality Atlas which was due in 2007 (see 5.2). The responsible civil servant, however, was of a different opinion. Eventually, the municipality decided that the advice would be 'related' to the Atlas, but would no longer be an integral part of it. Nevertheless, even after this decision it proved difficult to connect the interactive project with the internal procedure of creating the Quality Atlas. The municipal project leader and his team kept the process within their own administration, and did not allow any 'outside' influences (see 5.3).

6.6 Organizations' difficulties

Several participating organizations had difficulty with the process set-up and the roles expected of them. The process conducted was interactive, open and non-linear in nature, and had no aim regarding the contents of the outcome. Governmental organizations had to step back and relinquish control. This turned out to be rather new to several of the participating organizations, resulting in difficulties for the municipality in particular. This section analyses these difficulties of the municipality and of experts involved in the project.

6.6.1 Municipality

The municipality had difficulty in letting go of its conventionally dominant and authoritative position in (spatial) decision-making. Civil servants did not take the outcomes of the

interactive project (developed by stakeholders) seriously. They perceived their internal experts and municipal representatives to be qualified – and democratically legitimate – to execute such tasks. This traditional point of view of the municipality was reconfirmed in their struggle with and repeated postponement of the political consideration of the project's outcomes. Their focus on representative democratic practices is contrary to the aims of the municipality of Middelburg to increase public involvement in policy (see 5.1).

The municipality tried to intervene in the process several times, in attempts to regain control over the issue. At the start of the project, the municipality (and also the project's co-financing organization) wanted the project plan to be more linear in nature, with clear and detailed descriptions of process steps, narrowly defined intermediate results and unambiguous restrictions on process and outcomes. Municipal civil servants tried to steer the process via the introduction of (new) restrictions on its results, for example concerning the number of houses to be built in the project area. After the researchers intervened in order to protect the deliberately non-linear and open character of the process, a fierce discussion followed on the importance and flexibility of the various restrictions and conditions. Later in the process, the municipality again attempted to set a new housing target, this time to finance the plans. The municipality had for a long time been expressing its desire to build houses in the project area and this desire had been one of the causes for the previous planning of the area to become controversial (see 5.1). Next to the interactive project – in which the municipality was one of the participating parties – the municipality continued its own housing programme. The municipality released a 'strategic project plan' (Middelburg Dienst Ruimte 2006) and started acquiring land in anticipation of the expected city-council's approval. As this hindered a clear communication on the project's aims and philosophy, the researchers urged the municipality to wait for the results of the interactive project. They stressed that public support would be lost if the municipality would distance itself from the process aims and would return to developing plans along a (parallel) traditional trajectory.

The municipality increasingly pressed its need for financial information on the scenarios, and the (more) active involvement of experts in the process to ensure technical feasibility of the plans. Especially the financial feasibility of the scenarios was elaborated upon, and municipal civil servants tried to include this as a new restriction on the process even though this was not agreed in the project plan. It turned out that the municipality was unable to adequately separate its different roles in the project. The municipality was a partner in the consortium initiating the project and participating in the facilitation of the process. The municipality also was a stakeholder in the outcome of the project, clearly aiming to build houses in the area and raise revenues. Moreover, as a third role, the municipal city-council would be responsible for the assessment of the project's outcomes, as well as for its eventual execution. These roles turned out to be difficult to separate: facilitation could not be separated from defending stakes, or from anticipating the future assessment. This was only reinforced by the participation of municipal civil servants in several groups of the project.

The civil servants were key figures at the municipal administrative level of the project. They were involved in the process group (for the daily management), in the supervision group (to support their executive), and in the expert group (as civil servants often are experts on a specific domain as well). With these different and influential roles in the process, the researchers had hoped for the civil servants' active involvement and

support in the process (see 5.2). However, this did not work out in practice. Their many roles made the role and function of the municipal civil servants only more complicated and confusing to both participants and the civil servants themselves. This was reinforced by the fact that several of these roles were fulfilled by one single person, who, in addition, appeared to be not truly committed (as discussed earlier). This caused several problems with the role of the municipality in the process.

6.6.2 Experts

Both experts and municipal civil servants perceived the role and function of experts in decision-making in a rather traditional fashion. Based on a technocratic view on decision-making and a strict fact-value distinction (see 2.1), they assumed expert-knowledge as superior, viewing the input of non-experts (like the public) as not valid, not legitimate to include in decision-making. Institutionalised methods and procedures of evaluation and decision-making in the municipality were not suitable for non-expert information. Moreover, experts were afraid to lose their dominant position in decision-making if they would include stakeholder values in the (e)valuation process, as these might compete with their own input in the process. Consequently, the experts had difficulty in adapting their traditionally dominant role to the more supportive role expected from them in the interactive project. They expressed their inconvenience and unfamiliarity with their expected role in meetings with the expert group and in the *ex post* evaluation of the project. Experts and civil servants perceived the interactive process as only instrumental: they hoped the process would lift public resistance for their initial plans. They did not regard the results of the interactive project as valid, or useful, to the decision-making process.

The problems of the experts with their role in the process illustrate the problematic embedding of the interactive process in the representative democratic system, which has been observed before (see 2.3). In a representative democratic system, experts are expected and legitimized to provide the information relevant for decision-making by representatives. The involvement of stakeholders is not needed as the representatives look out for their interests. As a result, the experts opposed various elements of the process. They did not like their rather supportive position in the scenario development, providing only suggestions and remarks, and they wanted more influence on the process. The experts repeatedly noted they would have preferred direct communication with the advisory group about restrictions and technical impossibilities of the scenarios. The researchers, however, had decided to keep both groups separate – with themselves functioning as intermediaries – in order to protect the advisory group from dominating expert interventions (see 5.2). The discussion on the financial assessment of the scenarios is another example of the experts' traditional perception. The experts involved were not used to a broad interpretation of 'values', 'costs', and 'benefits' beyond monetary estimates, and preferred a short-term financial assessment as they were used to make.

Some of the experts from NGOs involved in the project also had difficulty to adapt to their role: for example the farmers' organization (ZLTO) and the regional environmental organization (ZMF). Even though these groups generally advocate an interactive and open approach to decision-making, they seemed to use their involvement in the project to stress their own interests only. If these interests were not adequately expressed, they would resign from the project, as the farmers' organization warned on

several occasions. Initially, the farmers' organization strongly favoured the project and the involvement of farmers in scenario development. However, when they found the stakes of the farmers' organization were not adequately represented, they tried to force these into the process. This happened during the development of the project plan and of the (ideal) scenarios, and during later expert discussions on financial assessment. Representing the farmers in the area, the organization wanted to include specific restrictions that would protect farmers' rights, and conditions for municipal negotiation which had failed to be settled elsewhere. Also, they wanted to develop an extra scenario elaborating on the agricultural future of the area. However, as the other participants – including the farmers – did not agree, the farmers' organization eventually resigned. At the end of the project, the organization ended its participation and refused to subscribe to the project outcome. However, the farmers themselves had been actively involved and identified with the outcome.

6.7 Conclusion

The interactive decision-making project Around Arnemuiden developed integral spatial scenarios in a participation of a wide range of stakeholders and relevant governmental and non-governmental organizations. Stakeholder values provided the basis for scenario development. The project took this interactive approach because of the inhabitants' objections to previous governmental plans, and as the researchers expected that this would improve the process (see 1.4). The advisory group appeared well able to develop integral spatial scenarios based on their own values. This was particularly successful in light of the stakeholders' initial obstructive position in redevelopment of the area. The final scenarios showed curious similarities with the previously developed governmental plans for the area (see 5.2). Nevertheless, the stakeholders perceived the scenarios as very different and appreciated their perspectives being actively involved during an early stage of decision-making. Their active involvement in the interactive process appeared to be important in achieving societal support for redevelopment of the area. *Ex post* evaluation of the project revealed the participants' satisfaction with the outcome and the values that were involved as well as with the process in which this took place.

The stakeholders attributed different values to (surface) water in the area, which together comprised a value-configuration. Various methods helped to construct a shared value configuration among the stakeholders in the advisory group. The stakeholder values were not readily available: in a collaborative process of construction, learning and adaptation, the stakeholders achieved consensus on a body of values relevant to decision-making on the area. The stakeholder values were not fixed and stable, but endogenous – subject to external influences (see 3.4) – and the values developed and changed during the process.

To involve these stakeholder values in the interactive decision-making, the researchers developed an approach of co-valuation during the process. The framework for this approach had to be adapted on various occasions, partly in reaction to the behaviour of participating organizations. Whereas the identification of stakeholder values appeared rather straightforward, the attempt to include the stakeholder values in evaluation showed a collision between the values of stakeholders and the information that experts and civil

servants aimed to involve. This calls to mind the problem formulation that was discussed in the introduction of this thesis: currently applied evaluation methods do not provide for the involvement of stakeholder values that are not expressed in monetary terms. The very aim of the project was to find ways around this and to search for an approach that *does* involve these values. Even though the project actively identified and involved both monetary (as provided by experts) and non-monetary (as provided by stakeholders) values during the process, municipal experts and civil servants could not approve such a practice for evaluation. This was caused by the municipal approach in decision-making, and the recent history in the area. The municipal civil servants and experts had a rather traditional and technocratic view on the role and function of experts in decision-making. They considered expert-knowledge as superior and input from non-experts (like the public) as not valid, not legitimate to involve in decision-making. The municipality needed clear aims and project boundaries, internal goals, and financial information for decision-making to take place. This reflects the functional, sector based, technocratic, and expert-driven approach that traditionally dominates spatial water management (see 2.4). This approach is oriented towards technical solutions, and professionals – traditionally engineers – dominate the provision of information based on a strict fact-value distinction. As the municipal civil servants were not used to an integral perspective on spatial organization, nor to an open and interactive process, they were uncertain how to process the advice in their methods and democratic system based on representativeness. This attitude was only reinforced by the recent history in the area: because of the many previous obstructions, municipal civil servants and experts were afraid to let go of their traditional way of doing things.

Consequently, the institutional environment did indeed hinder the integral and participative process, reconfirming earlier research (see 2.5). The levels of embedding that were applied only helped to a certain extent in this respect. This chapter's analysis showed that various institutions on (e)valuation and decision-making in spatial water management hindered the active involvement of stakeholder values in an integral and participative process. Despite new approaches in water management and (interactive) decision-making, Dutch spatial water management practice seems to show path dependency and lock-in in the institutionalized and legitimized traditional systems of monetary (e)valuation. Based on the experiences in the case study and analysis in this chapter, it can be concluded that for the integral and participative approach put forward in spatial water management to come into effect, changes in the (e)valuation and decision-making praxis are needed. The experiences in the project show that the embedding of an integral and participative approach in the existing institutional situation is difficult and should be organized on various levels. Based on the observations and analysis discussed in this chapter, chapter 7 identifies lessons and presents an approach for collaborative valuation of water in spatial water management.

7 Co-valuation of water

Chapter 6 analyzed the project Around Arnemuiden, which experimented with the involvement of stakeholder values in interactive decision-making. On the one hand the experiment proved very successful and resulted in integral spatial scenarios that well reflected the values provided by stakeholders. On the other hand, the experiment did not succeed to embed the advice in the existing procedures for decision-making in the municipality of Middelburg. Experts, executives and civil servants pressed the need for their conventional approach and methodology, based on short-term financial assessment and representative democracy. This did not allow for the involvement of stakeholder values, nor for the consideration of an integral and interactively produced advice. Chapter 6 concluded that a collaborative process of valuation will not come about easily, and needs institutionalization and adequate embedding in the existing structures. Based on the results of the experiment and analysis in chapter 6, this chapter presents an adapted approach for co-valuation. First, the expectation that steered the research (see 1.4) is discussed (7.1) and lessons derived from the experiment on co-valuation are presented (7.2). Based on these lessons, section 7.3 presents the adapted approach of co-valuation. Section 7.4 discusses how such an approach may be embedded in the current practice of (e)valuation and decision-making: what institutional arrangements might stimulate the involvement of stakeholder values in this context. Section 7.5 ends with conclusions.

7.1 Expectation on co-valuation

The research intended to develop an approach of co-valuation that would involve stakeholder values in scenario development, evaluation and decision-making. The development of this approach took shape 'in action', while executing the interactive project (see 1.5). Section 4.3 discussed that the involvement of stakeholder values in the process of decision-making was expected to improve the decision-making; it was expected to result in:

a. Increased consensus among stakeholders on the values that are involved in the process;
b. Easier embedding of these stakeholder values in evaluation;
c. An enriched outcome regarding the content (as more values are involved);
d. Increased stakeholder support for the outcome.

To determine to what extent this expectation was met, this section compares the situation after finishing the project Around Arnemuiden to the situation preceding the

project as described in 5.1. Based on this comparison, possible improvements on the approach of co-valuation can be identified. Overall, it can be concluded that the involvement of stakeholder values only partly improved decision-making concerning the area Around Arnemuiden.

a. Consensus on value(s) increased among stakeholders participating in the project. The stakeholders identified and constructed a body of values they took as relevant to scenario development and decision-making on the area (see 6.2).
b. The identification and construction of stakeholder values in a collaborative process (by stakeholders) did not facilitate the embedding of these values in evaluation methods. No consensus on values was achieved among stakeholders and experts involved in the project, as these groups had different opinions on the proper information for decision-making (see 6.3). The existing approach and the strict application of methods for (e)valuation and decision-making proved dominant and hindered the involvement of stakeholder values in these methods. As section 5.3 discussed, this does not hold out much hope for the values' consideration in political decision-making.
c. The involvement of stakeholder values in scenario development resulted in an enriched outcome, as more values (of water) were involved. This resulted in integral and interactively developed spatial scenarios (see 6.1 and 6.2).
d. Involvement of the stakeholder values resulted in support among stakeholders for the outcome of the process. Compared to the situation preceding the project and as documented in the interviews, societal support for redevelopment of the area strongly increased. However, this support is still sensitive to future developments as the embedding of the plan was not safeguarded on all levels (see 6.5).

The sections below describe these aspects in more detail.

7.1.1 Involvement of stakeholder values in scenario development

Chapter 6 described that the stakeholders were very well able to jointly develop feasible and integral spatial scenarios. Increased consensus was achieved among stakeholders on the values that were involved in the process, as was hypothesized at the beginning of the process (expectation a). The stakeholders achieved consensus on the values they considered as important to the issue and they were of the opinion that the scenario development process had adequately involved these values. The agreement of stakeholders with the outcome as expressed in the *ex post* evaluation shows that a more balanced and integral process took place. This led to an enriched result regarding the content as more values were involved, reconfirming expectation c. Compared to the situation preceding the project, more values of the stakeholders were indeed involved in the process. Whereas previous planning for the area had focused on the ambitions of municipal and other governmental parties, in the interactive project the local stakeholders were the ones who identified relevant values for the project area. These values appeared more diverse compared to the governmental values. The interactive project thus involved more values compared to previous planning of the area and the outcome was enriched in its contents (see 6.2). Through the involvement of stakeholder values, the notion of the value of water in the area was broadened, and based on these values the stakeholders developed integral spatial scenarios, addressing more spatial functions

and involving more relevant stakeholders and parties (see 6.1). This process of involving values identified by stakeholders did indeed result in increased stakeholder support for the outcome, reconfirming expectation d. This stakeholder support was confirmed in the *ex post* evaluation.

These improvements in the decision-making situation were particularly successful in light of the situation in which the project started. The situation prior to the project was characterized by fierce public obstruction and deadlock, with the municipality unable to develop a feasible plan for the area (see 5.1). Even though inhabitants, entrepeneurs and other local stakeholders objected to governmental spatial plans for the area, the municipality stuck to their ambition of building houses. Stakeholders did not have a single goal in mind nor did they share a particular value; they just objected to the governmental plans. No agreed view on the area was present. Compared to this situation, consensus increased highly among stakeholders on the values that were deliberated and involved in scenario development for the area, and this resulted in a supported new 'plan'. Whereas initially they were unwilling to discuss governmental plans for the project area, in the end the stakeholders enthusiastically developed own spatial scenarios and came up with ideas to reorganize the area. The stakeholders appeared convinced of the need to improve the area, although not exactly in the way the municipality had intended to. Virtually all stakeholders in the advisory group supported the resulting advice, which was quite an achievement concerning the fierce objections and wide range of opinions among stakeholders that preceded the project. These scenarios did not differ much from prior governmental plans. Nevertheless, the stakeholders experienced them as very different, which shows that the process of involvement (in itself) was important for the stakeholders to support the outcome. The stakeholders needed to feel involved and to experience that governmental organizations and decision-makers seriously considered their values and input. The *ex post* evaluation revealed that the stakeholders' trust in the municipality was not fully restored yet, as they directly related this to the eventual execution of their advice.

Consequently, the project succeeded in bringing together the opposing parties in the area and in developing a feasible spatial advice that fitted both the stakeholder values and governmental requirements. It can be concluded that the development and involvement of stakeholder values during this process contributed to this. Valuation appeared to be a collaborative process, in which participants constructed their values, learned from the values of others, negotiated and adapted their values, and finally established a shared body of values that was involved in scenario development. Via this process stakeholders were able to develop shared values, which could well be used in the process and helped to overcome the situation of deadlock and obstruction in the area.

7.1.2 Involvement of stakeholder values in decision-making

Section 6.5 discussed that the involvement of stakeholder values in the commonly applied approach to decision-making met with difficulty. Two mutually reinforcing factors influenced this (lack of) involvement of stakeholder values: (1) the recent history of decision-making and administrative developments in the project area; and (2) the institutional environment of decision-making in the project area.

First, concerning the recent history in the project area; both societal responses to previous spatial plans and the administrative developments in the region influenced the behaviour of governmental organizations in the project. The Quality Atlas Middelburg

2030 had raised fierce discussions and societal obstruction to redevelopment of the area (see 5.1). Later policy documents on the area surrounding Arnemuiden increased this, leaving the municipality uncertain what to do with further planning of this area. The administrative crisis and municipal reorganization of Middelburg in the years before had resulted in a precarious atmosphere. Municipal civil servants were left uncertain about their (new) tasks and responsibilities and were highly afraid to cause public commotion. They were particularly cautious not to raise false expectations or misunderstandings concerning the Quality Atlas. As a result, they were careful about proper formalities and rules, the right order of things, and prevalent approaches within the municipality. Deviating from these well-known and safe paths – as attempted in the experiment of Around Arnemuiden – was not tolerated.

Second, concerning the institutional environment; governmental organizations had difficulty with their expected role in the interactive project (see 6.6). Especially municipal civil servants and experts perceived their role as different from their normal activities, which they did not appreciate at all. The – to them – common approach in evaluation and decision-making proved dominant in their behaviour, and this hindered the involvement of stakeholder values. This approach was based on a representative democratic system with representatives (either elected or appointed) acting on behalf of the public and stakeholding groups, which leaves the need for the involvement of stakeholders themselves. Municipal evaluation and decision-making was dominated by a traditional, technocratic view on expertise and evaluation, involving only (and preferably internal) professional experts (see 2.1). Evaluation took a functional approach and focused on short-term financial assessment. The precarious atmosphere that was caused by historical developments in the project area discussed above, only reinforced this tendency. This hindered the involvement of stakeholder values in (e)valuation and the embedding of the interactive project in the existing decision-making structure. Experts involved did not expect the lay public to have useful – not to mention valid – input for decision-making. They perceived stakeholder involvement as not needed, especially in evaluation, and expected their own input, based on other premises, to be central to the process. Experts preferred to keep their traditionally dominant position in decision-making, and they pointed to institutionalized methodology for evaluation to legitimize this position. As they were used to decision-making based on short-term financial data only, such information was judged as the only valid and legitimate input for the decision-making process. The *ex post* evaluation revealed that, in their view, the process lacked adequate information for decision-making, which they blamed on their (too) restricted role in the process. Experts and civil servants from the municipality had expected the project to result in an implementation plan with a short-term financial assessment. As a result, experts' support for the interactive project and outcome appeared weak.

Consequently, expectation b was not met; the involvement of stakeholder values in scenario development did not facilitate the involvement of these values in evaluation. This was hindered by the municipal approach to evaluation and decision-making[101]. Stakeholders and experts did not achieve consensus on a body of valid and relevant information and values for the decision-making. While stakeholders – though reluc-

101 This is remarkable as the municipality was a member of the consortium commissioning the interactive project.

tantly – accepted the involvement of monetary estimates as required by experts, the experts themselves could not approve the involvement of non-monetary stakeholder values (see 6.3). Experts dominated this phase of the decision-making, with a focus on economic and technical scientific facts. The *ex post* evaluation revealed the concern of municipal experts and civil servants on the (in their words) 'lack' of adequate information for decision-making, pointing to their discontent with the project's evaluation and their disapproving attitude towards the stakeholder values. Whereas this holds out no hope for political consideration of the stakeholder values incorporated in the advice, the actual inclusion of stakeholder values in political decision-making remains to be seen (see 5.3). At this moment it can be concluded that the experts had hoped for the interactive process to function as a 'support-generating machine', enabling them to push their own ideas (see 2.1). From their point of view, no enriched result, no increased consensus, and no increased support for their spatial ambitions was achieved.

7.2 Adjustments to the approach

As the expectation on co-valuation was only partly met, this allows for the search for possible improvements in the approach. Increased consensus among stakeholders on the values that were deliberated, an enriched outcome regarding content, and increased stakeholder support for the outcome of the process were indeed achieved. However, the approach of co-valuation did not facilitate the involvement of stakeholder values in evaluation. This was caused by the predominantly traditional roles of experts and civil servants in decision-making and the focus on representative democratic structures, which hindered the involvement of stakeholder values. To involve stakeholder values in the process – not only in scenario development but also in the evaluation and actual decision-making – the valuation approach conducted in the project Around Arnemuiden would need some adjustments. This section provides lessons on the experiences in the case study, based on which the approach of co-valuation can be improved.

1. Co-valuation should aim for consensus on values among all parties involved

Not only the values of stakeholders like inhabitants are to be involved, but also those of experts and possibly other parties involved in scenario development. With hindsight, the process conducted in Arnemuiden over-focused on the values of stakeholders (in order to achieve their input and support), while paying only minor attention to the values and points of view of experts, and their position in the project. This probably caused the experts to not understand or agree with their role in the process (that differed from their conventional roles), and to feel as if their input in the process was not considered seriously. Even though it proved important to provide stakeholders with a central role, other parties in the process, and especially experts, should not be neglected. Co-valuation should be about the collaborative production of a body of values and information that is acceptable to all parties involved, and is useful in the particular decision-making situation.

In this, a strict distinction between facts (as provided by experts) and values (as provided by stakeholders) is indeed not useful (see 2.1). Stakeholders can provide facts relevant to the decision-making issue, and expert values and perspectives are relevant to

involve as well. Consequently, the perceptions and knowledge of different domains must be combined (cf. Edelenbos, van Buuren and van Schie 2010), to form a body of information that is valid and useful to all participants in the process. This requires value learning to take place; participants learn from the values of others and possibly adapt their own. In such a process, consensus over (a body of) values can be found. An approach of co-valuation should, therefore, pay more attention to the roles of experts and civil servants in the process, and also to the learning process these participants need to go through.

Section 2.5 discussed that often experts involved in water management are still traditionally educated engineers, who perceive water management as consisting of predominantly technical and professional issues. The introduction of spatial, integrated water management and interactive governance, however, has changed the tasks of water experts and managers in planning processes (see 2.4). They are to apply an integral perspective – involving the knowledge of various other disciplines –, to involve many different parties, and they are to be able to organize such a process (Wesselink 2007). Analysis of the case revealed that experts perceived their role in the interactive project as very different from their normal tasks and responsibilities in their organizations. They could not approve of their rather supportive role and would have preferred more direct influence in the scenario development.

Hence, to improve the role of experts in the co-valuation process, their role should be (more) clearly explained and attention is required for the reigning 'expert culture' in a particular situation. Experts involved in an interactive project often will need to learn and become familiar with their new role and task, and they need sufficient time to do so. The active involvement of experts in the co-valuation process should start in time and should receive adequate attention from those facilitating the process. Also, to achieve consensus over values among various parties involved, learning processes will need to take place, which must be adequately facilitated. In a way, experts can also be considered as a group of stakeholders in the process. This underlines their position and role as one of many parties in the decision-making process, providing them with a position more equal to the inhabitants and other local actors. At the same time it makes it possible to recognize experts' important position in the process.

2. An administrative level of embedding

The same holds true for civil servants involved in the process. Section 6.6 discussed that the roles of civil servants and experts in the case overlapped and that both had a traditional perspective of the role of experts and expert knowledge in decision-making. Moreover, municipal civil servants in the project played several roles. They were key figures for embedding of the process at various levels, they were (co-) responsible for the daily management of the process, for the support of their executives and also of the experts from their organizations involved. This involvement in several roles made the responsibilities of civil servants unclear, also to themselves. This contributed to the weak embedding of the interactive project at the executive and professional levels (see 6.5).

The impact of experts' and civil servants' support is not to be underestimated. Their unwilling attitude severely hindered the project and its embedding in formal structures (see 6.5). When experts and civil servants perceive the interactive process as instrumental at best, as a means to lift public resistance, they will not regard the outcome as valid to decision-making. This will both hinder and at the same time emphasize the

importance of the embedding of the interactive project in their organizations and the societal support for the project.

Therefore, in a process of co-valuation the role of civil servants should be (more) clearly formulated. In addition to the levels of embedding already applied in the case (see 5.2), an administrative level of embedding of the process should be actively developed (cf. Edelenbos 2005). This level would comprise the interactive project's connection to the administrative organization and the role of civil servants in the interactive process, especially concerning the municipality. Civil servants involved in the process need regular feedback moments, and they must have a say in the design of the process and the rules of the game. They must be well prepared for their new roles in the process, as these often are different from their traditional roles (cf. Edelenbos 2005, Edelenbos and Klijn 2006). An administrative level of embedding might be worthwhile to address these issues and recognize the important role(s) for civil servants in the process.

3. Stakeholder values are to be involved in the existing approaches to evaluation and decision-making

The governmental organizations in the area participated in the consortium that commissioned the – to them unconventional – interactive project and therefore, they could be argued as receptive to the novel approach. It was, however, the traditional decision-making of these governmental organizations that proved dominant and hindered the approach of co-valuation. At the stage of evaluation and providing information to political decision-makers, executives, civil servants and experts returned to a sector-based and functional approach (see 5.3). The integral scenarios were again separated into their different spatial elements. The scenarios were reframed as a housing subject, as municipal civil servants argued their systems proved unable to deal with an integral spatial plan. Despite due attention from the researchers, the policy embedding of the project in pending policy documents proved difficult to achieve (see 6.5). This was partly caused by the researchers' unawareness of the great difficulty civil servants had with the unconventional approach. Executives, civil servants and experts stressed their traditional approach based on representative democracy and expert-based decision-making, despite the clearly different aims of the project. Perhaps they had not really understood the project aims from the very beginning of the project.

The policy embedding of the interactive process, therefore, is of great importance and should ensure proper integral assessment, reconfirming earlier research on this subject (see 2.3). In addition, the policy level of embedding should also consider the predominant approaches in decision-making in the project setting. Clear rules or agreements are to be made on how to deal with the outcome of the co-valuation process, including the acknowledgement that this may conflict with normally applied methodology. These agreements should be established during the first phases of the process, and included in the project plan. Establishment of these appointments will support discussion on the actual aims of the co-valuation process and an understanding of these by governmental organizations, and will support the embedding of the process outcome in later phases. A meeting with executives and experts on this subject could facilitate discussion on the role of experts and the application of evaluation methodology in the process.

4. *The (recent) history in the area influences values and should be actively considered*

The recent history of policy (plans) and administrative developments proved of great influence to the project Around Arnemuiden and to the values expressed by participants (see 6.2). The project's starting situation of deadlock influenced the attitudes of stakeholders. Interviewees initially refused to discuss (spatial) redevelopment of the area, as they believed this would focus on the governmental plans they so highly disapproved of (see 5.1). They did not want to change anything in the area concerned. When, however, the set up of the project was explained and interviewees trusted the situation and the researchers, they were willing to expose their perspectives on the area, and these appeared to be not very different from those of the governmental organizations. An understanding of the relationship between the inhabitants and the municipality of Middelburg as it had developed, helped the researchers to keep the participants motivated and to explain intermediate actions of the municipality when public concerns arose. Also, it helped the researchers to understand the values and points of view of stakeholders concerning the area.

Recent developments in the administrative structure and the administrative crisis in the municipality of Middelburg caused civil servants, executives and politicians to be careful about their role and function in the project. This was reinforced by the recent developments concerning the Quality Atlas and related documents, which caused municipal civil servants to be very careful with statements on reorganization of the area. More attention to this issue could have been fruitful. It might also have raised the researchers' awareness of the difficulties that experts and civil servants encountered, and might have predicted the burdensome policy embedding of the project (see 6.5).

To take notice of these influences on valuation and the decision-making process, the establishment of a societal level of embedding could be worthwhile. This societal level of embedding would include attention for the recent history of policy, planning, and social relations in the area, and the (possibly) resulting problems, controversial issues, and sensitive subjects. It would comprise of interviewing and various other activities as conducted in the case, through which action researchers can get a feeling for the social situation in the area. Explication of these issues in a separate level may enhance researchers' and other participants' recognition of the relevance of such societal aspects in the project's embedding.

5. *A more integral perspective on value*

In the project Around Arnemuiden, stakeholders and experts (and civil servants) did not achieve consensus on the value(s) and information to be involved in scenario development and decision-making. The involvement of stakeholder values contradicted current trends in (inter-) national regulation for (e)valuation and decision-making on water (see 6.5). Evaluation methodology is based on neoclassical economic assumptions of choice behaviour and aims for the objective and monetary measurement of values. Values (preferences) are assumed to be fixed and given, and exogenous to external influences (see 3.1). To arrive at an integral evaluation that involves values of all participants involved in the process, therefore another approach to valuation is needed.

Co-valuation, collaboratively establishing the values for evaluation and decision-making, requires a more integral perspective on value, and the inclusion of more realistic

assumptions of individual behaviour. The project Around Arnemuiden experimented with an institutional perspective on valuation, taking value as socially constructed in an institutional environment. Value is taken as plural, incommensurable and endogenous to the setting in which it is expressed (see 4.2.; Mirowski 1991; Dolfsma 1997; Spash 2008). In the project, values appeared to be identified and constructed in a collaborative process, involving value learning and the change of values (see 6.4). The institutional perspective on value allowed for the inclusion of values of various kinds (both monetary and not-monetized) in scenario development, the discussion of the relevance of various values, and reaching an agreement over a shared body of values that was perceived as relevant for decision-making. It allowed for the involvement of both expert and stakeholder information, based on a not-strict fact-value distinction.

Such a more integral perspective on value would enable integral evaluation, involving values of all parties involved in the process. This is needed in order to allow the involvement of stakeholder values in evaluation methodology. It does, however, contradict the neoclassical economic assumptions underlying monetary valuation and SCBA. Therefore, the implementation of an interactive approach to valuation is expected to be difficult, and will need institutional arrangements to come into effect. A process of co-valuation should acknowledge its perspective on value applied, and participating organizations should establish this in the project plan. Discussion about this subject will facilitate (governmental) organizations recognizing the consequences of evaluation methods they apply and their underlying assumptions, and considering possible alternatives. This will enhance participants' understanding, and will support embedding of the co-valuation process in existing procedures.

In sum, based on the experiment Around Arnemuiden, the following adjustments to the approach of co-valuation are identified:

- Co-valuation should facilitate a process of (social) value learning, in which relevant stakeholders, experts and civil servants collaborate and are provided with the means to learn, construct, and adapt their values. It applies a not-strict fact-value distinction and involves both facts and values relevant to various parties involved. It requires a clear explanation and proper facilitation of expert roles in the valuation process and a more active role of experts, as a kind of stakeholder group.
- An administrative level of embedding of the co-valuation process should take notice of clear roles for civil servants and experts involved, and clear agreements are to be made on how to deal with the process outcome. Both can be established in the project plan.
- The policy embedding of the co-valuation process should take notice of the actual approaches and methods applied in evaluation and decision-making. Clear agreements are to be made on how the co-valuation process will relate to these, including the acknowledgement that this may differ from conventional approaches and outcome.
- A societal level of embedding of the co-valuation process can pay attention to the societal environment and recent history in the respective area, which influence values that are attributed and valuation processes and (e)valuation procedures that are applied within governmental organizations.

– A more integral perspective on valuation enables a collaborative process of valuation. Such a perspective should take valuation as a collaborative process of various parties, that aims for value learning and the establishment of a body of value information useful and relevant to decision-making according to stakeholders, experts and civil servants involved.

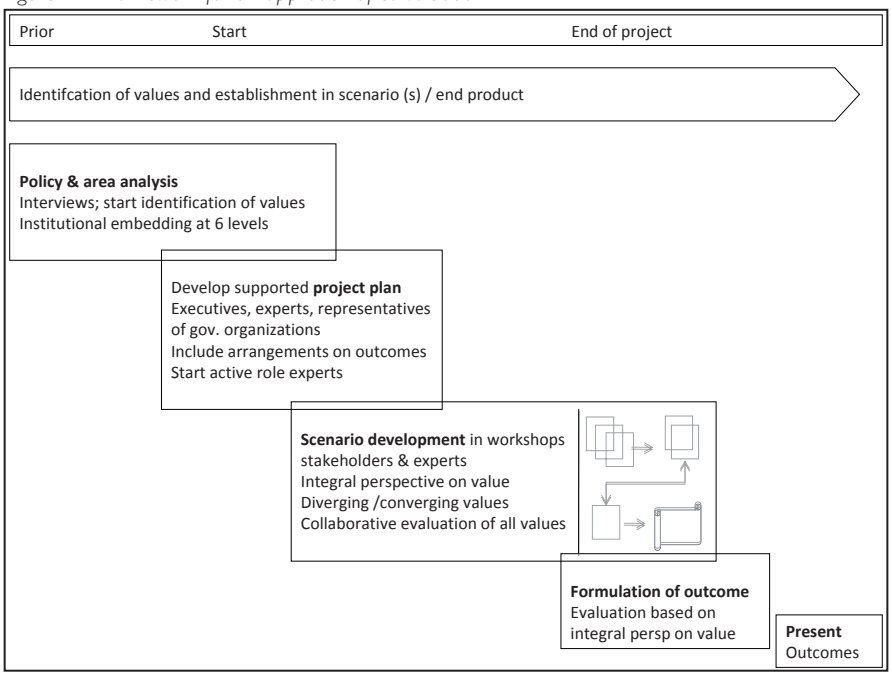
7.3 Co-valuation of water

This section presents an adapted approach for co-valuation of water in spatial water management. This adapted approach is based on the initially formulated components of the research (see 4.2) and framework for its study (4.3), on the adjustments on this approach as developed during the experiment (see 6.4), and on the lessons learnt from the results (see 7.2). First, a framework for co-valuation is presented, which adapts the initial framework for research from 4.3. Then, the approach of co-valuation is explained in detail and compared to neoclassical economic valuation. This comparison makes use of the research variables of valuation that were identified in 4.3, and the discussion of neoclassical valuation (in 3.1).

7.3.1 Framework for co-valuation

Figure 7.1 shows a framework for co-valuation of water, as it may be applied in an interactive decision-making project on spatial water management. This framework adapts the initial figure presented in 4.2 based on both experiences in the case (6.4) and lessons learnt (7.2).

Figure 7.1: Framework for an approach of co-valuation



In addition to the initial framework for co-valuation discussed earlier, the following adaptations deserve mentioning:

- Identification of values and the establishment of these in scenarios and the end product takes place during the whole process and cannot be separated or reduced to distinct stages or activities. It is the core focus of the process.
- Concerning the stage prior to the start of the process, the framework attributes more time to the development of a supported project plan as this was experienced as needed. Also, the project plan should include agreements on how to deal with project outcome and the relationship between the co-valuation approach and existing methodology for evaluation (see 7.2). This stage should also include a thorough study of the recent history of the project area and the institutional environment. Finally, this stage should see the adequate informing and educating of experts involved, and the start of their active participation in the process (see 7.2).
- With the start of the project, the adapted framework attributes experts with an active role to ensure their participation and support for the process. A discussion with experts and executives can deal with evaluation issues, policy embedding, and the role of experts in the process. Also, attention is needed for institutional embedding of the interactive project at 6 practical levels: political, professional, executive, policy, administrative, and societal (see 7.2).
- Concerning the stage of scenario development, the adapted framework recognizes the simultaneous occurrence of valuation, collaborative information gathering, and scenario development, as it appeared to take place in the case (see 6.4). This process should aim for consensus on a body of value information relevant to decision-making among all parties involved in the process, including stakeholders, experts and civil servants. It should provide for (value) learning and adaptation of values to take place (see 7.2).
- Finally, the outcome of the scenario development requires evaluation that is based on an integral perspective on value. Evaluation of the outcome should include both the various values of stakeholders and the values and information that experts and civil servants perceive as needed to inform decision-makers. An evaluation table should express the various points of view on the issue concerned and provide a comparison of the effects expected from the scenario(s) proposed.

7.3.2 Characteristics of co-valuation

Table 7.1 presents the characteristics of co-valuation. It follows the variables of valuation identified in 4.2, and compares these to neoclassical economic valuation (as discussed in 3.1). Table 7.1 is the final product of the series of table 1.1 (initial set up); table 4.3 (framework for study of co-valuation); and table 6.5 (steps executed in the experiment).

Co-valuation is based on an institutional perspective on value. This perspective corresponds with recent insights on endogenous preferences and institutional analysis (see 3.4 and van Schie 2009), and with recent developments in interactive governance and evaluation studies (see 2.1 and 2.2). Co-valuation takes valuation as a process, the outcome of which is strongly influenced by decisions on the types of values to be involved and the perspectives on the issue at hand (cf. Bouma et al. 2008), and by the

Table 7.1: Characteristics of co-valuation, compared to neoclassical economic valuation

Characteristic of the valuation process	Elements	Co-valuation	Neoclassical valuation
Involvement	Kind of people involved	Local stakeholders, Representatives of stakeholding parties and of both gov. and non-gov. organisations (civil servants and experts)	Experts either external or from involved organisations
	Number of people involved	30-50 Selection of interested individuals/representatives	A few Authoritative selection
	Input in process (whose information is involved)	Stakeholder and expert values and information	Monetary values provided by experts
Notion of value	Rationality	Rationality of citizen: variable and context dependent	Rationality of consumer: fixed (instrumental and utilitarian)
	Nature	Value pluralism; sub-values Values are constructed and negotiable: dynamic Value incommensurability	Value monism (welfarism) Preferences are given and fixed Value commensurability
	Focus of value	Effects on spatial elements	Financial costs and benefits
	Definition of 'value'	Subjective importance of some thing or effect	Objective financial costs and benefits Based on use/non-use

Table 7.1 continued

Characteristic of the valuation process	Elements	Co-valuation	Neoclassical valuation
Role of information	Level / focus (who delivers information)	Individual All stakeholders and experts provide information 'Democratic'; different sources of knowledge Rationality is bounded and plural	Society, collective Experts provide information 'Technocratic'; deficit-model of decision-m. Instrumental rationality
	Orientation	Process (arguments for valuation) Valuation is a process of social construction: a learning process	Outcome (process not relevant) Linear relation between experts / information provision and decision-making
	Aim, intended end result Role in the process	Consensus on values Supported process and outcome Joint knowledge production; combining expert and stakeholder information; both objective facts and subjective judgments Decision relevant information	Welfare-economic optimum (efficiency) Objective and verifiable statements to enhance the rationality of decisions
	Sort of decision-making problem	Local-regional Conflict over values No fixed (nr. of) alternatives	Local-national Agreement over values Fixed nr. of alternatives
Process	Stages	Not fixed, dynamic	Fixed and prescribed, static
	Position in decision-making process	Facilitating the process	Facilitating the outcome
	Techniques applied	Context dependent, e.g.: Interviews, scenario development, visualizing, map drawing, reasoning & reframing, monetary valuation (incl SCBA)	Monetary valuation by e.g. Contingent Valuation, Hedonic Pricing, Travel Cost Method, etc.
	Transparency / openness	High	Low
Connection to institutions	Formal	6 levels of embedding: political, executive, professional, policy, administrative, societal	Interactive governance; participation of societal parties (WFD) Welfare perspective and economic valuation (OEI-guideline)
	Informal	Societal embedding; Policy and social history, bureaucratic and expert culture	Focus on formal level, anchorage in formal institutions

methods applied for valuation (cf. Schuijt 2003). As a result, no toolkit for measurement, no fixed table of values to be unambiguously incorporated in evaluation is available. Instead, the framework for co-valuation provides steps to be executed in an interactive process of scenario development and decision-making.

Co-valuation starts from the point of view that not a single value of (surface) water is to be measured or to be revealed through objective methods. Instead, values are subjective, and endogenous to the setting in which they are expressed. The valuation of water by stakeholders is diverse and context-dependent (value pluralism). These values may not all be measured on the same scale (value incommensurability). Also, these values are not pre-existing; values need identification and construction in a collaborative process of learning among participants.

Co-valuation aims to achieve a body of information that is relevant to stakeholders and experts involved, and that is useful for decision-making. It takes a not-strict fact-value distinction; in a collaborative process, a body of negotiated information may be achieved that consists of both facts and values perceived as relevant to the decision-making at hand (cf. Bromley and Paavola 2002; Blackmore, Ison and Jiggins 2007; Steyeart and Jiggins 2007). In short, valuation is considered a (learning) process of construction, identification and adaptation. Co-valuation is defined as:

> *A process of collaborative identification, construction, adaptation, learning and arrangement of values, by stakeholding parties and individuals who are continuously involved in scenario development and evaluation, aiming at consensus on a body of useful and relevant information to inform decision-making.*

Co-valuation is not a technique or instrumental method. Instead, it is an open and interactive approach to the process of valuation in interactive decision-making. It makes use of various existing methods and techniques for the identification and measurement of values. Co-valuation is not about the application of these methods in itself: it concerns the process (through these methods) of collaborative identification of a body of relevant value information, and the involvement of these values in decision-making. This may well include the application of economic valuation and SCBA (van Schie and Bouma 2008). Hence, co-valuation does not aim to replace economic valuation; it provides a different perspective on the valuation process, incorporating existing economic valuation methodology. Nevertheless, the application of co-valuation contradicts the current neoclassical interpretation of value. An important difference is its definition of value (see 4.2). It assumes value pluralism (as opposed to value monism and welfarism), value incommensurability (as opposed to value commensurability), and focuses on constructed values in a consensus-seeking approach (as opposed to individual and fixed values). Hence, co-valuation focuses on the values of individuals involved in the process (as opposed to consumers; Sagoff 1988).

Co-valuation aims to achieve consensus among both stakeholders and experts on a value-configuration of water to be included in decision-making on spatial water management. This consensus has the potential to result in societal support for public decisions concerning water in spatial organization. The value-configuration of water that is relevant in a specific decision-making situation is to be constructed during the process, and by the relevant stakeholders. It is only while developing scenarios that stakeholders construct and identify their values; that they can learn from the values of others; and that they possibly adapt their values and come to achieve consensus. In such a process, the

values are simultaneously constructed and incorporated in the generation of alternatives: the two acts of (1) identification and construction of the values of stakeholders, and (2) the involvement of these values in interactive decision-making are not separated but connected activities. The identification (and construction) of values thus takes place while including them in a decision-making process.

This perspective on value poses several requirements on the governance process. Value construction should start early in the process to enable learning processes to take place. Influences on the valuation process at various institutional levels must be taken into account. Various methods and techniques can be used for such an approach, as the case study showed. To construct values in a collaborative process, interviews, questionnaires, and workshops can be of use. To elicit and construct values, drawings, illustrators active during workshops, story-writing, and discussions are useful. To achieve consensus on values to be involved, negotiation and mediation are helpful.

Such an approach to valuation may help to deal with the problematic valuation of non-monetary goods and services in economic valuation (see 3.2). It enables the connection of processes of interactive governance with existing methodology for (e) valuation as currently aimed for in spatial water management. It provides a way to articulate a broad array of values for different parties involved, including non-monetary values. It enables the inclusion of both hard scientific facts and 'soft' values not quantified or monetized based on a not-strict fact-value distinction. This will enhance possibilities for an integral approach of spatial development and for proper stakeholder participation in decision-making on spatial water management. Nevertheless, co-valuation will not 'solve' anything; it will not be the solution for just any decision-making process that is in deadlock. It does, however, put on the agenda the relevance of stakeholder values next to expert knowledge in an interactive process. It provides 'room' in the process for the non-monetary values that have been experienced in environmental valuation studies (see 3.2). That may be a useful approach when conflicts over values exist, when many and differing stakes are involved, or in a situation of conflict or deadlock.

7.4 Institutional Arrangements

Chapter 6 analysed that stakeholder values could not be properly involved in the decision-making approach and evaluation methods that were applied in the case. Civil servants and experts took these as not legitimate to decision-making. Hence, institutionalized methodology appeared to be an obstacle to involve stakeholder values in evaluation and decision-making, reconfirming the conclusions from earlier research that noted problems with interactive governance and integral assessment (see 2.3).

7.4.1 The need for arrangements

Interactive governance is increasingly applied in spatial water management. These processes aim to involve inhabitants and other stakeholders in the process of decision-making. The execution of this approach is prescribed in various arrangements, methods, toolkits, guidelines and checklists. Their effectiveness, however, is subject of discussion. Also, the connection between interactive governance and common evaluation methodology is not addressed in these guidelines (see 1.3). *Ex ante* evaluation to inform

decision-making is dominated by a neoclassical economic approach. Institutional analysis showed that arrangements for the evaluation of environmental goods and services focus on (neoclassical) economic approaches (see 6.5). Guidelines on water management (WFD) and decision-making on infrastructural projects (OEI) apply a neoclassical economic perspective and recommend the use of SCBA to inform decision-making. This approach is increasingly tailored to local governmental decision-making on (spatial) water management in the Netherlands.

Whereas the relevance of this approach for (market) valuation and informing rational decision-making is widely recognized, the method of SCBA restricts assessment to monetized issues and effects only. This focus may be useful for many large-scale situations; it is less appropriate when stakeholders are involved in a regional interactive process. Evaluation in such interactive decision-making processes may need to include variables that cannot be expressed in neoclassical economic terminology in a way that sustains stakeholder support. In the case of (surface) water, many perspectives and values that surpass a monetary measure are of relevance, which in the eyes of stakeholders are incommensurable, and thus cannot be reflected in a single – monetized – measure for decision-making.

Consequently, neoclassical economic valuation methodology may not be compatible with the integral and participative approach that is gaining ground in Dutch spatial water management, as chapter 6 concluded. It does not enable the involvement of stakeholder values on environmental issues, as environmental valuation studies have shown (see 3.2). On a theoretical level, a neoclassical economic focus does not fit with current insights in behavioural and institutional economics on the endogeneity of values (see 3.4), or with approaches in public administration on interactive governance (see 2.1). Experiences in the case study showed that evaluation methods based on the neoclassical economic perspective, like SCBA, may not be suitable as main evaluation method for integral interactive decision-making on spatial water management. Therefore, this thesis argues that the use of monetary evaluation methods *in isolation* should not be recommended for interactive governance processes in Dutch spatial water management.

While these insights may not be new to public administrative or political scientists, they probably are to many (practicing) economists. Economics traditionally is interested in the question as to *what* decision is made (with a focus on the outcome), while public administration has been mainly interested in the question as to *how* a decision is made (with a focus on the process; see 1.3). Processes of interactive governance and spatial water management, however, stress this distinction. Concerning the information, knowledge, and values that are involved in an interactive project, the issues of who provide(s) this input; how this input is processed; how different input is combined; and how conflicting input is dealt with, are pivotal to the project's success. These are process-matters that surpass the traditional focus of economics and enter the field of public administration. Recently, these insights have been addressed in evolutionary economics, behavioural economics and institutional economic approaches (see 3.4). (E)valuation typically finds itself in between these fields, with both its process and the contents of evaluation as critical for its success.

Despite the theoretically wide acceptance of new and participatory modes of evaluation, it has been noted that in practice evaluation often remains embedded in the traditional top-down and non-participative approaches to measurement (e.g. Weiss

1999; Wadsworth 2001; Sharkey and Shaples 2008; see 2.2). Especially in water management a traditional focus has been observed to remain dominant (see 3.3). Therefore, a proper incorporation of stakeholder values in the evaluation in such processes requires adapted methods or approaches, as experiences in the case study also have shown. To identify and include stakeholder values in decision-making, scenario development as well as evaluation methodology, institutionalization of such process or adaptation of institutional structures is needed. This requires the reconsideration of existing guidelines on valuation and decision-making and their application in combination with stakeholder involvement and interactive governance.

7.4.2 Arrangements for co-valuation

Two characteristics of co-valuation impose fundamental changes on current evaluation practice. First, it considers valuation as a (learning) process, and not as single measurement. Co-valuation departs from a not-strict fact-value distinction. Both facts and values are to be discussed and negotiated in the evaluation process, in the search for a body of supported and useful information for decision-making. Second, it takes valuation as a collaborative process. This involves a more open and inclusive approach compared to current practice in (e)valuation; an interactive evaluation.

The organization of the decision-making process in spatial water management should allow for a more constructive process of evaluation. Methods of evaluation must be used that enable the incorporation of various perspectives on values. Various techniques may be used for this, of which (S)CBA may well be one. Co-valuation may be used as a steering principle for such approach. While an approach of co-valuation may be used for the identification and incorporation of stakeholder values in decision-making, this by no means implies that co-valuation could replace economic evaluation by SCBA, or that it would be suitable for all kinds of problems or decision-making situations that are characterized by value conflicts. An approach of co-valuation may be helpful in a local to regional development situation in which no consensus on facts and values exists and in which an interactive approach is taken to develop an integral plan for spatial water management. Monetary evaluation methods may well be combined with other methods or approaches to inform decision-making that are based on constructivist and deliberative grounds. Valuation should be considered a process of construction and learning that is influenced by its institutional environment. Valuation does not take place at the moment of evaluation only; valuation is a process that is intertwined with scenario development. Stakeholder values should be identified and constructed in an interactive and consensus-seeking process. This is in line with current insights in behavioural and institutional economics (concerning influential factors on decision-making behaviour; see 3.4), in environmental science (concerning the various values citizens attach to environmental issues; see 3.1), and in public administration (concerning interactive governance and collaborative knowledge production; see 2.1).

This requires changes in expert culture, in the organization of the (e)valuation process, and new methods and approaches to combine different points of view, knowledge and values. Specific governance arrangements may stimulate this. These governance arrangements can be constructed during the interactive process. Following Ostrom (2007; 2008) there is no single panacea – no blueprint for a single type of governance system like government ownership or privatization – for all environmental problems.

Each setting asks for different arrangements, or, as Ostrom bluntly states; *"it depends"* (Ostrom 2007:15177). During (and prior to) the interactive process, arrangements are to be made on who participates and in which role, and what s/he contributes (what kind of information, knowledge, or values), as was done in the case study with the project plan (see 5.2). Participants must agree on what they consider relevant information for the process, how this information is processed, and how this relates to common methodology. Also, arrangements must be made on how to make a decision (e.g. based on consensus, or majority). More general arrangements are to be made, like how to behave, what means are provided, and a time schedule. This may involve new forms of collaboration (cf. Termeer 2009a, 2009b) that participants may not be familiar with and require additional arrangements. The arrangements for a co-valuation process need not be new; their purpose is to achieve support from participants. Each interactive project will result in its own kinds of arrangements. In the case Around Arnemuiden several of such arrangements were formed, for example concerning the organization of participants and roles, and to exemplify goals and aims (see 5.2). Based on experiences in the case study, the following guidelines for such arrangements are identified.

First, arrangements should address the institutional setting in which outcome will be processed. Experiences with the case Around Arnemuiden showed once more that collaborative or participative approaches to (e)valuation will not necessarily fit in with currently applied methodology. The existing approaches and institutions for (e)valuation and decision-making may prove rigid. Section 6.6 described that experts and civil servants involved in Arnemuiden had difficulty to adapt their traditional roles and that they returned to traditional institutions at the end of the project. This shows that a return to traditional, sector-based decision-making is a realistic threat to interactive processes and should be accounted for in the set-up of the process.

Second, to prevent traditional institutions and legislation from hindering interactive projects, room must be provided for experiments that deviate from the (formal) rule. Such experiments will have no clearly defined outcome and their process cannot be described in detail beforehand: they need space for manoeuvring and adaptation. Parties involved must be provided with the possibility to establish their own rules and restrictions. Political embedding is essential for such experiments, and involvement of councillors might provide the necessary control. The Dutch Spatial Planning Act (2008) increases municipal responsibilities in spatial development and provides them with more freedom to execute these tasks. This enables to delegate responsibilities and to provide new groups with the task and 'space' to develop plans along a non-traditional track. It enables municipalities, for example, to commission a group of citizens to develop a spatial plan. In such experiments, arrangements for collaborative and interactive (e)valuation can be tested and developed, innovations may occur, and the evaluation of values in non-monetary measures can be studied. Experiments of this kind should be provided with juridical space, for which the Dutch interim-law 'Space and Environment' provides and example, enabling experiments on multiple uses of space to take place (see van der Heijden and Slob 2005).

Third, at the start of an interactive process, arrangements should clearly define the tasks, roles and responsibilities of different parties in the process (cf. Cornips 2008). Especially the input expected from different parties must be explicated, as this explains and justifies their role in the process. In particular the role of municipal civil servants and experts in interactive processes should be clearly defined. Arrangements should

establish the legitimacy of citizen input to the process and the way this input is included in (e)valuation and decision-making. In the case Around Arnemuiden the role of the municipality was confusing and problematic to both stakeholders and municipal representatives themselves. The municipality performed various roles in the process, which the municipal representatives were not able to separate adequately. This was at least partly caused by the unclear role of municipal civil servants in the process, and the various roles imposed on a single person. The role(s) of the municipality in decision-making processes on spatial water management should, therefore, be explicitly defined, and if needed different persons should be attributed to these roles.

Fourth, arrangements should address the valuation of water in spatial organization. Based on the experiences in the case, it is argued here that Dutch water is special indeed (cf. Savenije and van der Zaag 2000; see 3.3), and needs specific arrangements for adequate evaluation. Section 2.4 described that Dutch water management has a long history, resulting in strongly established institutions and ways of conduct. Traditionally, experts and engineers with a rather closed culture and a focus on technical solutions and rational, governmental decision-making, dominate Dutch water management. To arrive at collaborative or interactive (e)valuation of water, this expert culture must change. This requires more than generally adapted guidelines or methods for decision-making: it requires specific arrangements. Moreover, as surface water is a dominant aspect of Dutch history, culture and spatial organization (see 2.4), multiple values of this water are present in society, as the case study also showed. Interactive or collaborative processes are to take notice of these values, which requires approaches that combine both expert knowledge and stakeholder values and that stimulate a collaborative process of information gathering with stakeholders, experts, and decision-makers. The actual (and political) consideration of stakeholder values and perspectives in evaluation and decision-making may be enhanced with specific water measures in the Spatial Planning Act. Such measures could involve the requirement to address stakeholder values of water and the need to establish relevant information for decision-making in collaboration with stakeholders and experts. Specific water measures have recently been argued as needed (CAW 2008; de Putter and Aerts 2008), as the current Act does not include these[102].

7.5 Conclusion

Analysis of the expectation on co-valuation showed that the involvement of stakeholder values only partly improved the decision-making process on spatial development of the area Around Arnemuiden. The stakeholders achieved consensus on a body of values relevant to decision-making; increased stakeholder support was achieved; and more values were involved in scenario development. However, the stakeholder values could not be incorporated in evaluation methodology applied, as municipal experts and civil servants perceived this as not legitimate. Institutionalised methodology for evaluation and decision-making could not be surpassed, partly due to problematic (historical) relations in the area.

102 Both the water test (in Dutch: watertoets) and water paragraph, instruments to ensure explicit attention to the role of and effects on water in spatial organization, are not required in the Spatial Planning Act (2008).

Based on the experiences in the case, improvements to the approach were identified and the chapter provided an adapted framework for co-valuation. Co-valuation is the establishment of a body of value-information relevant to decision-making, in a collaborative process by stakeholders, experts and civil servants involved. This process is characterized by construction, value learning, negotiation and adaptation, and aims for consensus. Co-valuation is not about the identification of the 'right' value, but about development of a body of value-information that is taken as relevant for decision-making. It is an interactive approach to evaluation that connects well to processes of interactive governance and current aims in spatial water management. It has the potential to sustain societal support for interactive decision-making processes through its transparent involvement of stakeholder values in the process. This may enhance the problems that processes of spatial water management appear to face with integral assessment and participation. Co-valuation, however, does not provide a clear-cut solution, and is not a panacea for every problematic decision-making process. It provides a different structuring of the valuation process, taking into account existing methodology and procedures for evaluation and decision-making.

Co-valuation is based on an institutional perspective on value that is different from the neoclassical assumptions that underlie commonly applied economic valuation methodology. Its application in the case appeared to be hindered by institutions for evaluation and decision-making based on these neoclassical assumptions. Therefore, institutional arrangements are needed for the approach to be properly embedded in decision-making. Specific governance arrangements are to be developed during the interactive process; no blueprint for such arrangements can be provided. These arrangements should result in support for the process among participating groups and individuals, governmental organizations and at formal levels (such as in legislation and policy documents). Arrangements should specifically provide experts and civil servants with the legitimacy to be involved in the approach. First, arrangements should address general process rules like how to behave, what resources are provided, a time schedule and how decisions are made in the co-valuation process. Second, arrangements should address the institutional setting in which the outcome of the co-valuation process are processed. Third, arrangements should provide room for approaches that deviate from the formal rule, if needed formulated as an experiment. Fourth, arrangements should establish who participates in the co-valuation process, in which role and for which tasks, and especially what kind of values, knowledge or other information they contribute to the process. Especially the roles of experts and civil servants should be explicated as these may be very different from their common duties. Fifth, specific arrangements should address the valuation of water in decision-making on spatial water management, to achieve actual political consideration of stakeholder values of water.

Arrangements could be connected to the current Spatial Planning Act, which provides municipalities with more responsibilities in spatial planning. Arrangements could provide for the possibility to delegate planning tasks to selected groups of the public and to apply specific valuation methodology for water and water-related issues. Also, specific water measures in the Spatial Planning Act could provide for the consideration of stakeholder values in decision-making on spatial water management. Connecting these arrangements to the Spatial Planning Act will strengthen the connection between water management and spatial development, and will stimulate spatial development project managers to pay adequate attention to water aspects in the development of plans.

8 Conclusions and reflection

The preceding chapters presented an approach to include stakeholder values in (e) valuation and decision-making. Starting from an expectation of the effects of involving these values, the research conducted an experiment, drew lessons and developed an approach of co-valuation for the involvement of stakeholder values on water in decision-making on spatial water management. This chapter concludes the research and returns to the problem formulation and research questions. First the scope of research and the problem formulation are recalled (8.1). Then, based on the theoretical study and the case study conducted, the chapter addresses the four sub questions that were posed in 1.4 (subsequently described in 8.2 - 8.5). Section 8.6 combines the answers to these sub questions to address the main research question (also posed in 1.4), and reflects on the research methodology conducted for this thesis. The final section provides recommendations for further research (8.7).

8.1. The research aim in retrospect

This thesis started with a farmer, who expressed his disapproval of the monetary valuation of his properties. To provide information for decision-making, farming land was estimated at a value in Euros and compared to the values of other goods and effects. The farmer could not approve of this practice as he took the monetary value as being the price he would receive for his properties. Moreover, he believed that the value of his properties could not be expressed in money; that would be like comparing apples and oranges (see 1.1).

The farmer's reaction represents the opinion of many citizens on the monetization of goods for which no market exists. They do not approve of the valuation in money of these goods, as they are of the opinion that it would not reflect, or would underestimate the actual value. A hotly debated subject in this respect is the valuation of environmental goods and services. Various environmental valuation studies have shown that citizens apply values to these goods and services that cannot be expressed in neoclassical economic valuation terminology. At least, not in the eyes of the citizens: they do not recognize the monetized value as reflecting *their* value(s). Discussions abound, and often these no longer concern the (proper) monetization of value(s) but more the way in which this valuation should take place (see 3.2). The issue then quickly turns into a fundamental and ethical one, with citizens disapproving of decision-making based on such (e)valuations and a lack of societal support as a result.

Nevertheless, as chapter 3 argued, economic valuation of (effects of) measures is needed to choose between alternatives and for decision-making on public and other issues to take place. For this purpose, valuation methods based on neoclassical economic principles are increasingly applied. To also incorporate effects that are not expressed on the market in these methods, specific valuation methods have been developed that enable the expression of these effects in money. These methods have been argued to allow for integral decision-making to take place, especially when major effects on the environment are to be expected. In this approach water, as environmental resource, is also considered an economic good and economic valuation methods are applied to estimate its value for decision-making. Decision-making in Dutch water management increasingly applies this methodology, as is prescribed in the European WFD and the Dutch OEI-guideline (see 3.3).

Water management in the Netherlands is a highly specialised and technical issue. It deals with the maintenance and development of water management structures that are indispensable for the country's survival. Technically schooled water experts and engineers traditionally dominate Dutch water management, with a focus on technical solutions for rational, governmental decision-making. In the last decades, however, Dutch water management has seen major changes. It currently aims for an integral approach, involving various spatial sectors and domains. Surface water is increasingly considered as a spatial issue; as described in 2.4 a field of spatial water management is developing. To involve the various sectors and relevant stakeholders in decision-making, various methods and approaches have been developed in the field of public administration. In interactive governance processes, local stakeholders like inhabitants, entrepreneurs and landowners participate in joint fact-finding and the development of alternatives (or scenarios) for decision-making. Two factors influence the implementation of this approach in Dutch spatial water management, however. First, the traditionally dominant role of experts and engineers in Dutch water management and their focus on technical solutions hinder the integral approach to spatial issues and active participation of stakeholders taking place (see 2.4). Second, interactive governance processes encounter difficulties with their embedding in the existing democratic system, which is based on representation (see 2.3). As 2.5 described, these factors hinder participation and integral assessment taking place.

The participative approach in decision-making introduces stakeholders with various values and perspectives in the process, who may not recognize their values in monetary estimates. However, the incorporation of these values in stakeholders' terminology in the predominant approach of evaluation and decision-making – which is needed to sustain these stakeholders' support – is not straightforward and not prescribed in a guideline or methodology which can be applied. As a result, evaluation in practice continues to be dominated by a top-down and expert-based approach, also when it concerns interactive decision-making (see 2.3). This may hinder or ruin the stakeholder support that may have been developed for the outcome during the interactive process. It is based on these insights that the neoclassical perspective has been argued not suitable for interactive regional decision-making on non-market goods and services like a field of flowers or, say, a sandy beach to play on (see 3.2). Reflection is needed on both the 'old' and the 'new' approach and their interconnection in decision-making on spatial water management. The involvement of stakeholders in evaluation methods asks for study and development

of adapted approaches and methodologies. It asks for a combination of participation and evaluation in decision-making, which currently is not institutionalized. Based on these practical observations, this thesis' research hypothesised that a valuation process that involves stakeholder values would result in decision-making with a higher level of consensus among stakeholders on relevant values; that it would facilitate the embedding of these values in evaluation; that it would enrich the outcome and would increase support for the outcome of the decision-making process. In short, it was expected that a collaborative approach to valuation would improve interactive decision-making (see 1.4).

The main research question of this thesis started from this expectation and queried how stakeholder values on water could be involved in interactive decision-making on spatial water management. This was studied through 4 sub questions, addressing (1) the identification of stakeholder values, (2) the involvement of these values in interactive decision-making, (3) the achievements of such involvement of values in the process as executed in an experiment, and (4) possible institutional arrangements to stimulate a collaborative valuation process in interactive decision-making. The research conducted an experiment to study and develop an approach of co(-llaborative) valuation. The experiment focused on stakeholder valuation of water in Dutch spatial water management, and took shape in the interactive decision-making project Around Arnemuiden. In this project, inhabitants and other stakeholders developed an advice for spatial reorganization based on their values for water in the spatial area. The experiment focused on the questions of who should be involved in the collaborative valuation process, what values should be included and how such a process could take place within the institutional environment. The background of the project was characterized by societal obstruction and deadlock, as described in 5.1. This created the project's focus on achieving public support. It was expected that this support would be achieved if stakeholders would develop plans for redevelopment of the area themselves, based on values they had identified themselves.

A specific methodology was applied in the project; participatory action research took place in which I both participated in the decision-making project and observed the practice from a scientific point of view. This methodology greatly influenced the project and its outcomes (see 1.5). Retroductive research took place, repeatedly shifting from theory to practice to find answers to the questions posed. Prior to empirical research only a general framework for the approach of co-valuation was set up. This framework was further developed 'in action' during the experiment, and after finishing the project it was adapted based on lessons derived. The results follow from a single case only, although combined with literature study. The conclusions concern this case study and can be generalized to only a certain extent, concerning regional spatial water management projects that lack societal support and apply an interactive approach to find agreement over values, problems and solutions.

The sections below present the answers to the sub questions of the research. First, the identification of stakeholder values is discussed, addressing research question 1 (8.2). Then the approach of co-valuation is dealt with, addressing research question 2 (8.3). The third research question posed whether the expectation on co-valuation was met, which is discussed in 8.4. Finally, the institutional embedding of the approach of co-valuation is discussed, addressing research question 4 (8.5). With each question, I first

discuss the answer and consequences from a practical perspective, including remarks for process design, after which I reflect on a more theoretical level.

8.2. Valuation: a process of construction, learning and adaptation

The *first research question* queried how stakeholder values of (surface) water could be identified in interactive decision-making on spatial water management (see 1.4). Based on the case study presented in chapter 5 and analysed in chapter 6, this question can now be answered. Stakeholder values of (surface) water can be identified by stakeholders themselves in a collaborative process, which takes stakeholder valuation as a (learning) process that is shaped and influenced by its (institutional) context, and which aims for consensus among the involved parties on the values that are relevant for the decision-making issue. Consensus in this respect means that the group of participants achieves a body of values (note: plural) they agree as relevant to the decision-making issue. They do not have to agree on everything; participants may also agree to disagree (see 4.2). Stakeholder valuation is a process in which stakeholders construct and adapt their values, and learn from the values of other stakeholders. Together, they develop a 'value configuration', consisting of the values they take as relevant to decision-making. The outcome of this process depends on the (institutional) setting of the decision-making situation: the values that are attributed depend on the stakeholders that are involved and the context in which they identify their values. The valuation process is to be executed as an element of an interactive decision-making project that aims for an integral and participative approach towards spatial water management. This provides stakeholders with the possibility to express their values for water in its specific setting and in relation to other spatial elements. Researchers (or process facilitators) can identify categories of stakeholder values through a focus on stakeholder motives (or reasons) for their valuations, perceptions on the area, and spatial choices they make in scenario development. They should stimulate stakeholders to formulate their values. Interactive methods such as open-ended interviews, interactive workshops and collaborative development of maps and other products, seem suitable to this end.

Consequently, to identify stakeholder values for water, valuation is to be perceived as a process: a collaborative process. This makes the identification of stakeholder values part of the co-valuation process, for which 7.3 provides an overview and which is discussed in detail in 8.3. To elicit and identify stakeholder values in this co-valuation process, the process design should include the following:

- The co-valuation process is open to any individual or (possibly organized) party that feels involved in the decision. Participants are allowed to enter, leave and re-enter the process as long as they accept the progress made during their absence and are able to contribute constructively to the issues at hand. Participants are to be shown that they are taken seriously, and that their values are actually involved in the co-valuation process and its outcome.
- In the starting phase of the process, the researchers or process facilitators pay adequate attention to the stakeholder values and points of view, dedicating time to interviews and discussions with them, listening and trying to elicit their values

and understand their motives. It requires an active role of the researcher or process facilitator, who actively aims to elicit and identify the stakeholder values during the process and verifies these with the stakeholders themselves. No single measurement method or questionnaire can be applied for this purpose as the construction and learning process of stakeholders must be stimulated and observed.

- The stage of collaborative information gathering requires considerable time and attention of the researchers or process facilitators. They must identify the (value) information that is relevant to both stakeholders and experts. This should start in the early phases of the process and continues to take place until the end. The information gathered is continuously subject of discussion, adaptation and extension, and in the end all information relevant (in the eyes of the participating groups) to the decision-making issue is incorporated in a table or other format, for informing the decision-makers. This may prevent 'report fights', fights on facts between parties. Agreements are needed on the type of research to be conducted and methods to be applied and the type of data or value information to be gathered, to legitimate the methods applied and the resulting outcome.
- For the stakeholders to achieve consensus on a body of values they take as relevant to the decision-making issue, a process of diverging and later reframing and converging of ideas is beneficial. (For example: from ideals towards feasible plans). This stimulates stakeholders to learn from other stakeholders' values and points of view, and to achieve consensus on a value configuration (a shared value or body of values) that can be used for scenario development.

Section 3.2 described that various researches have shown that stakeholders often do not recognize a monetized value as adequately representing their (non-monetary) values. In their perspective, the values they apply encompass more than can be expressed in money. Especially concerning environmental goods and services stakeholders appear to not accept monetization of their values. Various studies have revealed that these stakeholder values are incommensurable, plural, and endogenous (see 3.4). The results of the case study reconfirm these insights for stakeholder valuation of (surface) water in Dutch spatial organization.

Analysis of the case Around Arnemuiden in chapter 6 showed that the stakeholders attributed various values to surface water in the area of concern, which they expressed in different ways. They did not perceive water in isolation; instead the stakeholders expressed their values and perspectives on water in relation to other spatial elements or functions, like nature, or recreation. The researchers identified various values for water: ecological, esthetical, experiential, financial-economical, (cultural)-historical, recreational, and social (see section 6.2). This means that the stakeholder values of water could be characterized as plural. Also, circumstances influenced the attribution of values; valuation appeared to be endogenous. When later in the process economic valuation and monetization were discussed, the stakeholders preferred to keep values in their own terms, as they did not appreciate the monetary equivalents. As a result, the stakeholder value(s) of water could not be represented by a single measure or number (like a market value would do) that would be supported by the stakeholders. In stead, the

stakeholders identified various relevant values, expressed in various terms. 'The' value of water (to some individual) concerned different aspects of the particular body of water which together formed a 'value-configuration' (see 6.2). These different values were not expressed in the same measurement scale (like money); they were incommensurable. The stakeholders mostly constructed their values when asked for; they were not readily available for measurement. Also, their values developed and changed during the process of scenario-development. Stakeholders learned from the values and perspectives of other participants, they adapted their own values in reaction and mutual understanding developed. Consequently, the valuation by stakeholders was a process and not a single activity or measurement.

Compared to the neoclassical approach that is commonly applied in (e)valuation for decision-making, these insights result in the need to perceive value from a different angle. This thesis' research developed an institutional perspective on value for the study of stakeholder values. Five characteristics of a valuation process were identified and compared for institutional and neoclassical economic valuation: involvement in the valuation, the notion of value applied, the role of information, the process (steps) conducted and connection of the valuation process to institutions. An institutional perspective on value implies that values are influenced by their institutional context, and that institutions can be used to identify and achieve information about these values. It assumes methodological interactionism, value pluralism, value incommensurability and value endogeneity. It takes valuation as a (societal) process of construction and learning that is influenced by its institutional environment, in which the participants search for consensus on a body of value information (see 4.3). Such a more constructivist perspective on value has been advocated by for example Veblen (1899), Mirowski (1990), Dolfsma (1997) and Spash (2008; see 3.4). It allows for the inclusion of different or even competing values: these different values comprise a value configuration of water that is to be included in the decision-making process. Stakeholders construct and apply this value configuration during the process.

This approach towards value and valuation will need further study. Research is needed on the adequate approach towards stakeholder valuation and on connection of the approach to commonly applied methodology. Involvement of stakeholder values in (e)valuation will need development of methods that enable the inclusion of actual valuation (and decision-making) behaviour and the incorporation of actual values that are attributed by stakeholders, including the occurrence of plural, incommensurable, and endogenous values. It will need to include the act of (e)valuation in the governance process to allow for a proper connection between evaluation and decision-making procedures (see 8.7).

8.3 Co-valuation for spatial water management

The *second research question* queried how stakeholder values on water may be involved in interactive scenario-development, (e)valuation and decision-making. This can be achieved through a process of co-valuation. As mentioned before, co-valuation concerns both the identification of stakeholder values and their incorporation in a process of interactive decision-making. Co-valuation, short for collaborative valuation, is characterized

by a multi-actor approach, rationality of the citizen, constructed values in a consensus seeking approach and an institutional perspective on value (see table 7.1). Co-valuation aims for the establishment of a body of value-information relevant to decision-making, in a collaborative process by stakeholders, experts and civil servants who are involved in an interactive decision-making project. Section 7.3 defined co-valuation as a process of collaborative identification, construction, adaptation, learning and arrangement of values, by stakeholding parties and individuals who are continuously involved in scenario development and evaluation, aiming at a consensus on a body of useful and relevant information to inform decision-making.

Table 7.1 compared neoclassical valuation and the process of co-valuation, again following the five variables of a valuation process. As described in 8.2 (see also 7.3), stakeholder valuation is a process of construction, learning, and adaptation. This differs from essential characteristics of the neoclassical approach: value monism and commensurability, rationality of the consumer and values as revealed preferences. Compared to neoclassical economic valuation as conducted in an (S)CBA, co-valuation is not about the identification of the 'right' value, but about the development of a body of value-information that is taken as relevant for decision-making and used accordingly. It provides a different structuring of the valuation process, while taking into account existing methodology and approaches for evaluation and decision-making. Co-valuation does *not* provide input that can be used in an SCBA. Instead, co-valuation aims to result in information that is to be provided to decision-makers *which includes* SCBA. The SCBA is part of the (value-) information that is provided; it is not the only information. With this, co-valuation provides a way to present various (value-) information on a decision-making issue, of which economic valuation is but one – though important – aspect.

Instead of distinct activities, values are identified, constructed *and simultaneously* included in the decision-making process: it is only because of their (intended) inclusion that explicit construction is needed (see 6.3). During the process of scenario development, stakeholders, experts and other actors involved search for consensus on a body of value information they take as relevant to the decision-making issue. Various interactive methods can be applied to identify and involve these values in the process, for example scenario development, interactive workshops, collaborative (value) information production, map drawing and writing story lines (see 6.4). Based on the experiences in the case, 7.3 presented a framework for co-valuation. The framework consists of the following, dynamic and partly overlapping, stages.

- At the stage *prior* to the start of the process, the researchers or process facilitators make a first inventory of values and perceptions among stakeholders and experts (and their motives). Also, their willingness to participate, possible conflicts and interdependencies are inventoried. This can be achieved through for example interviews and a questionnaire. The stakeholders will further discuss, specify, adapt, complement and change these values during the following stages of the co-valuation process. Also at this stage, a thorough study of the recent history of the project area and its institutional environment, and a policy analysis are carried out.
- At the *start* of the project, the researchers or process facilitators develop a project plan together with the governmental parties involved, which is supported by the stakeholders. This includes rules and restrictions from existing

policy (including restrictions to the outcome), problem formulation and goals of the project, a plan for the process to be conducted including deadlines and communication, parties involved and their roles, controversial issues, and the results of interviews from the previous stage. The project plan should also include agreements on how to deal with the project outcome and the relationship between the co-valuation process and existing methodology for evaluation. Experts get an active role at the start of the co-valuation process, informing and educating them on the roles expected of them, to ensure their participation and support. Communication between experts and executives is facilitated to stimulate discussion about the role of experts and expert information in the co-valuation process and the informing of decision-makers. Active embedding of the co-valuation process at six levels is started; the political, executive, professional, policy, administrative and societal level. Gathering of information and execution of these steps can be achieved through interviews, policy and area analysis, and active involvement of relevant parties in groups that have different roles and tasks in the process.

- At the stage of *scenario development*, discussion and specification of values takes place among the stakeholders and experts involved. Valuation, collaborative information gathering and scenario development take place simultaneously; the process aims for consensus among stakeholders, experts and civil servants on a body of value information relevant to decision-making. Moreover, the process should provide for value learning and the adaptation of individual values to find consensus. Stakeholders develop scenarios supported by experts. First, stakeholders develop ideal scenarios. They search for shared values and interests, and express, visualize and specify their sub values. The stakeholders then assess these ideal scenarios on their most valued elements and search for agreement on a relevant body of values, which they use for the development of one or more final scenarios. Through reframing and a reality check with experts and preconditions, the stakeholders converge their values. These steps can be achieved through methods that are interactive and collaborative and which stimulate discussion and the development of joint products. Examples are interactive workshops with discussions, scenario development, map drawing, feedback from experts, a valuation exercise, and the description of different spatial functions in the scenarios.
- Finally, the *outcome* of the scenario development requires a method of evaluation that includes the values of stakeholders, experts and civil servants who were involved in the co-valuation process. A combined table can present the various values and points of view of different parties on the issue and provides a comparison of the effects expected from the scenarios. Stakeholder information needed for this table is already generated during the previous stages of the co-valuation process, and only needs confirmation and possibly specification at this stage. The experts may need to conduct an (S)CBA or other financial analysis following existing methodology or approaches for evaluation and decision-making, which can be executed at this stage. The table can be used to inform decision-makers. An *ex post* evaluation may test the participants' opinion on the

process conducted and the outcome, to assess the public support generated during the process.

For any practical application of co-valuation, these general stages will need specification and adjustment, and the order of activities and need for feed back loops will differ, depending on the project's context and characteristics. The framework presented in 7.3 may be used as a guideline for such an approach. Nevertheless, valuation should not be the goal in itself; the co-valuation process intends to provide relevant information for decision-making to take place. Therefore, a process of co-valuation is to be executed as an element of an interactive decision-making process that entails various other activities and stages. Co-valuation can be understood as a variation on interactive decision-making in which values are used to steer the interactive process (van Schie et al. 2009).

The process design is crucial to achieve support for the outcome of the co-valuation process. The case study revealed that the way in which participants are involved was of even more importance than the actual end result and its connection to stakeholder points of view. The case study further revealed that this process design should include the following:

- The process set-up for co-valuation is to be developed in co-operation with, or at least with the approval of stakeholders and other participating groups like governmental organizations, to provide the rules of the game and other agreements on the co-valuation process with legitimacy and acceptability. This requires rules on how to identify values, how these are processed and by whom, and how these values will be involved in informing decision-makers.
- Symbols and ceremonies are important to create and sustain stakeholder support for the co-valuation process. Examples are a 'kick-off' meeting, public presentation of results, and the development of official documents. The development of intermediate results and the celebration of successes show the progress in the process and the results of stakeholder efforts. It also functions as intermediate 'demonstration' of the continuous incorporation of stakeholder values. This helps to keep stakeholders motivated and committed.
- Findings must be regularly verified by participants in the co-valuation process. Also, researchers or process facilitators must show how findings have been processed, and let participants judge analyses and conclusions. The process should be open to new or different values, points of view, and arguments at all times.
- Critics of the decision-making issue are provided with the opportunity to be involved in the co-valuation process as well. Their values are also relevant to be included in the co-valuation process and should be actively identified in the information gathering stage. Differences in opinion are identified and a solution is collaboratively searched for during scenario workshops. Agreement over values and underlying arguments can be searched for by looking at the issue from different points of view and by visualizing spatial consequences of specific values. This may reveal that different solutions to the issue at hand are possible, which can prevent or even counter path dependency.
- Experts must be provided with an active role in the co-valuation process. They must be provided with the opportunity to identify their points of view, and the

information and rationality they apply, to keep them active and committed to the process. They can be considered as an alternative group of stakeholders that needs embedding and adequate attention in the process.
- An independent process organizer is needed to prevent accusations of protecting the project commissioners' values and perceptions.

8.4 Achievements of the approach

The *third research question* queried to what extent the expectation of co-valuation was met during the case. We expected an approach of co-valuation to improve the decision-making through increased consensus among participants on the values to be involved, facilitated embedding of these values in evaluation, an enriched outcome of the process, and enhanced societal support for this outcome (see 1.4). It can be concluded that the process of collaborative valuation – as it was applied in the case study – only partly met this expectation: decision-making on the project area Around Arnemuiden was only improved to a certain extent (see 7.1).

The involvement of stakeholder values in the process of scenario development was successful in the case (see 6.1). The stakeholders developed integral scenarios that addressed all spatial functions in the area. To this end, they used their values for water and other spatial elements, which they had identified and constructed themselves (see 6.2). *Ex post* evaluation among the stakeholders revealed their satisfaction with both the values that were subject of scenario development and the process in which this was executed. The project succeeded in bringing together the opposing parties in the area and in developing an advice for redevelopment of the area that was supported by stakeholders and that met governmental requirements as well. Stakeholder values could well be used in the process and this helped to overcome the situation of deadlock and obstruction in the area (as described in 7.1).

Less was achieved, however, concerning the involvement of stakeholder values in evaluation. Even though stakeholders achieved consensus on a body of value information relevant to decision-making (expectation a), and even though this resulted in an enriched outcome of the process (expectation c) with increased stakeholder support (expectation d), the experiment did not achieve embedding of stakeholder values in evaluation (expectation b). The predominant (and institutionalized) approach and methodology for (e)valuation and decision-making in the municipality of Middelburg did not allow for the proper involvement of stakeholder values as these were identified in the interactive process (see 6.5). When the interactive process of scenario development was finished, the stage of informing decision-makers on the scenarios was again dominated by representative democratic structures and a neoclassical economic perspective on evaluation, in accordance with general trends in spatial water management (see 3.3) and evaluation practice (see 2.3). Municipal civil servants and experts did not accept (non-monetized) stakeholder values as legitimate to be included in evaluation. The local history of planning and administration and the traditional approach in the municipality probably reinforced this, as both stimulated a traditional role of experts and a focus on representative democratic structures for decision-making (see 6.5). It turned out that

the starting situation of the project had great influence on the course of events and the behaviour of participants.

Nevertheless, the (action-) researchers in the project can also in part be blamed in this respect; with hindsight we could have anticipated that experts would have difficulty with their roles in the project and that economic information would become important to include in the process, even though municipal participants had initially stated otherwise. Rationalities changed during the process and different kinds of information grew more important (especially economic information). As action researchers we should have more actively adapted to these changes and should have been more open and receptive to the needs of experts and decision-makers involved.

Based on experiences in the case and study of the third research question, the research identified improvements to the approach of co-valuation and adjusted the framework accordingly (see 7.3), resulting in the approach of co-valuation as described in 8.3. Hence, starting from an initial expectation, through 'in action' development during the case and lessons learnt during this experiment, the research developed a framework for co-valuation to include stakeholder values of water in decision-making on spatial water management. The research developed and applied an institutional perspective on value to this end (see 8.2). Prior to execution of the case, the researchers only made a general framework for the approach of co-valuation (see 5.2). After execution of the case, this framework was complemented with the series of activities carried out with the aim to involve stakeholder values in the process (see 6.4), and adapted based on lessons learnt (see 7.3). Most important practical adjustments to the framework were the increased role of experts in the co-valuation process to achieve a body of value information supported by both stakeholders and experts, and the active embedding of the process at six practical levels (in stead of four): political, executive, professional, policy, administrative, and societal. These adjustments can be expected to help prevent the problems that were encountered in the case Around Arnemuiden.

I expect the adjusted approach of co-valuation to meet the expectation of improving interactive decision-making on spatial water management. Co-valuation is an interactive approach to (e)valuation that connects well to processes of interactive governance and current aims in spatial water management. It has the potential to sustain societal support for interactive decision-making processes through its transparent involvement of stakeholder values in the process. It provides for participation in evaluation and a more integral assessment of alternatives. This may enhance the problems that processes of spatial water management appear to face with integral assessment and participation (see 8.1). An approach of co-valuation may be helpful in a local to regional development situation in which no consensus on facts and values exists, and/or no agreement on aims and ambitions is present, and in which an interactive approach is taken to develop an integral plan for spatial water management. Also, it may help to establish how increased (spatial) quality or 'surplus value' may be achieved in interactive processes, another buzz word in spatial development (see 2.4).

Nevertheless, an approach of co-valuation is no panacea to every spatial water management problem or (interactive) decision-making project in deadlock. The approach will not be suitable to all kinds of problems or decision-making situations that are characterized by value conflicts. Also, as mentioned before, while the approach may be used for the identification and involvement of stakeholder values in decision-making, it

does not replace economic evaluation by SCBA. Chapter 1 discussed that an economic approach to decision-making focuses on the question of *what* decision is made, while a public administrative perspective mainly pays attention to the question of *how* a decision is made: bluntly said, contents versus process. An approach of co-valuation takes the middle course and aims to combine (processual) insights from public administration and (contents focused) economic evaluation practice. Hence, monetary evaluation methods may well be applied in an approach of co-valuation, perhaps in combination with other, more deliberative methods or approaches to inform decision-making. The approach recognizes the relevance of stakeholder values in an interactive process and provides a means to include these in the evaluation through a different structuring of the valuation process. Still, the approach was only developed in action, and has not been thoroughly tested yet. Co-valuation will have to prove itself in practical applications and further developments will be needed on its use in different contexts (see 8.7).

8.5 Institutional embedding of co-valuation

The *fourth research question* queried how (the development of) institutional arrangements may stimulate processes of collaborative (e)valuation (see 1.4). Such arrangements are needed as the changes required for co-valuation to come into effect may not be expected to come about by themselves in Dutch spatial water management. Experiences in the case showed that an approach of co-valuation will need governance arrangements that provide governmental organizations with the incentive or obligation to change their approach. The most important difference between co-valuation and neoclassical economic valuation is its assumption of valuation as a collaborative and endogenous process in which value learning by stakeholders takes place, as opposed to expert-based single measurement (see 8.3). For this different, interactive approach towards evaluation to come into effect a change in expert culture is needed in Dutch water management. It requires change in the organisation of the (e)valuation process, and new methods or approaches to combine different values, knowledge and points of view.

The case study provided several lessons and insights on arrangements needed for the approach to be institutionalized (see 7.4). Based on these experiences, the fourth research question can be answered. For co-valuation to take place (in a specific situation), a combination of participation and evaluation needs institutional embedding in decision-making at a formal level in policy documents. Also, during the interactive process institutional arrangements must be constructed that stimulate an approach of co-valuation. No blueprint can be provided for a single type of arrangement or governance system, as each (project) situation will call for specific arrangements, rules and agreements, and points of interest. As co-valuation is to be organized as an element of, or variation in interactive decision-making, arrangements for co-valuation will overlap with those needed for interactive processes. Arrangements should address at least the following:

- Arrangements are to be made in the co-valuation process on how participants should behave, what means are provided, a time schedule and plan for communication, and how decisions are made. The process may involve new forms of collaboration, which should be explicated and supported. Arrangements

should address who participates, in which role, and which task they conduct in the co-valuation process. Specific attention is needed for what kind of values, knowledge or other information participants contribute to the co-valuation process, how this information is processed and how this relates to commonly used methodology for information gathering, (e)valuation and decision-making. The input of participants provides them with legitimacy in the process: this should be explicated to clarify relations between groups. The input of experts and civil servants should be explicitly addressed, including how this relates to stakeholder input.

- Arrangements should address the institutional setting in which outcome of the co-valuation process are processed, and how these relate to common outcome and information for decision-makers. It may be necessary to explicate the experimental nature of the co-valuation process to allow for the execution of activities that differ from the common approach.
- Arrangements should provide the co-valuation process with freedom in process design and freedom to deviate from the formal rule. Clearly defined outcome of the co-valuation and the process steps to be conducted cannot be described in detail beforehand; they need space for manoeuvre and adaptation. This requires adequate political embedding of the process. Also, participants should be allowed and supported to establish their own rules and restrictions during the process; this is part of the process to be conducted to achieve their support.
- Arrangements should address the valuation process for water in spatial water management projects to achieve actual political consideration of stakeholder values on water. Due to its long history, strongly established institutions, closed expert culture, and focus on technical solutions and rational governmental decision-making, the traditional approach in the domain of water management may prove rigid, like it happened in the case. Experts and civil servants representing the municipality in the case had difficulty adapting to their new roles in the interactive process and eventually they returned to inform decision-makers through their traditional approach based on neoclassical economic assessment and a separation of spatial functions (see 6.3). Hence, when applying co-valuation, the currently applied approach in evaluation and decision-making on spatial water management can be expected to dominate. Arrangements could establish the requirement to address stakeholder values in regional spatial water management decisions, or the need to develop relevant information for decision-making in collaboration with experts and stakeholders.

The current Dutch Spatial Planning Act offers possibilities for the establishment of such arrangements. This Act provides municipalities with more responsibilities in spatial development. It enables municipalities to delegate planning tasks to selected groups of the public. It also allows for the applications of specific measures, like specified valuation methodology for water and water-related issues. Specific water measures are lacking in the current Spatial Planning Act; arrangements for such measures could be formulated. Consequently, various arrangements could enhance co-valuation, and could address the possibilities for municipalities to organize the spatial development process in specific and adjusted ways. Moreover, as interactive (decision-making) processes are increasingly

conducted at local to regional levels (see 2.3), this provides opportunities for municipalities to experiment with the co-valuation approach to involve stakeholder values in their valuation processes. Arrangements could stimulate application of this approach at local-regional levels.

Apart from the need for arrangements to enable a process of co-valuation to come to effect, co-valuation should also be adequately embedded in the institutional environment in which it is applied. To achieve adequate embedding in the institutional setting, the process design of co-valuation should include the following:

- The process design must ensure a proper embedding of the co-valuation process in existing procedures on six levels: the political, executive, professional, policy, administrative and societal level. The first three levels concern embedding of the process and outcome among politicians, executives and professionals (experts) relevant to the decision-making at hand. The policy level concerns embedding of the process and outcome in the reigning policy documents and approach applied. The administrative level of embedding concerns embedding among civil servants involved, for example from the municipality or the province. Finally, the societal level concerns a connection of the process and outcome with the recent history in the area, social relations between citizens and governmental organizations. Several levels of embedding can be fluid; they may appear strong at a certain moment, but fade away shortly after. The embedding can be vulnerable to unpredictable events like elections or illness. Replacements in positions like an alderman or provincial executive, representing a particular level of embedding in the project, may not understand the project culture, the project aims, or the motives for a specific project set up. The practical levels of embedding are to be constructed during the interactive process. Which levels may be (most) important and how they can be established, will differ for each project. Hence, no clear-cut recipe for this embedding, no single panacea, can be provided. The attempts in the case study as analysed in 6.5 (and complemented in 7.2) provide examples of how embedding at these levels may be achieved.
- The process design should provide for arrangements or agreements that give experts and civil servants the legitimacy to apply the approach of co-valuation. Agreements should provide room to deviate from the formal approach. Arrangements among participating organizations and groups should establish collaboration, the aim for consensus on a body of value information, and involvement of these values in evaluation. Arrangements on evaluation should establish the interactive character of the evaluation process and the involvement of stakeholders. Also, the institutional setting in which outcome are processed should be addressed, including possible differences between this setting and the expected outcome. The tasks, roles, and responsibilities of different parties in the process are to be clearly defined. Especially the roles of municipal civil servants and experts require attention as these may differ from approaches common to them.
- The process design should address the role of experts in the process in particular. Involvement of experts of various organizations is crucial to obtain their contribution and support for the process, and to indentify their information and

values. Nevertheless, experts also provide a potential obstacle to the process. Customs and rules of the game in the experts' organizations on information gathering, plan development and decision-making may differ from the way of conduct intended in the approach of co-valuation. This may cause experts to stick to 'old' instruments or even path dependency. Evaluation is executed as an element of the interactive process: it is explicitly not to be executed *ex post* the interactive process by an external party. This should be established in agreements documented in the process set up. Decision-makers must be provided with both financial and non-financial information. Both kinds of information are to be inventoried during the interactive process, and in collaboration with participants. SCBA may well be part of these activities.

- The process design of co-valuation should address the role of participants representing the municipality in the process (civil servants, executives and experts). The municipality has various roles in processes of regional development, which may be difficult to separate and to communicate transparently. Also, these roles are vulnerable to regular (and unpredictable) changes in staff, which may influence key positions in the process. The roles of these participants must be explicated in the process design and agreements are to be reached on their tasks, contributions and behaviour.

8.6 Stakeholder values of water in decision-making

The *main research question* of this thesis queried how stakeholder values on water could be involved in interactive decision-making on spatial water management. Based on literature study, a case study and related research on the above sub questions, this question can now be answered. Stakeholder values on water can be included in interactive decision-making;

- through a collaborative process of identification, construction, adaptation and (value) learning, in which a supported body of value-information is developed by participants in the process (see research question 1; 8.2);
- which is executed during the process of scenario development and involved in evaluation procedures through a process of co-valuation, based on a multi-actor approach and construction of a body of value information in a consensus seeking approach (see question 2; 8.3);
- and which process, in turn, suits the institutional environment and is supported by institutional arrangements (see question 4; 8.5).

Co-valuation can be interpreted as a variation on interactive decision-making, in which values are used to steer the process. Within the interactive process co-valuation consists of several steps which, in short, aim for the following (see the framework for co-valuation in 7.3). Prior to the start, a first inventory of values is made. With the start of the process, agreements are made on how to deal with the values during the decision-making process. The values are further specified and adapted during the following stage of scenario development. Finally, the outcome of the scenario development is complemented with combined value-information of all parties, which is to be used

to inform decision-makers on the (expected) effects on the possible alternatives for decision-making.

An approach of co-valuation needs a careful process design and preparation, for which several points of concern have been mentioned in the previous sections. Various set-ups have been developed for interactive decision-making, also concerning regional development processes; see for example Janssen-Janssen et al. (2009). Co-valuation can be implemented in these set-ups; it does not aim to replace them but to provide for the inclusion in these set-ups of the specific element of (e)valuation. Within process development attention has been paid to (the inclusion of) values before. Co-valuation adds to these developments with its aim to integrate the perspective of economists. It intends to involve current insights in both (behavioural) economics and interactive governance and evaluation, resulting in a combined approach. Co-valuation aims to integrate the act of evaluation in the total process of decision-making, and to connect this process with prescribed evaluation methodology. It provides a different structuring of the (e)valuation process within decision-making: it integrates economic valuation in the governance process. Co-valuation could provide a way to find a balance between different rationalities in the project situation: those of stakeholders, experts and decision-makers.

The inclusion of stakeholder values in decision-making through a process of co-valuation has the potential to enhance interactive decision-making processes with increased societal support and more integral outcome through the involvement of more and more supported values. This connects well to current aims in Dutch spatial water management and interactive governance. Nevertheless, an approach of co-valuation in spatial water management will not come about by itself (see question 3; 8.4). The application of such an approach requires a broader interpretation of value than currently applied in economic methodology. The case study showed that institutions for evaluation and decision-making procedures in this domain might hinder a process of co-valuation to come into effect: it may be difficult to achieve a broader interpretation of value in practice. Therefore, a process of co-valuation needs embedding at various institutional levels. Institutional arrangements should provide the approach with the legitimacy needed for civil servants and experts to execute and to be involved in such a process.

Section 3.1 discussed that in general a neoclassical economic perspective is applied to valuation and decision-making on water, based on value monism and commensurability. Current water policy and management takes water as an economic good (Dublin principles; WFD). Decision-making on spatial water management in the Netherlands applies (S)CBA to support rational and efficient decision-making (OEI-guideline). This method is widely recognized for its integral approach to decision-making and possibility to include effects on non-market issues. However, the way in which stakeholders values can be included in this method (through monetization) often is not accepted by stakeholders themselves. The neoclassical perspective on valuation does not allow for the incorporation of plural values, or differing perceptions on values. As a result, stakeholder values on water, as these are expressed and recognized by stakeholders themselves (see 8.2), cannot be involved in the currently dominant evaluation methods to support decision-making on Dutch spatial water management. Whereas the method was never intended for such use, practice shows that it is increasingly applied in the context of interactive decision-making, requiring the involvement of stakeholders in some way or another.

No generally accepted evaluation method is available that allows for the inclusion of stakeholder values (as defined in the case study; see 6.5). This threatens public support for interactive decision-making based on such (e)valuations. The thesis therefore argues that monetary evaluation in isolation should not be recommended for application in interactive governance processes in Dutch spatial water management.

Chapter 3 concluded that the current perspective may not be adequate, nor appropriate, to be applied in interactive governance processes on spatial water management. The approach is not suitable to identify the plural, incommensurable, and endogenous stakeholder values for water in a way that sustains stakeholders' support, and does not facilitate the (value learning) processes that stakeholders and other parties need to go through. Moreover, many stakeholders do not accept monetization as appropriate for decision-making on their values. This may explain the problems that are encountered with stakeholder participation and integral assessment in interactive processes of spatial water management (see 3.3). Study of research question 1 revealed that the involvement of stakeholder values in evaluation requires an approach to value and evaluation that is more interactive compared to the current approach. Such an interactive approach to (e)valuation is in line with current insights in evaluation theory, which have not yet been worked out in actual decision-making, however (see 2.3). The thesis proposes an approach of co-valuation for the involvement of stakeholder values in interactive governance on spatial water management.

Development of the approach of co-valuation took place in an experiment and was initially steered by an expectation on its effect. In a process of participatory action research, the approach was actively adjusted in anticipation on the circumstances, and following lessons learnt I further improved the approach. Based on these findings, I developed a framework for co-valuation of water in spatial water management. Whereas this framework was based on experiences and analysis, it was derived from a single case only. This will limit the applicability of the approach, as more cases would have enabled generalization of the findings.

Also, due to the participatory action research, the approach and results will be influenced by my perspective and role in the case. The experiences in the case reconfirmed that action researchers must continuously reflect on the course of events and on their own actions and role in the process (see 1.5). In the beginning of the co-valuation process, the action researcher should take stock of the various rationalities and related value systems present in the project context: societal, professional, and political, and should take care of their adequate embedding, involvement and positioning in the process. Societal rationality deals with the type of relevant values and information in the eyes of stakeholders. Professional rationality explains what (value-) information is legitimate for decision-making; in many cases this will be an economic rationality. Political rationality identifies what decision-makers need for their decision-making to take place (see also 8.7). These rationalities should be considered and balanced in the co-valuation process in order to achieve support and embedding of the process and its outcome among the groups that apply these rationalities.

Nevertheless, the specific methodology of the research also allowed for in depth study of the case, detailed study of the approach-in-development and for active adjustment of the approach during the experiment. This resulted in a framework that is optimally adapted to practice and in detailed insights in its functioning. It resulted in answers

to the research questions and additional insights in the approach of co-valuation as described in the preceding sections. For example, additional to the research questions were the insights that stakeholder valuation is a process in which learning and adaptation takes place, and that the identification of stakeholder values and their involvement in scenario development is a combined, continuous process. The methodology appeared very useful, even necessary to come to these results, as *outside* observation would not have provided such *inside* knowledge and experience. It provided a valuable and inspiring way of research, closely connected to problems encountered in the real world outside academics. Participatory action research and observational data obtained in a direct and participative approach do indeed result in a thorough understanding of the case; they result in a better understanding of the context in which participants interact, they are open and discovery oriented, enable the researcher to see things that may not be discovered or observed in interviews alone, and increase personal knowledge (see 1.5). Also, water in Dutch spatial organization appeared a suitable object for the study of stakeholder valuation. Water management is deeply embedded in Dutch society, it is subject of longstanding regulation, and it touches upon various policy domains, with many stakes and stakeholders as a result.

8.7 Recommendations

Various developments in society reveal that participation is here to stay, also in water management as described in 2.4. Therefore, water management practice aims to incorporate this approach and benefit from its potential. Water management also aims to apply economic evaluation methodology at an increasing scale. Various methodologies have been developed to support water managers in this aim. Nevertheless, these economic valuation methods do not connect well to the interactive approach often applied in earlier stages of the decision-making process. These evaluation methods need to adapt to interactive governance in order to remain of use in spatial water management processes. An approach of co-valuation allows for the combination of both of these strands; it integrates economic valuation (and its application in SCBA) in the governance process of interactive decision-making. Application of co-valuation in interactive governance processes on spatial water issues in the Netherlands may enhance possibilities for both integral assessment and participation, which appear problematic in the current approach. Co-valuation may be helpful in situations in which no consensus on values or facts is present, in which many and differing stakes are involved, or in a situation of societal conflict or deadlock.

The approach and the insights of this thesis may therefore be of use to local governments, process facilitators, as well as water managers. The insights of this thesis may stimulate and help local governments to enhance their decision-making on spatial water management through the more active involvement of stakeholders in the decision-making process, including evaluation. The approach of co-valuation may help process facilitators of interactive governance processes on spatial water management to integrate economic approaches in their governance approach. This will enhance embedding of the interactive process at various levels, as administrators, politicians and experts will recognize elements they are familiar with from the conventional (neoclassi-

cal) economic approach. The approach of co-valuation may be of use to water managers in their aim to develop integral and participative plans for spatial water management, as is required by the WFD. Local governments, process facilitators and water managers may take the framework for co-valuation (as presented in 7.3) and the suggestions for process design (as discussed in this concluding chapter) to heart in their attempts to involve stakeholder values in (interactive) decision-making processes.

Application of an approach of co-valuation poses several requirements for the decision-making process (see 8.2-8.5). It requires an active role of the researcher, reflection on his/her role and the willingness to actively adapt his/her behaviour, role and approach during the process. It also requires an institutional environment that provides freedom for manoeuvre and change of initially intended results and outcome. A process of co-valuation will remain unpredictable, both its course of events and the outcome, even when carefully prepared and planned. This may not please civil servants and could be a hurdle for actual implementation of the approach. Application of co-valuation may also entail risks. If no consensus on values is achieved among participants, this may only harden positions with a solution to a deadlock situation even further away. Also, commitment to the process is crucial; if participants are not willing to conduct a co-valuation process it will just not come into effect. When decision-makers do not take the outcome of the co-valuation process seriously, this may decrease societal support for the project. The case study may be seen as an example here: whereas the stakeholders regained some trust in the municipality and their representatives at the end of the project, they remained suspicious of eventual decision-making on the area (see 5.3). If their values would not be properly included and communicated in decision-making, they are not likely to be willing to discuss redevelopment of the area again, nor to participate in such an interactive process once more. Decision-makers from the municipality of Middelburg should take this to heart.

In the scientific arena, the dominant role of experts in decision-making is increasingly subject of debate (see 2.2). It is recognized that not only can 'non-experts' provide valuable information; often expertise – technical information – or a lack thereof is not what causes the problem in (problematic) decision-making situations. Administrative and managerial issues and the level of societal support appear to be of influence here. To this end, processes of interactive governance are increasingly applied. To combine these processes of interactive governance and the commonly applied economic evaluation methodology, adapted approaches are needed. Also, evaluation methodology is to be applied that allows deliberative methods for the involvement of incommensurable variables, and a more social-constructivist interpretation of value. These issues require further research on interactive evaluation to take place in practice, and on the situations in which such an approach may be useful. This requires a reconsideration of the current neoclassical approach in evaluation, and the application and combination of recent insights in the fields of behavioural economics and evaluation studies. It requires, for example, further study of adaptations to the neoclassical perspective on value and practical methods based on these adaptations that connect to actual valuation and decision-making behaviour. Economists should consider the potential of the extra value information generated through a process of co-valuation for evaluation, and the relation of this information and actual decision-making behaviour to (classical) problems of CBA and neoclassical valuation.

Nevertheless, I argue with Pearce et al. (2006: 287) that whereas "*[t]heoretical economists need a far better understanding of the preferences that affect actual decisions, […] those who make decisions perhaps also need a […] better understanding of economics.*" In Dutch water management, expert information remains crucial for decision-making and safety of the country. Still, this concerns not only technical water expertise, but also various other fields of expertise. These fields of expertise should collaborate in an integral approach. Also, whether it is publicly accepted or not, large sums of money have to be discussed and taxes must be accounted for. Experts and decision-makers should understand that, whereas crucial for decision-making, economic information does not provide the only relevant value information for decisions on spatial water management. This information is to be studied in relation to other values and aspects relevant to the issue: that is what political decision-making is all about. While the research documented in this thesis provided insights in the valuation process as conducted by stakeholders, the connection between these stakeholder values and expert information remained a point of concern. Further research is needed on the interconnection of both stakeholder and expert information in interactive governance. Below I suggest two subjects for further research that may provide useful insights for the further development and application of an approach to involve stakeholder values in evaluation and decision-making on spatial water management.

First, research should focus on the role of experts and expert information in interactive governance, the combination of (and interconnection between) expert and stakeholder information in these processes, communication and collaboration between these groups, and the way decision-makers can make use of this combined information. In an experiment on approaches for such interconnection a study could be made on how experts and stakeholders can combine their information in a learning process and how they could collaborate in a productive manner. Another subject of study could be the involvement of decision-makers in these processes to ensure embedding in and usefulness of the outcome to the eventual decision-making. This may be studied through a focus on the different rationalities of different participating groups in interactive decision-making, including societal, professional and political rationality. This could enhance understanding of both the public acceptance of economic and expert information, and expert roles and problems with such approach. It may also provide insights in the adequate and effective use of stakeholders and stakeholder values in interactive decision-making. Experiments of this kind should be provided with juridical space, for which the Dutch interim-law 'Space and Environment', enabling experiments on multiple uses of space, provides an example. Development of such a law for spatial water management projects may be studied. Further study on how the emerging field of spatial water management could be developed and improved may stimulate this. Specific water measures in the policy document on spatial planning or the Spatial Planning Act could provide the space and context to study these issues.

A second relevant subject for further study is the factors that influence the applicability and effectiveness of co-valuation in different settings or contexts. In this respect, cultural differences may prove an interesting field of study. The approach of co-valuation presented in this thesis was developed in and for Western, Dutch spatial water management, which has a rich and specific history concerning not only water management but also public involvement in governmental decision-making. Comparison

to different cultural settings may reveal weaknesses in the approach and particulars in the Dutch situation. Also, such a comparison may result in adapted approaches for different cultural settings, for example those that have a different history of public involvement in governmental decision-making. There might be a lot to learn from water management approaches in developing countries, where local knowledge is often used for local decision-making processes. The various levels of institutional embedding that were studied in this thesis could be further tested and specified for different settings.

Finally, for the study of these issues I can recommend a research methodology like the one applied for this thesis' research. Participatory action research provides a useful, valuable and involved way of research that is well suited to the study of societal, complex and endogenous processes addressed in the questions suggested above. They require a researcher to be involved in his/her research subject to achieve inside information and to observe from a distance at the same time. Researchers then get out of their libraries and participate and observe in the real world. This has the potential to bridge the gap between observed actual behaviour and phenomena and theoretical assumptions representing it. The research presented in this thesis has shown that this gap can still be present.

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List of abbreviations

CAW	Commissie van advies inzake de waterstaatswetgeving (Advisory committee for water legislation)
CV	Contingent Valuation
DLG	Dienst Landelijk Gebied (Government service for land and water management)
DMV	Deliberate Monetary Valuation
EUR	Erasmus University Rotterdam
MCA	Multi Criteria Analysis
MPC /MSC	Marginal Private Cost / Marginal Social Cost
NGO	Non Governmental Organization
NIE	New institutional Economics
NRLO	Nationale Raad voor Landbouwkundig Onderzoek (National council for agricultural research)
OEI	Overview Effects on Infrastructure
OIE	Original Institutional Economics
PAR	Participatory Action Research
Pers.comm.	Personal communication
QALY	Quality Adjusted Life Year
RMNO	Raad voor Ruimtelijk, Milieu- en Natuur- Onderzoek (Advisory council for spatial planning, nature, and the environment)
(S)CBA	(Societal) Cost Benefit Analysis
(S)EU	(Subjective) Expected Utility
TCE	Transaction Cost Economics
TEV	Total Economic Value
TNO	Nederlands instituut voor toegepast wetenschappelijk onderzoek (The Netherlands organization for applied scientific research)
UNCED	United Nations Conference on Environment and Development
WFD	Water Framework Directive
WTP/A	Willingness To Pay / Accept
ZLTO	Zuidelijke Land en Tuinbouw organisatie (Southern Farmers' organization)
ZMF	Zuidelijke Milieu Federatie (Southern environmental organization)

Summary

Introduction

Current developments in Dutch public decision-making show a trend of 'economization'. As a result of the growing demand for more transparency and efficiency in decision-making, economic information about the expected costs of measures or proposals is increasingly being used. For decision-making on large-scale issues, monetary information is crucial and many different alternatives, measures and kinds of effects have to be compared. Various effects of alternatives will not be reflected on the market, however; they do not have a readily available monetary value. Examples are human lives saved, or health effects from the growing of (more) trees in the city. As effects of this kind often are relevant to consider in public decision-making, they can be involved in analysis and evaluation through the 'monetization' of (effects on) these goods. This approach is based on neoclassical economic theory and identifies a fictional monetary value for non-market goods based on, e.g, hypothetical markets or revealed preferences from individual consumers. A large body of non-market goods relevant for decision-making are environmental goods and services.

Public responses reflect a growing unease in society with the way many economists – and decision-makers who are informed by them – address environmental issues, and measure the value of environmental goods and services (Bromley and Paavola 2002; Vatn 2004). The public considers monetary valuation of those goods as inaccurate, as making things comparable that are not. Moreover, the public often, though falsely, assumes the monetised value as being the actual selling price of the good in question. This may cause problems when members of the public, or stakeholders are involved in decision-making to gain their support. Whereas the economic literature generally argues that stakeholder values can be included through e.g. stated or revealed preferences, providing for their participation in the process, these preferences generally are not recognized by stakeholders themselves as reflecting the values they actually hold. Also, compared to interactive governance approaches, neoclassical economics is based on a different interpretation of 'participation' (Pearce et al. 2006).

Decision-making processes increasingly apply an interactive approach that aims for the active and direct involvement of relevant stakeholders. The approach aims at more horizontal interactions between different societal actors like government, citizens, firms, and organizations (a.o. Fischer and Forester 1993; Kickert et al. 1997; Rhodes 1997; Koppenjan and Klijn 2004; Sorenson and Torfing 2007). Involvement of non-governmental actors mainly concerns the stages of information gathering and scenario development, and is based on the expectation that the involvement of these actors or stakeholders will result in enhanced societal support for decisions, improved quality and legitimacy of decisions, and new types of co-operation. The actors each possess different information and resources needed to achieve goals. None of the actors has the power to overrule the others, and generally no agreement exists on which way to go. Moreover, the superiority of technical knowledge and the linear relation between scientific expertise and

policy have declined. As a result, knowledge is also considered as a network of increasing complexity and diversity, which is to be involved in policy and decision-making (Teisman 1992; Castells 1996; Klijn 2002). It is increasingly recognized that facts are not value neutral; disputes over facts cannot be solved by more knowledge or scientific information. At best one can achieve a 'serviceable truth' (Jasanoff 1990; Nowotny 2000), or 'decision-relevant knowledge' (Petts and Brooks 2006; Pielke 2007). Knowledge, expertise and the knowledge generation process show a development towards a deliberative approach, and several have argued that both expert and stakeholder knowledge should be used in the production of knowledge for decision-making. As a result, these different bodies of knowledge have to be combined in one way or another, through processes of collaborative or negotiated knowledge production.

The question that comes to mind, then, is what would be relevant information for decision-making when environmental or other non-market goods and services are involved. Is this indeed the monetized information commonly used, or may the perspective and insights of the public provide additional information relevant to the issue? Based on the rationale for interactive governance, the involvement of stakeholders in (e) valuation could be expected to enhance their appreciation and support for this aspect of the decision-making process as well. In light of the sometimes fierce objections to monetary (e)valuation and resulting decision-making, this seems worthwhile to consider. Also, in view of the apparent variety in stakeholder values and perspectives, consensus among stakeholders on the values relevant to decision-making might improve the decision-making process and its societal support. This thesis studies what happens when an interactive governance approach is extended to the stage of valuation, involving not only experts (and their economic information) but also stakeholders (and their values and perspectives). The thesis does so in the context of decision-making on water in Dutch spatial organization.

Problem formulation

Dutch water management traditionally applied a technically oriented approach in decision-making. Water issues were used to be perceived as safety issues, to be solved by technological improvements and engineering expertise. Water management was a relatively autonomous and goal-oriented policy domain, with complex and specialized legislation, and high-level knowledge of and confidence in hydraulic technology (Bressers et al. 1994; NRLO 2000; Lintsen 2002; Wiering and Immink 2006; Wesselink et al. 2007). This approach provided well for the needs of water managers and water management constructions and for many centuries, Dutch water management was very successful along these lines.

The last decades saw major changes in Dutch water management, however. Various developments cause an increasing threat of flooding in the Netherlands, which has resulted in the recognition that more space for water is needed. Currently, a different approach to water is applied: taking water no longer as the enemy that is to be kept out, but as a friend to be provided with space (Minsterie van V&W 2000, 2006). It views the water system as complex, multi-functional and with many different uses that must be integrally taken into account in decision-making. Water management is now taken partly as a spatial issue, reflecting the start of the merging of water management and spatial

planning (van Stokkum et al. 2006; Goosen 2006; Wesselink 2007a) into, what I call, a field of 'spatial water management'.

Dutch water management also applies the neoclassical economic approach for (e) valuation and decision-making. Following international developments (Dublin principles 1992; WFD 2000), water is taken as an economic good with a monetary value to be calculated. To support rational decision-making on large and complex infrastructural decisions in the Netherlands, the OEI-guideline requires a Societal Cost Benefit Analysis (SCBA) and related valuation methods based on a neoclassical economic perspective (Eijgenraam et al. 2000). SCBA is generally viewed as an integral evaluation method for all kinds of effects. The method is increasingly applied to support decision-making in water management and spatial organization, particularly at a regional level. It is expected to become more important specifically for environmental decision-making, and its combination with deliberation is encouraged for this field of policy (de Bruyn et al. 2007; RMNO 2008).

Following the general turn in society towards pluricentric governance structures, Dutch water management aims to involve stakeholders and their sources of knowledge in decision-making. Due to the limited available space and the complexity of (spatial) water management in the Netherlands, the involvement of stakeholders in interactive approaches is expected to generate more support and enriched information for decision-making. This introduces the values, perspectives, and sources of knowledge of stakeholders in decision-making on water management; a domain that was traditionally dominated by engineers and other established experts, and by the application of an economic approach to (e)valuation and assessment.

The involvement of stakeholders and an integral assessment of all spatial functions appear to be problematic in spatial water management. Both have been imputed to the institutional structure based on sector-based decision-making and traditional expert roles (de Bruijn et al. 2004; Edelenbos 2005; de Zeeuw et al. 2009). These long-standing structures are deeply rooted in Dutch culture. Also, highly specialised expertise remains crucial for water management in the Netherlands to remain safe. The connection between this knowledge and the information provided by stakeholders in interactive processes appears to be unclear. In practice, expert and stakeholder knowledge are approached differently, and real interaction between them hardly takes place. Scientific, technical and economic analyses are still stressed as the basis for decision-making. As a result, a technocratic approach, top-down evaluation methodology and sector-based legislation seem to persist in water management, which hinder an integral and interactive approach. A 'proper' institutional organization has therefore been found to be a critical condition for success (De Bruin et al. 2004; Scholz and Siftel 2005; Goosen 2006). To avoid 'misfits' between interactive governance and the representative democratic system, four levels of institutional embedding have been argued as being needed: political, executive, processional, and policy (Edelenbos 2005; Edelenbos et al. 2006, 2009).

Consequently, there appears to be a gap between interactive governance and the conventional approaches towards evaluation and decision-making procedures still in place in spatial water management. Whereas interactive governance aims to actively and directly involve stakeholders in decision-making, these stakeholders do not take part in the evaluation methods applied to inform decision-makers. Experts execute this stage of the decision-making process through the application of monetary valuation methodol-

ogy, which – with its focus on expert-based (monetized) information – aims to enhance rational, efficient and transparent decision-making. As stakeholders did participate in previous steps of an interactive decision-making process, they may feel uninvolved in the evaluation of their products. A growing number of valuation studies reveal that stakeholders do not recognize their values and information in economic assessment methodology (a.o. Foster 1997; Clark et al. 2000; Ackerman and Heinzerling 2004; Sagoff 2004, 2008; Getzner et al. 2005; O'Neill et al. 2008). This may hinder or even erode public support that may have been established during the interactive process, and which often is one of the very aims of stakeholder involvement in decision-making. It has indeed been recognized that a methodology to combine values provided by both experts and stakeholders in the evaluation process is lacking. In practice evaluation continues to be dominated by a top-down and expert-based approach (House and Howe 1999; Weiss 1999; Wadsworth 2001; Courtois 2004; Sharkey and Shaples 2008), also when it concerns interactive decision-making. This leaves unresolved how stakeholder values identified in interactive processes are to be dealt with in evaluation, endangering the public support for such interactively developed decisions. This situation asks for a combination of participation and evaluation in decision-making. It raises the question whether the (e)valuation process could be approached interactively as well, making the evaluation part of the interactive process, and what such a process would look like.

Aim and research questions

This thesis studies the valuation by stakeholders of (surface) water in Dutch spatial organization. It starts from the observation that monetized values often are not accepted or recognized as relevant by the public or stakeholders involved in an interactive decision-making process. If these stakeholders were to achieve consensus on the values involved, this could increase support for the process outcomes. The thesis therefore aims at the study and development of an approach to involve stakeholder values of water in interactive decision-making and (e)valuation, preliminary coined 'co-valuation'. It focuses on a process of valuation that aims at consensus on a shared valuation and not at the specification or measurement of a precise value. The purpose of such an approach is to support the (interactive) decision-making process through the inclusion of values of relevant stakeholders in scenario development, evaluation and decision-making. The research starts from the expectation that this will improve the decision-making process, concerning:

a. Increased consensus among stakeholders on the values that are involved in the process;
b. Easier embedding of these stakeholder values in evaluation;
c. An enriched outcome regarding the content (because more values are included);
d. Increased stakeholder support for the outcome.

Based on this expectation, the research question and sub questions of the research are:

How can stakeholder values on water be involved in interactive decision-making processes on spatial water management?

1. How can different stakeholder values of (surface) water be identified in interactive decision-making on spatial water management?
2. How may stakeholder values on water be involved in the process of interactive scenario-development, (e)valuation, and decision-making?

3. Does the involvement of these stakeholder values improve the decision-making process;
   a. Does it increase consensus among stakeholders on the values that are involved in the process?
   b. Does it facilitate the embedding of stakeholder values in evaluation methodology?
   c. Does it enrich the outcome in contents; are more values involved?
   d. Does it increase stakeholder support for both the decision-making process and the outcome?
4. How may (the development of) institutional arrangements stimulate processes of collaborative (e)valuation?

The involvement of stakeholder values in decision-making must be connected to existing procedures and processes of decision-making. The regular procedure is not intended to involve stakeholders; still the current state of affairs cannot be ignored. The research therefore takes an institutional perspective and studies arrangements for adequate embedding of the approach in the existing system. An institutional perspective enables the study of a possible connection, or embedding of the co-valuation approach in the existing institutional structures. It also enables addressing the institutional problems currently encountered with participation and assessment in spatial water management processes, and studying institutional influences on values applied.

The thesis does not aim at the development of a new method or technique; it searches for a different approach to the valuation process, a possible new structuring of this process in which existing and proven techniques and methodology may be used. The thesis does not aim to provide an improved measurement or identification of the right, or proper value of water: co-valuation will not produce a number or measure that can be used as input in SCBA. Instead, the thesis studies how the values that are provided by stakeholders can be involved in the process in combination with existing methodology for (e)valuation, regardless of what these values may be.

Methodology

The research applied a specific methodology characterized by a retroductive approach and participatory action research (PAR). A retroductive approach consists of the alternation of induction and deduction (Ragin 1994), continuously shifting between theory and data in a grounded theory-like approach (Glaser and Strauss 1967; Charmaz 2006). Literature study and empirical research were carried out simultaneously, in a mutually influencing and contributing process. Empirical research was carried out in a case study, through several predominantly qualitative and triangulating methods for data gathering (see Yin 1984, 1993; Patton 2002), including open-ended interviews, document study, participant-observation, and PAR with observation and data collection during the various activities organized. The expectation on the involvement of stakeholder values was used as a starting point for this process (cf. Eisenhardt 1989). A retroductive, iterative approach requires an active role of the researcher, for which PAR was applied. PAR promotes broad participation to involve all relevant parties and together examine current action, and to involve the *insider*-knowledge of stakeholders (Greenwood and Levin 1998; Wadsworth 2001; Coghlan and Jacobs 2005). Participatory action researchers are oriented towards helping the policy practice they investigate in its particular context,

and making a contribution to its improvement together with the actors involved. PAR is not a linear method but proceeds through continuous and repeated cycles, and requires that theory and action are not separated.

Prior to the empirical research no clear-cut framework for co-valuation was available for testing; the researchers intended to develop this framework during the process. I participated in an experiment for this purpose; I was part of a research team that tried – in a real life decision-making project called Around Arnemuiden – to identify stakeholder values of water, to involve these values in the decision-making process through a process-to-be-developed of co-valuation, and to embed this process in common ways of conduct in decision-making on spatial water management. From the position of a participant-observer, I participated in the method's development and observed this practice at the same time. Through the active involvement of stakeholders, the active involvement of myself as a researcher, a process of 'learning-by-doing', and a focus on collaboration between different parties involved, I studied the stakeholder values as identified, developed and applied by the stakeholders themselves. This resulted in an *insiders* perspective on the achievements and possibilities to include stakeholder values in decision-making and evaluation. Consequently, I was partly subject of my own research, a common feature of action research.

The research team made a general and open research design for the development of an approach of co-valuation, which they intended to actively develop and adjust during the case, anticipating the actions and reactions of participants. To study the process of valuation that developed during the project, I identified five elements or variables of the valuation process; (1) involvement; who are involved in valuation, and how; (2) notion of value; what notion of value is applied, what rationality is applied; (3) role of information or knowledge; what is the role of knowledge in the process, what kind of information is used and who provides this; (4) process; which steps are taken in the valuation process, what is the position of valuation in decision-making and what methods and techniques are applied; and (5) connection to institutions; how does the valuation process fit into the institutional environment (customs, rules of the game, procedures). I studied these variables in comparison to the characteristics of neoclassical economic valuation methodology. Based on the experiences in the case, I drew lessons on the approach conducted, and adapted the framework for co-valuation accordingly.

The project Around Arnemuiden took place in 2006-07 and focused on the spatial organization of a polder area northeast of the town of Arnemuiden, located in the municipality of Middelburg (the Netherlands). From 1996 onwards, the municipality had intended to improve this area through the development of houses, the introduction of more water in the area, and enhanced possibilities for (water-) recreation. The inhabitants and other stakeholders objected to these plans however, with a situation of deadlock and postponement of decision-making on the area as a result. The stakeholders felt not involved in the planning process, and they perceived their municipal representatives as not adequately reflecting their stakes: they wanted to be involved themselves. As the municipality and other governmental organizations in the area remained convinced of the need to redevelop the area, a consortium of governmental organizations together with some research parties then decided for an interactive approach. In a collaborative process, the values and perspectives of the inhabitants and other stakeholders would be inventoried, and would be used to develop a spatial plan for (part of) the area. It was

agreed that the project would focus on the identification of stakeholder values of water in relation to other (spatial) values, and to express these values for water in the spatial plan. It was this interactive project that constituted the case study in the research (see a.o. van Schie et al. 2007).

Conclusions

The main research question of this thesis queried how stakeholder values on water could be involved in interactive decision-making on spatial water management. Starting from an initial expectation of the benefits of involving stakeholder values and a general framework, the research conducted an experiment for the 'in action' development of such an approach, drew lessons from the experiences, and developed a framework for co-valuation to include stakeholder values of water in decision-making on spatial water management. Based on these findings and related literature study, the question can be answered as follows. Stakeholder values on water can be involved in interactive decision-making on spatial water management:

- Through a collaborative process of identification, construction, adaptation and (value) learning, in which a supported body of value-information is developed by participants in the process;
- Which is executed during the process of scenario development and involved in evaluation procedures through a process of co-valuation, based on a multi-actor approach and construction of a body of value information in a consensus seeking approach;
- And which process suits the institutional environment and is supported by institutional arrangements, as co-valuation will not come about by itself in spatial water management.

Identification of values…

Stakeholder values can be identified by stakeholders themselves in a collaborative process. It should take valuation as a (learning) process that is shaped and influenced by its (institutional) context, and that aims for consensus among the involved parties on the values that are relevant for the decision-making issue. Stakeholder valuation is a process in which stakeholders construct and adapt their values, and learn from the values of other stakeholders. Together, they develop a value configuration; a body of values they take as relevant to decision-making. The outcome of this process depends on the (institutional) setting of the decision-making situation: the stakeholders who are involved and the spatial and social context in which they identify their values.

The valuation process is to be executed as an element of an interactive decision-making project that aims for an integral and participative approach towards spatial water management. This enables stakeholders to express their values of water in its specific setting and in relation to other spatial elements. Researchers or process facilitators can identify categories of stakeholder values through a focus on stakeholder motives (or reasons) for their valuations, perceptions on the area, and spatial choices they make in scenario development. The identification of stakeholder values is no separate activity or measurement; it is part of the co-valuation process.

Analysis of the case revealed that, from the perspective of stakeholders, their values were plural, incommensurable, and endogenous. The stakeholders attributed

various values to surface water in the area, which they expressed in different ways, and they perceived water in relation to other spatial elements of functions in the area. The stakeholders mostly constructed their values when asked for, and their values developed and changed during the process; they learned from the values of others, they adapted their own values, and mutual understanding grew.

The insights in stakeholder valuation generated in the case study show the need to perceive 'value' from a broader perspective than currently applied in the neoclassical economic approach. The research developed an institutional perspective on value for this purpose, assuming that values are influenced by their institutional context, and that institutions can be used to identify and achieve information about these values. It starts from methodological 'interactionism', value pluralism, value incommensurability, and value endogeneity. It takes valuation as a (social) process of construction and learning that is influenced by its institutional environment, in which the participants search for consensus on a body of value information.

... in a process of co-valuation...

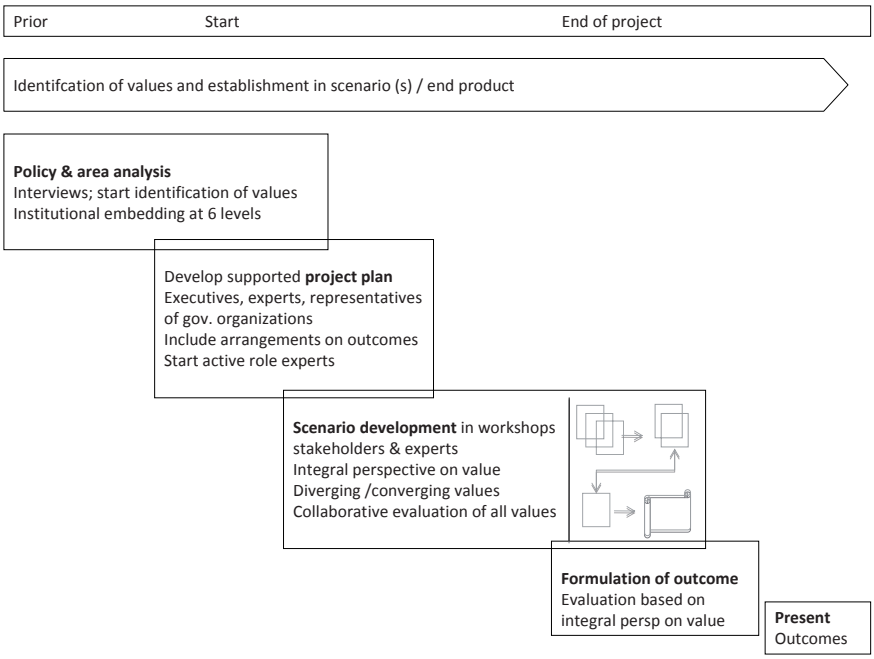
Co-valuation, short for collaborative valuation, is a process of collaborative identification, construction, adaptation, learning and arrangement of values, by stakeholding parties and individuals (including stakeholders, experts and civil servants) who are continuously involved in scenario development and evaluation, aiming at consensus on a body of useful and relevant information to inform decision-making. It applies a multi-actor approach, rationality of the citizen, constructed values in a consensus seeking approach and an institutional perspective on value.

Co-valuation is to be executed as an element of an interactive decision-making process that enfolds various other activities and stages; co-valuation can be understood as a variation on interactive decision-making in which values are used to steer the interactive process. Within the interactive process co-valuation consists of several dynamic and overlapping steps (see figure A). For any practical application of co-valuation, these general stages will need specification and adjustment, and the order of activities and need for feed back loops will differ, depending on the project context and characteristics. The framework in figure A may be used as guiding such approach.

Co-valuation can be implemented in existing set-ups for interactive decision-making; it does not aim to replace them, but provides for the inclusion in these set-ups of the element of (e)valuation. The approach recognizes the relevance of stakeholder values in an interactive process and provides a means to include these in the evaluation through a different structuring of the valuation process, while taking into account existing methodology and approaches. Hence it intends to integrate the act of evaluation in the total process of decision-making: *it integrates economic valuation in the governance process*. It thereby aims to combine current insights in decision-making behaviour from both economic valuation practice and interactive governance and evaluation. Co-valuation is not about the identification of the 'right' value, but about the development of a body of value-information that is taken as relevant for decision-making and used accordingly. Co-valuation differs from the neoclassical approach and SCBA, but it is not intended to replace SCBA or economic valuation. Co-valuation does not provide input for an SCBA; co-valuation aims to result in information that is to be provided to decision-makers, and this may include an SCBA.

An approach of co-valuation may be helpful in a local to regional situation in which no consensus on facts and values exist, and/or no agreement on aims and ambitions is present, and in which an interactive approach is taken to develop an integral plan for spatial water management. The involvement of stakeholder values in decision-making through a process of co-valuation has the potential to enhance interactive decision-making processes with increased societal support and more integral outcomes through the inclusion of more values, which are supported more. This concurs with current aims in Dutch spatial water management and interactive governance. It provides for participation in evaluation and a more integral assessment of alternatives, as more values and perspectives are incorporated. This may improve the problems with integral assessment and participation that processes of spatial water management appear to face. Co-valuation could provide a way to find a balance between different rationalities in a project situation: those of stakeholders, experts and decisions-makers. Still, co-valuation is no panacea for any spatial water management problem or interactive decision-making project in deadlock. Also, the approach was only developed in action (and adjusted afterwards), and has not been thoroughly tested yet. The approach will need improvement and further development in different contexts.

Figure A: Framework for co-valuation (similar to figure 7.1)



At the stage prior *to the start of the process, an inventory is made of the values and perceptions among stakeholders and experts, their willingness to participate, possible conflicts and interdependencies. The stakeholders will further discuss, specify, adapt, complement, and change these values during the following stages of the co-valuation process. A study of the recent history of the project area and its institutional environment and a policy analysis are carried out.*

At the start of the project, the researchers develop a supported project plan together with governmental parties involved, which is to be supported by the stakeholders. It includes rules and restrictions to the process from existing policy (including restrictions on the outcomes); problem formulation and goals of the project; a plan for the process to be conducted including deadlines and communication; parties involved and their roles; controversial issues; the results from the previous stage; agreements on how to deal with project outcomes; and the relationship between the co-valuation process and existing methodology for evaluation. The process should be actively embedded at six levels: political, executive, professional, policy, administrative, and societal. Experts should get an active role from the very start, informing and educating them on the roles expected from them, and communication between experts and executives should be facilitated.

During scenario development, discussion and specification of values takes place among the stakeholders and experts involved. Valuation, collaborative information gathering and scenario development take place simultaneously; the process aims for consensus on a body of value information relevant to decision-making among stakeholders, experts and civil servants. The process should provide for value learning and the adaptation of individual values to find consensus. Stakeholders develop scenarios, in which experts support them. During this process the stakeholders diverge and later converge their values, and reframe them in their search for consensus on a shared body of values that is relevant for decision-making on the area.

The outcome of the scenario development requires a method of evaluation that includes the values of stakeholders, experts and civil servants that were involved in the co-valuation process. A format must be used that combines the various values and points of view of different parties and that provides a comparison on the effects expected from the scenarios. The stakeholder information needed for this is generated during the previous stages of the co-valuation process and only needs confirmation and possibly specification at this stage. The experts may need to conduct an (S)CBA or other financial analysis following existing methodology or approaches for evaluation to identify the information relevant to them for decision-making. This combined information can be used to inform decision-makers on the expected effects of different alternatives. Finally, an ex post evaluation may test the participants' opinion on the process conducted and the outcomes.

Nevertheless, the process of collaborative valuation – as it was applied in the case study – only partly improved decision-making on the project area Around Arnemuiden. Even though stakeholders achieved consensus on a body of value information relevant to decision-making (exp.a), and even though this resulted in an enriched outcome of the process (exp.c) with increased stakeholder support (exp.d), the experiment did not achieve embedding of the stakeholder values in evaluation (exp.b). The predominant (and institutionalised) approach and methodology for (e)valuation and decision-making in the municipality of Middelburg did not allow for the proper inclusion of stakeholder values as these were identified in the interactive process. When the interactive process of scenario development was finished, the stage of informing decision-makers on the scenarios was again dominated by representative democratic structures and a neoclassical economic perspective on evaluation, in accordance with general trends in spatial water management and evaluation practice. Municipal servants did not accept (non-monetized) stakeholder values as legitimate for inclusion in evaluation. The local history of planning and administration and the traditional approach in the municipality probably reinforced this, as both stimulated a traditional role of experts and a focus on representative demo-

cratic structures for decision-making. The starting situation of the project appeared to be of great influence on the course of events and the behaviour of participants.

Based on the case and study of the third research question, I identified improvements for the approach of co-valuation and adjusted it accordingly, resulting in the framework as presented above. Apart from the specification of activities, most important adjustments were the increased role of experts in the co-valuation process to achieve a body of value information supported by both stakeholders and experts, and the active embedding of the process at six practical levels: political, executive, professional, policy, administrative, and societal. I expect the eventual framework for co-valuation to meet the (initial) expectation of improving the decision-making process.

... that is actively embedded.

An approach of co-valuation needs a careful process design and preparation for which the research provided several points of attention. Besides, co-valuation is not to be expected to come about by itself in Dutch spatial water management. The case study showed that institutions for evaluation and decision-making procedures in this domain might hinder a process of co-valuation to come to effect. Thus, co-valuation will need embedding in the existing system at various institutional levels (see before), and institutional arrangements should provide the approach with the legitimacy needed for civil servants and experts to execute, and be involved in such a process.

For co-valuation to take place, a combination of participation and evaluation needs institutional embedding in decision-making at a formal level in policy documents. Governance arrangements are needed that provide governmental organizations with the incentive or obligation to adapt their approach. A change in expert culture in Dutch water management is needed to allow for valuation to be perceived as a collaborative and endogenous process. This requires a change in the organization of the (e)valuation process, together with methods or approaches to combine different values, knowledge and points of view. Co-valuation can serve as an example of such approaches. Also, institutional arrangements must be constructed during the interactive process and by the participants themselves, which should stimulate an approach of co-valuation.

As co-valuation is to be organized as an element of, or variation in interactive decision-making, the arrangements for co-valuation will overlap with those needed for interactive processes. Still, no blueprint can be provided for a single type of arrangement or governance system, as each (project) situation will call for specific arrangements, rules and agreements, and points of interest that need to be established.

Recommendations

The insights of this thesis, the framework for co-valuation and suggestions for its process design may be of use to local governments, process facilitators, and water managers. It may stimulate and help local governments to enhance their decision-making through the more active involvement of stakeholders in evaluation. It may help process facilitators to integrate economic approaches in processes of interactive governance, which will enhance the embedding of these processes at institutional level. It may help water managers in their attempt to develop integral and participative plans for spatial water management. Nevertheless, the application of co-valuation poses several requirements on the process. Also, its application is not without consequences for further decision-

making and dealing with the results of the co-valuation process. Decision-makers in the municipality of Middelburg should take this to heart.

On a theoretical level, perspectives in economics and public administration differ; they traditionally emphasize either the outcome or the process through which this outcome is achieved. Both disciplines have shown a shift towards mere adaptive and inclusive modes of inquiry during the last decades. Also in (e)valuation such integration is emerging. The dominant role of experts is increasingly subject of debate. Attention is shifting to deliberative processes that also include the knowledge and insights of stakeholders. Evaluation methods need to adapt to interactive governance in order to remain of use in spatial water management processes. Evaluation methodology should allow for deliberative methods for the involvement of incommensurable variables, and a more social-constructivist interpretation of value. This requires further research on interactive evaluation, and on the circumstances in which it may be useful. The current neoclassical approach in evaluation should be reconsidered, and recent insights in the fields of behavioural economics and evaluation studies are to be combined. Economists should consider the potential of the extra value information generated through co-valuation for evaluation and the relation of this information to problems of neoclassical valuation practice.

This thesis provided insights in the valuation process of stakeholders, but the connection between stakeholder values and expert information remained a point of concern. Further research is needed on the interconnection of these bodies of information in interactive governance. Development and application of an approach to involve stakeholder values in evaluation and decision-making may benefit from research on the following subjects. Research should focus on the role of experts and expert information in interactive governance, the combination of and interconnection between expert and stakeholder information, communication and collaboration between these groups, and the way decision-makers can make use of this combined information. Another relevant field of research is the factors that influence the applicability and effectiveness of co-valuation in different settings. Cultural differences may prove an interesting field of study, for example cultures that have a history different from the Netherlands with respect to public involvement in governmental decision-making, or water management.

For the study of these issues, I recommend a research methodology as applied in this thesis. PAR provides a useful, valuable, and involved way of research that is well suited to the study of societal, complex and endogenous processes. They require a researcher to be involved in his research subject to achieve *inside* information and to observe from a distance at the same time. This has the potential to bridge the gap between observed actual behaviour and phenomena and theoretical assumptions representing it. The research in this thesis has shown that this gap can still be present.

Nederlandse samenvatting (Summary in Dutch)

Inleiding

Nederlandse besluitvorming in het publieke domein vertoont een trend die wel wordt omschreven als 'economisering'. De toenemende vraag naar meer transparantie en effectiviteit rondom besluitvorming heeft ertoe geleid dat in toenemende mate economische informatie over de verwachte effecten van maatregelen of alternatieven wordt gebruikt. Monetaire informatie is van cruciaal belang voor besluitvorming over grootschalige plannen, waarbij diverse alternatieven, maatregelen en soorten effecten moeten worden vergeleken. Diverse effecten van alternatieven hebben echter geen marktwaarde; zij hebben geen vaststaande monetaire waarde. Voorbeelden van dergelijke effecten zijn het aantal 'geredde' mensenlevens, of de gezondheidseffecten van de aanwezigheid van (meer) bomen in de stad. Dergelijke effecten zijn vaak relevant voor besluitvorming, en ze kunnen daarin dan ook worden betrokken door de 'monetarisering' van (effecten op) dergelijke goederen. Via, bijvoorbeeld, hypothetische markten, of 'revealed preferences' van individuele consumenten, wordt op basis van de neoklassieke economie een fictieve monetaire waarde voor niet-markt goederen bepaald. Een belangrijk voorbeeld van zulke niet-markt goederen zijn milieugoederen en -diensten.

Uit reacties van het publiek blijkt een toenemende ontevredenheid met de manier waarop veel economen, en de besluitvormers die door hen worden geïnformeerd, milieugerelateerde zaken behandelen en hoe zij de waarde van milieugoederen en diensten bepalen (Bromley and Paavola 2002; Vatn 2004). Het publiek beschouwt de monetaire waardering van dergelijke goederen als inadequaat; het zou zaken onderling vergelijkbaar maken die dat in werkelijkheid niet zijn. Bovendien beschouwt het publiek de gemonetariseerde waarde vaak, foutief, als de daadwerkelijke markt- of verkoopwaarde van het betreffende goed. Dit kan problematisch zijn als het publiek of stakeholders worden betrokken in besluitvorming met het doel maatschappelijk draagvlak te verkrijgen. De economische literatuur stelt dat stakeholder-waarden over het algemeen kunnen worden betrokken via, o.a., 'stated' of 'revealed' preferences', waardoor zij zouden participeren in het proces. Deze preferenties worden echter veelal niet herkend als hun daadwerkelijke waarden door stakeholders zelf. Bovendien is neoklassieke economie gebaseerd op een andere interpretatie van 'participatie' dan interactieve besluitvormingsprocessen (Pearce et al. 2006).

In besluitvormingsprocessen wordt in toenemende mate een interactieve benadering toegepast, waarbij relevante stakeholders direct in het proces worden betrokken. Deze benadering beoogt meer horizontale interacties tussen sociale actoren te creëren, zoals de overheid, burgers, bedrijven en organisaties (o.a. Fischer en Forester 1993; Kickert et al. 1997; Rhodes 1997; Koppenjan en Klijn 2004; Sorenson en Torfing 2007). Het betrekken van niet-overheidspartijen vindt met name plaats tijdens informatie-ver-

zameling en scenario-ontwikkeling, en is gebaseerd op de verwachting dat het betrekken van deze actoren of stakeholders meer draagvlak voor besluiten, verbeterde kwaliteit en legitimiteit van besluiten, en nieuwe vormen van samenwerking tot gevolg zal hebben. De actoren bezitten ieder verschillende informatie en bronnen die nodig zijn voor het proces. Geen van hen heeft echter de macht om de anderen te domineren, en over het algemeen is er geen overeenstemming over de juiste weg voorwaarts. Bovendien is de superioriteit van technische kennis en de lineaire relatie tussen wetenschappelijke expertise en beleidsvorming aan het afnemen. Tegenwoordig wordt (ook) kennis veelal beschouwd als een netwerk van toenemende complexiteit en diversiteit, dat moet worden betrokken in beleid- en besluitvorming (Teisman 1992; Castells 1996; Klijn 2002). Feiten worden niet langer beschouwd als 'waarde-neutrale data', en men realiseert zich dat geschillen over feiten niet kunnen worden opgelost met behulp van meer kennis of wetenschappelijke informatie. Het beste dat men kan bereiken is een 'serviceable truth' (Jasanoff 1990; Nowotny 2000), of 'decision-relevant knowledge' (Petts en Brooks 2006; Pielke 2007). Kennis, expertise en het proces van kennisgeneratie ontwikkelen zich in de richting van een deliberatieve benadering. Diverse auteurs beargumenteren dat niet alleen expert- maar ook stakeholder-kennis moet worden betrokken bij de (productie van kennis voor) besluitvorming. Dit betekent dat deze 'soorten' kennis op een of andere manier moeten worden gecombineerd.

De vraag die dan oprijst, is welke informatie relevant is voor besluitvorming, als daarbij milieu- of andere niet-marktgoederen betrokken zijn. Is dat inderdaad de gemonetariseerde informatie die algemeen wordt toegepast, of zouden de perspectieven en inzichten van het publiek ook relevante informatie bieden? Net als bij interactieve besluitvorming zou het betrekken van stakeholders in evaluatie een bijdrage kunnen leveren aan hun waardering en mate van ondersteuning voor dit onderdeel van het besluitvormingsproces. Gezien de soms sterke bezwaren tegen monetaire (e)valuatie en daarop gebaseerde besluitvorming, zou dit een interessante uitkomst zijn. De variatie die kennelijk bestaat in stakeholder-waarden en perspectieven maakt bovendien dat het proces en haar maatschappelijk draagvlak zou kunnen verbeteren door het ontstaan van consensus onder stakeholders over de relevante waarden voor besluitvorming. In dit proefschrift wordt bestudeerd wat er gebeurt wanneer een interactieve benadering wordt uitgebreid tot en met het stadium van evaluatie, en niet alleen experts (en hun economische informatie) betrekt maar ook stakeholders (en hun waarden en perspectieven). Dit wordt bestudeerd met betrekking tot besluitvorming over water in de ruimtelijke ordening van Nederland.

Probleemformulering

Bij besluitvorming binnen het Nederlandse waterbeleid wordt traditioneel een technisch georiënteerde benadering toegepast. Tot voor kort werden water kwesties beschouwd als veiligheidskwesties, die waren op te lossen met behulp van de technologische expertise van ingenieurs. Water management was een vrij autonoom en doelgericht beleidsdomein met complexe en gespecialiseerde wetgeving, en gedetailleerde kennis van en een groot vertrouwen in hydraulische technologie (Bressers et al. 1994; NRLO 2000; Lintsen 2002; Wiering en Immink 2006; Wesselink et al. 2007). Deze benadering voldeed aan de behoeften van watermanagers en voldeed voor watermanagementcon-

structies. Op basis van deze benadering was het Nederlandse waterbeleid gedurende vele eeuwen zeer succesvol.

In de laatste decennia hebben echter een aantal grote veranderingen plaatsgevonden in Nederlands waterbeleid. Diverse ontwikkelingen veroorzaken een toenemend risico op overstromingen, wat heeft geleid tot het inzicht dat meer ruimte voor water nodig is. Tegenwoordig wordt water niet langer beschouwd als een vijand die buiten de deur gehouden moet worden, maar als een vriend die de ruimte moet krijgen (Ministerie van V&W 2000, 2006). Deze benadering beschouwt het watersysteem als complex en multifunctioneel, en veronderstelt dat de diverse manieren van gebruik integraal onderdeel dienen te vormen van besluitvorming. Tegenwoordig wordt watermanagement voor een deel beschouwd als een ruimtelijke kwestie; dit illustreert de overlap van waterbeleid en ruimtelijke ordening (van Stokkum et al. 2006; Goosen 2006; Wesselink 2007a) die zich ontwikkelt in de richting van, zoals ik dat noem, 'ruimtelijk waterbeleid'.

Ook het Nederlandse waterbeleid past de neoklassieke economische benadering toe voor (e)valuatie en besluitvorming. Water wordt beschouwd als een economisch goed met een berekenbare monetaire waarde, overeenkomstig internationale ontwikkelingen (Dublin Principes 1992; WFD 2000). Om rationele besluitvorming over grote en complexe infrastructurele werken te ondersteunen schrijft de OEI-richtlijn de toepassing van Maatschappelijke Kosten Baten Analyse (MKBA) voor, en gerelateerde waarderingstechnieken gebaseerd op een neoklassiek economisch perspectief (Eijgenraam et al. 2000). MKBA wordt over het algemeen beschouwd als een integrale evaluatiemethode voor alle soorten van effecten. De methode wordt in toenemende mate gebruikt om besluitvorming over watermanagement en ruimtelijke ordening te ondersteunen, met name op regionale schaal. Naar verwachting zal deze methode in de toekomst een belangrijke(-re) rol spelen bij milieugerelateerde besluitvorming, en voor dit domein wordt de combinatie van MKBA met deliberatieve methoden aangemoedigd (de Bruyn et al. 2007; RMNO 2007).

Overeenkomstig de algemene ontwikkeling in de richting van pluricentrische *governance* structuren, beoogt ook het Nederlandse waterbeleid om stakeholders en hun kennisbronnen te betrekken in besluitvorming. Gezien de beperkte hoeveelheid ruimte in Nederland en de complexiteit van (ruimtelijk) waterbeleid, wordt verwacht dat het betrekken van stakeholders meer draagvlak en inhoudrijkere informatie voor besluitvorming zal opleveren. Dit betekent dat de waarden, percepties, en kennisbronnen van stakeholders worden geïntroduceerd in besluitvorming over watermanagement; een domein dat traditioneel wordt gedomineerd door ingenieurs en andere gevestigde experts, en door de toepassing van een economische benadering van (e)valuatie en beoordeling.

Het betrekken van stakeholders en een integrale evaluatie van alle ruimtelijke functies blijkt problematisch te zijn in ruimtelijk water management. Beide worden toegeschreven aan de institutionele structuur die is gebaseerd op sectorspecifieke besluitvorming en traditionele rollen van experts (de Bruijn et al. 2004; Edelenbos 2005; de Zeeuw et al. 2009). Deze structuren bestaan al heel lang en hebben zich verankerd in de Nederlandse cultuur. Bovendien blijft gespecialiseerde ingenieurskennis noodzakelijk voor de aangelegde watermanagementstructuren en om Nederland droog en veilig te houden. De relatie tussen deze kennis en de informatie van stakeholders zoals die in interactieve processen wordt gebruikt, blijkt onduidelijk te zijn. In de praktijk worden expert- en stakeholder-kennis nog steeds verschillend benaderd, en daadwerkelijke

interactie tussen deze groepen vindt nauwelijks plaats. Wetenschappelijke, technische en economische informatie worden nog steeds beschouwd als de basis voor besluitvorming. Hierdoor blijven een technocratische benadering, *top-down* evaluatiemethoden en sectorspecifieke wetgeving bestaan in waterbeleid. Dit belemmert een integrale en interactieve benadering. Een belangrijke factor is dan ook (de ontwikkeling van) een adequate institutionele organisatie van dit proces (de Bruijn et al. 2004; Scholz en Stiftel 2005; Goosen 2006). Om een connectie tussen interactieve besluitvorming en het representatieve democratische systeem te bewerkstelligen, wordt wel gebruik gemaakt van vier niveaus van institutionele 'inbedding': politiek, bestuurlijk, professioneel, en beleidsmatig (Edelenbos 2005; Edelenbos et al. 2006, 2009b).

Kortom, er blijkt zich een lacune te bevinden tussen interactieve *governance* en conventionele benaderingen van evaluatie en besluitvorming in ruimtelijk watermanagement. Hoewel de *governance* benadering doelt op het actief en direct betrekken van stakeholders in besluitvorming, nemen deze stakeholders geen deel aan de evaluatiemethoden die worden toegepast om besluitvormers te informeren. Experts voeren dit onderdeel van het besluitvormingsproces uit met behulp van monetaire waarderingsmethoden, die met hun focus op (monetaire) expert-informatie een rationele, efficiënte en transparante besluitvorming beogen te ondersteunen. Hoewel stakeholders participeerden in eerdere stadia van het interactieve besluitvormingsproces, kunnen ze zich nu dus buitengesloten voelen bij de evaluatie van de door hen (mede-)geproduceerde resultaten. Een toenemend aantal waarderingsstudies toont aan dat stakeholders hun waarden en informatie niet herkennen in economische waarderingsmethoden (o.a. Forster 1997; Clark et al. 2000; Ackerman en Heinzerling 2004; Sagoff 2004, 2008; Getzner et al. 2005; O'Neill et al. 2008). Dit kan een negatief effect hebben op het maatschappelijk draagvlak dat (vaak) ontstaat gedurende het interactieve proces, en dat vaak een van de redenen is om überhaupt stakeholders in besluitvorming te betrekken. Inderdaad ontbreekt een methodologie om waarden van experts en stakeholders in de evaluatie te combineren. In de praktijk blijft evaluatie gedomineerd door een *top-down* en expert-gebaseerde benadering (House en Howe 1999; Weiss 1999; Wadsworth 2001; Courtous 2004; Sharkey en Shaples 2008), ook in het geval van interactieve besluitvorming. Dit laat onbeantwoord hoe stakeholder waarden (die zijn geïdentificeerd in het interactieve proces) kunnen worden betrokken in evaluatie, wat het maatschappelijk draagvlak voor dergelijke interactief tot stand gekomen beslissingen in gevaar brengt. Deze situatie vraagt om een combinatie van participatie en evaluatie in besluitvorming. Dit leidt tot de vraag of het (e)valuatieproces ook interactief benaderd kan worden waardoor de evaluatie onderdeel wordt van het interactieve proces, en hoe een dergelijk proces eruit zou zien.

Doel en onderzoeksvragen

In dit proefschrift wordt de waardering door stakeholders van (oppervlakte-)water in de ruimtelijke ordening van Nederland behandeld. Uitgangspunt is de uit literatuur bekende observatie dat gemonetariseerde waarden vaak door het publiek of stakeholders die zijn betrokken in een interactief besluitvormingsproces niet worden geaccepteerd of worden herkend als relevant. Als deze stakeholders consensus zouden bereiken over de waarden die betrokken dienen te worden, zou dat de ondersteuning van de procesuitkomsten kunnen vergroten. Het onderzoek doelt daarom op de studie en ontwikkeling van een benadering om stakeholder-waarden van water te betrekken in interactieve

besluitvorming en (e)valuatie, wat 'co-waardering' is genoemd. Co-waardering beoogt een proces van waardering te zijn dat consensus over een gedeelde waardering tot doel heeft, en niet de specificatie of het meten (berekenen) van een specifieke waarde. Een dergelijke benadering heeft tot doel het (interactieve) besluitvormingsproces te ondersteunen door het betrekken van relevante stakeholder-waarden in scenario-ontwikkeling, evaluatie en besluitvorming. Het onderzoek start vanuit de verwachting dat dit het besluitvormingsproces zal verbeteren met betrekking tot:

a. Meer consensus onder stakeholders met betrekking tot de waarden die in het proces worden betrokken;
b. Eenvoudiger inbedding van deze stakeholder-waarden in evaluatie;
c. Een inhoudrijkere uitkomst (doordat meer waarden zijn betrokken);
d. Meer draagvlak onder stakeholders voor de uitkomst van het proces.

Volgend uit deze verwachting zijn de volgende onderzoeksvraag en subvragen opgesteld:

Hoe kunnen stakeholder-waarden van water worden betrokken in interactieve besluitvormingsprocessen over ruimtelijk watermanagement?

1. Hoe kunnen verschillende stakeholder-waarden van (oppervlakte) water worden geïdentificeerd in interactieve besluitvorming over ruimtelijk water management?
2. Hoe kunnen stakeholder-waarden van water worden betrokken in het interactieve proces van scenario-ontwikkeling, evaluatie en besluitvorming?
3. Verbetert het betrekken van deze stakeholder-waarden het besluitvormingsproces;
   a. Leidt het tot meer consensus onder stakeholders met betrekking tot de waarden die in het proces worden betrokken?
   b. Leidt het tot een eenvoudiger inbedding van stakeholder-waarden in evaluatiemethoden?
   c. Leidt het tot een inhoudrijkere uitkomst; zijn er meer waarden betrokken?
   d. Leidt het tot meer draagvlak onder stakeholders voor het besluitvormingsproces en de uitkomst?
4. Hoe kunnen (of kan de ontwikkeling van) institutionele arrangementen processen van gezamenlijke waardering en evaluatie stimuleren?

Het betrekken van stakeholder-waarden in besluitvorming moet aansluiten bij bestaande procedures en processen van besluitvorming. Hoewel de reguliere procedure niet bedoeld is om stakeholders te betrekken, kan de huidige stand van zaken ook niet worden genegeerd. Het onderzoek past daarom een institutioneel perspectief toe, en bestudeert mogelijke arrangementen om de benadering in het huidige systeem in te bedden. Een institutioneel perspectief biedt de mogelijkheid om een verbinding tussen het co-waarderingsproces en de bestaande institutionele structuren, of de inbedding daarin te bestuderen. Het biedt ook de mogelijkheid om de huidige institutionele problemen van ruimtelijk water management met betrekking tot participatie en integrale evaluatie en de institutionele invloeden op toegekende waarden te bestuderen.

Het onderzoek doelt niet op de ontwikkeling van een nieuwe methode of techniek; het zoekt naar een andere benadering van het waarderingsproces, een mogelijk nieuwe structurering waarbinnen (ook) bestaande technieken en methoden die hun nut hebben bewezen kunnen worden gebruikt. Het doelt dan ook niet op een verbeterde meting of

identificatie van de juiste, of echte waarde van water; co-waardering zal niet resulteren in een getal of maat die als input in een MKBA kan worden gebruikt. In plaats daarvan bestudeert het onderzoek hoe de waarden die door stakeholders worden toegekend kunnen worden betrokken in het proces, in combinatie met bestaande methodologie voor evaluatie, en ongeacht welke waarden dit zijn.

Methodologie

Het onderzoek past een specifieke methodologie toe, gekarakteriseerd door een retroductieve benadering en participatief actieonderzoek (PAO). Een retroductieve benadering wisselt inductie en deductie af (Ragin 1994), met een voortdurende wisselwerking tussen theorie en data in een '*grounded theory*-achtige' benadering (Glaser en Strauss 1967; Charmaz 2006). Literatuuronderzoek en empirisch onderzoek vonden dan ook gelijktijdig plaats, waarbij zij elkaar beïnvloedden en aan elkaar bijdroegen. Het empirisch onderzoek is uitgevoerd in een case study, waarbij diverse (voornamelijk kwalitatieve en elkaar versterkende) methoden voor data generatie zijn toegepast (zie Yin 1984, 1993; Patton 2002), waaronder open interviews, document-studie, participerende observatie en PAO met observatie en data-collectie gedurende de diverse activiteiten die werden georganiseerd. De verwachting over het betrekken van stakeholder-waarden was het startpunt voor dit proces (cf. Eisenhardt 1989). Een retroductieve, iteratieve benadering vereist een actieve rol van de onderzoeker, waartoe PAO is toegepast. PAO spoort aan tot brede participatie van alle relevante partijen, de gezamenlijke beoordeling van benodigde acties en het betrekken van de *insiders*-kennis van stakeholders (Greenwood en Levin 1998; Wadsworth 2001; Coghlan en Jacobs 2005). Participatief-actieonderzoekers beogen een bijdrage te leveren aan de beleidspraktijk die ze bestuderen en de verbetering daarvan, samen met de betrokken actoren. PAO is geen lineaire methode, maar bestaat uit voortdurende en zich herhalende cirkels; het vereist dat theorie en actie niet strikt gescheiden zijn.

Voorafgaand aan het empirisch onderzoek was er geen kant-en-klaar raamwerk voor co-waardering beschikbaar; de onderzoekers hadden de intentie om een dergelijk raamwerk te ontwikkelen gedurende het proces. Met dit doel heb ik deelgenomen aan een experiment; ik was lid van een onderzoeksteam dat in een daadwerkelijk besluitvormingsproject (genaamd Rondom Arnemuiden) heeft geprobeerd om stakeholder-waarden van water te identificeren, deze waarden in het besluitvormingsproces te betrekken door middel van een proces-in-ontwikkeling van co-waardering, en om dit proces in te bedden in de bestaande gang van zaken bij besluitvorming over ruimtelijk watermanagement. Vanuit de positie van een participerende observant heb ik deelgenomen aan de ontwikkeling van de methode en heb ik tegelijkertijd de activiteiten van een afstand geobserveerd. Op basis van de actieve betrokkenheid van stakeholders, de actieve betrokkenheid van mijzelf als onderzoeker, een proces van 'leren-door-doen', en de nadruk op samenwerking tussen de verschillende betrokken partijen, heb ik de stakeholder-waarden bestudeerd zoals zij door de stakeholders zelf werden geïdentificeerd, ontwikkeld en toegepast. Dit resulteerde in een *insiders*-perspectief op de resultaten en de mogelijkheden om stakeholder-waarden in evaluatie en besluitvorming te betrekken. Ik was dan ook deels het onderwerp van mijn eigen onderzoek, zoals gangbaar in actieonderzoek.

Het onderzoeksteam heeft een algemeen en open onderzoeksplan opgesteld voor de ontwikkeling van een benadering van co-waardering. Zij had de intentie om dit plan aan te vullen, aan te passen en te verbeteren gedurende het project, in reactie op de acties en reacties van deelnemers. Om het proces van waardering dat zich ontwikkelde in de case te bestuderen, heb ik vijf elementen (of variabelen) van het waarderingsproces onderscheiden; (1) betrokkenheid; wie zijn betrokken in de waardering en hoe; (2) opvatting over waarde; welke opvatting over waarde wordt toegepast, wat voor rationaliteit wordt toegepast; (3) rol van informatie of kennis; wat is de rol van kennis in het proces, wat voor soort informatie wordt gebruikt en wie levert deze informatie aan; (4) proces; uit welke stappen bestaat het waarderingsproces, wat is de positie van waardering in besluitvorming en welke methoden en technieken worden toegepast; en (5) aansluiting bij instituties; hoe verhoudt het waarderingsproces zich tot de institutionele context (gewoonten, omgangsregels, procedures). Ik heb deze variabelen bestudeerd in relatie tot de kenmerken van neoklassieke economische waarderingsmethodologie. Gebaseerd op ervaringen in de case heb ik lessen getrokken uit de benadering zoals die daarin is toegepast, en heb ik het raamwerk voor co-waardering aangepast.

Het project Rondom Arnemuiden vond plaats in 2006 en 2007, en concentreerde zich op de ruimtelijke ordening van een polder ten noordoosten van het dorp Arnemuiden, gelegen in de gemeente Middelburg. Al sinds 1996 heeft de gemeente tot doel om dit gebied te verbeteren door de bouw van huizen, de aanleg van meer water in het gebied, en verbeterde mogelijkheden voor (water-)recreatie. De bewoners en andere stakeholders maakten echter bezwaar tegen deze plannen, wat resulteerde in een situatie van *dead-lock* en herhaald uitstel van besluitvorming over het gebied. De stakeholders waren van mening dat ze niet waren betrokken bij de planvorming voor het gebied, en dat hun gemeentelijke representanten hun belangen niet adequaat representeerden. Kortom; ze wilden zelf betrokken worden. De gemeente en andere overheidspartijen in het gebied waren overtuigd van de noodzaak om het gebied een kwaliteitsimpuls te geven, en samen met een aantal onderzoekspartijen besloten zij in een consortium tot een interactieve benadering. Zij kwamen overeen de waarden en perspectieven van bewoners en andere stakeholders te inventariseren in een gezamenlijk proces, en deze waarden te gebruiken voor een nieuw ruimtelijk plan voor (een deel van) het gebied. Het consortium kwam overeen dat het project zich zou concentreren op de identificatie van stakeholder-waarden van water in relatie tot andere (ruimtelijke) waarden, en dat deze waarden tot uitdrukking zouden worden gebracht in het ruimtelijk plan. Dit interactieve proces vormde de case studie in dit onderzoek (zie o.a. van Schie et al. 2007).

Conclusies

De onderzoeksvraag van dit proefschrift was hoe stakeholder-waarden van water kunnen worden betrokken in interactieve besluitvorming over ruimtelijk watermanagement. Met de verwachting dat het betrekken van stakeholder-waarden voordelen zou bieden en een algemeen raamwerk als uitgangspunt, is een experiment uitgevoerd voor de 'in actie' ontwikkeling van een dergelijke benadering, heb ik lessen getrokken uit de ervaringen en een raamwerk voor co-waardering ontwikkeld om stakeholder-waarden van water te betrekken in interactieve besluitvorming over ruimtelijk watermanagement. Op basis van deze bevindingen en gerelateerd literatuuronderzoek, kan de onderzoeksvraag als

volgt worden beantwoord. Stakeholder-waarden van water kunnen worden betrokken in interactieve besluitvorming over ruimtelijk watermanagement:

- Door middel van een gezamenlijk proces van identificatie, constructie, aanpassing en (waarde) leren, waarbij gedragen waarde-informatie wordt ontwikkeld door participanten in het proces;
- Dat wordt uitgevoerd gedurende het proces van scenario-ontwikkeling en wordt betrokken in evaluatieprocedures door middel van een proces van co-waardering, dat is gebaseerd op een multi-actor benadering en constructie van waarde-informatie in een benadering gericht op consensus;
- En in een proces dat aansluit bij en past in de institutionele context en wordt ondersteund door institutionele arrangementen, daar co-waardering niet vanzelfsprekend past binnen de huidige uitvoering van ruimtelijk watermanagement.

Identificatie van waarden…

Stakeholder-waarden kunnen worden geïdentificeerd door stakeholders zelf, in een gezamenlijk proces. Daarbij dient waardering te worden beschouwd als een (leer)proces dat wordt gevormd en beïnvloed door de (institutionele) context, en dat tot doel heeft onder de betrokken patijen consensus te bereiken over de relevante waarden voor de betreffende besluitvorming. De uitkomst van dit proces hangt af van de (institutionele) setting van het besluitvormingsproces: de stakeholders die zijn betrokken en de ruimtelijke en maatschappelijke context waarin zij hun waarden identificeren.

Het waarderingsproces dient te worden uitgevoerd als onderdeel van een interactief besluitvormingsproject dat een integrale en participatieve benadering van ruimtelijk watermanagement tot doel heeft. Dat maakt het mogelijk voor stakeholders om hun waarden van water uit te drukken in hun specifieke setting en in relatie tot andere ruimtelijke elementen. Onderzoekers of procesbegeleiders kunnen categorieën van stakeholder-waarden identificeren met behulp van een focus op stakeholder motieven (of redenen) voor hun waarderingen, percepties op het betreffende gebied, en ruimtelijke keuzes die ze maken in scenario-ontwikkeling. De identificatie van stakeholder-waarden is geen afzonderlijke activiteit of meting; het is onderdeel van het co-waarderingsproces.

Analyse van de case heeft aangetoond dat, vanuit hun eigen perspectief, de waarden van stakeholders meervoudig zijn, wederzijds onvergelijkbaar ('incommensurable') en beïnvloed door de omgeving ('endogeen'). De stakeholders kenden diverse waarden toe aan oppervlaktewater in het gebied, die zij op verschillende manieren uitdrukten, en zij beschouwden water in relatie tot andere ruimtelijke elementen of functies van het gebied. De stakeholders construeerden hun waarden voornamelijk (pas) wanneer dat aan hen werd gevraagd, en hun waarden veranderden en ontwikkelden zich gedurende het proces: de stakeholders leerden van de waarden en opvattingen van anderen, zij pasten hun eigen waarden aan, en gedurende dit proces ontstond wederzijds begrip.

De inzichten in stakeholder-waarden die zijn opgedaan gedurende de case wijzen op de noodzaak om 'waarde' vanuit een breder perspectief te bezien dan in de huidige neoklassieke economische benadering wordt gedaan. Hiervoor is gedurende het onderzoek een institutioneel perspectief op waarde ontwikkeld, dat ervan uitgaat dat waarden worden beïnvloed door hun institutionele context, en dat instituties kunnen worden aangewend om informatie over deze waarden te verkrijgen. Een institutioneel perspectief op waarde start vanuit de aannames van methodologisch interactionisme,

waarden-pluralisme, -onvergelijkbaarheid, en -endogeniteit (contextafhankelijkheid). Het beschouwt waardering als een (sociaal) proces van constructie en leren dat wordt beinvloed door de institutionele context, en waarin participanten streven naar consensus over waarde-informatie.

... in een proces van co-waardering ...

Co-waardering, een afkorting van gezamenlijk (of collaboratief) waarderen, is een proces van gezamenlijke identificatie, constructie, aanpassing, leren en rangschikken van waarden, door betrokken partijen en individuen (waaronder stakeholders, experts, en ambtenaren) die voortdurend zijn betrokken in scenario-ontwikkeling en evaluatie, om consensus te bereiken over bruikbare en relevante (waarde-) informatie voor besluitvorming. Het past een multi-actor benadering toe, gaat uit van de rationaliteit van het publiek, waarden die worden geconstrueerd in een benadering gericht op consensus, en het past een institutioneel perspectief op waarde toe.

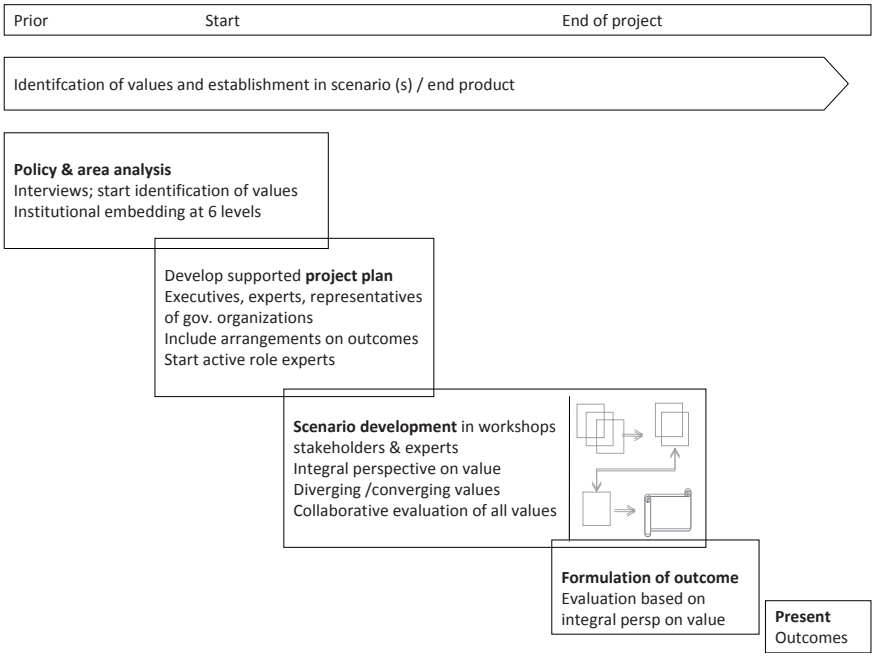
Co-waardering dient te worden uitgevoerd als onderdeel van een interactief besluitvormingsproces dat ook diverse andere activiteiten en stadia omvat; co-waardering kan worden beschouwd als een variatie op interactieve besluitvorming waarbij waarden worden gebruikt om het interactieve proces te sturen. Het proces van co-waardering bestaat uit een aantal dynamische en overlappende stappen in het interactieve proces (zie figuur A). Deze algemene stappen zullen voor elke praktische toepassing van co-waardering gespecificeerd en aangepast moeten worden en de volgorde van activiteiten en noodzaak tot feedback zal verschillen, afhankelijk van de projectcontext en -karakteristieken. Het raamwerk in figuur A kan als leidraad voor een dergelijke benadering worden gebruikt.

Co-waardering kan worden geïmplementeerd in bestaande set-ups voor interactieve besluitvorming; de benadering heeft niet tot doel deze set-ups te vervangen maar om er het element (e)valuatie in te betrekken, met inachtneming van de bestaande methoden en technieken voor evaluatie. Het heeft dus tot doel om de activiteit van evaluatie en economische waardering in het proces van interactieve besluitvorming te integreren. Daarbij beoogt co-waardering om huidige inzichten in besluitvormingsgedrag uit zowel de praktijk van economische waardering als interactieve besluitvorming en evaluatie te combineren. Co-waardering doelt niet op de identificatie van de 'juiste' waarde, maar op de ontwikkeling van waarde-informatie die als relevant wordt beschouwd voor besluitvorming en als zodanig kan worden gebruikt. Co-waardering verschilt van de neoklassieke benadering en MKBA, maar is niet bedoeld als vervanging daarvan en voorziet niet in input voor een MKBA; in plaats daarvan is het doel het creëren van relevante (waarde-) informatie voor besluitvormers, waar een MKBA onderdeel van zou kunnen zijn.

Co-waardering kan van waarde zijn in een lokale of regionale situatie waarin geen consensus over feiten en waarden is, en/of waarin geen overeenstemming bestaat over doelen en ambities, en waarin een interactieve benadering wordt toegepast voor de planning van ruimtelijk watermanagement. Het betrekken van stakeholder-waarden in besluitvorming via een proces van co-waardering heeft de potentie om interactieve besluitvormingsprocessen te verbeteren met betrekking tot een groter maatschappelijk draagvlak en meer integrale uitkomsten, doordat meer (gedragen) waarden erin worden betrokken. Dit sluit goed aan bij de huidige doelen van Nederlands ruimtelijk waterbeleid en interactieve besluitvorming. Het voorziet in participatie in evaluatie en een meer integrale beoordeling van alternatieven, doordat meer waarden en perspectieven in het

proces worden betrokken. Dit zou de huidige problemen van ruimtelijk watermanagement met integrale evaluatie en participatie kunnen verbeteren. Co-waardering kan een manier zijn om een evenwicht te zoeken tussen de verschillende rationaliteiten in een projectsituatie: die van stakeholders, experts en besluitvormers. Toch is co-waardering geen oplossing voor ieder ruimtelijk watermanagementprobleem of interactief besluitvormingsproject in een situatie van *dead-lock*. Bovendien is de benadering slechts ontwikkeld 'in actie' (en achteraf verder aangepast); ze is nog niet grondig getest. De benadering moet verbeterd en verder aangepast worden aan de hand van ervaringen in verschillende contexten.

Figuur A: Raamwerk voor co-waardering (gelijk aan figuur 7.1)



Voorafgaand *aan het proces worden de waarden en percepties van stakeholders en experts geïnventariseerd, hun bereidheid om deel te nemen, mogelijke conflicten en wederzijdse afhankelijkheden. De stakeholders zullen de waarden gedurende de volgende stadia van het proces verder bediscussiëren, specificeren, aanpassen, aanvullen en veranderen. Ook wordt de recente geschiedenis van het projectgebied en de institutionele context bestudeerd en wordt een beleidsanalyse uitgevoerd.*

Bij de start *van het project stellen de onderzoekers samen met de betrokken overheidspartijen een project plan op, dat ook wordt gedragen door de stakeholders. Het omvat regels en beperkingen voor het proces vanuit bestaand beleid (inclusief beperkingen m.b.t. de uitkomsten); de probleemformulering en doelen van het project; een plan voor het komende proces inclusief deadlines en communicatie; de betrokken partijen en hun rollen; controversiële zaken; de resultaten van het voorgaande stadium; afspraken over de behandeling van projectuitkomsten; en de relatie tussen het co-waarderingsproces en bestaande methodologie voor evaluatie. Het proces moet actief*

worden ingebed op zes niveaus; politiek, bestuurlijk, professioneel, beleidsmatig, ambtelijke diensten, en maatschappelijk. Experts dienen een actieve rol te vervullen vanaf het begin van het project, zij moeten worden geïnformeerd en begeleid in de rollen die van ze worden verwacht, en communicatie tussen experts en bestuurders moet worden gefaciliteerd.

Tijdens de scenario-ontwikkeling *vindt discussie en specificatie van waarden plaats door de betrokken stakeholders en experts. Waardering, gezamenlijke vergaring van informatie en scenario-ontwikkeling vinden gelijktijdig plaats; het proces beoogt consensus te bereiken over waarde-informatie die relevant is voor besluitvorming in de ogen van stakeholders, experts en ambtenaren. Het proces moet waarde-leren en de aanpassing van individuele waarden mogelijk maken. Stakeholders ontwikkelen scenario's en worden daarbij ondersteund door experts. De stakeholders divergeren en convergeren daarbij hun waarden, en 'reframen' ze in hun zoektocht naar consensus over gedeelde waarden die relevant zijn voor besluitvorming over het gebied.*

De uitkomst *van de scenario-ontwikkeling vereist een evaluatiemethode die de waarden van stakeholders, experts en ambtenaren in het proces kan betrekken. Dit vereist een* format *die de diverse waarden en perspectieven van verschillende patijen combineert en een vergelijking mogelijk maakt van de verwachte effecten van scenario's. De stakeholder-informatie is verzameld gedurende de voorgaande stadia van het co-waarderingsproces en kan nu nog worden gespecificeerd of bevestigd. De experts willen wellicht een (M)KBA of andere financiële analyse uitvoeren in dit stadium, op basis van bestaande methodologie of benaderingen van evaluatie, om (vanuit hun perspectief) relevante informatie voor besluitvorming te identificeren. De gecombineerde informatie kan worden gebruikt om besluitvormers te informeren over de verwachte effecten van verschillende alternatieven. Uiteindelijk kan met behulp van een* ex post *evaluatie de mening van deelnemers over het uitgevoerde proces en de uitkomsten worden achterhaald.*

Niettemin heeft het proces van co-waardering – zoals dat is uitgevoerd in de case – de besluitvorming over het projectgebied Rondom Arnemuiden slechts deels verbeterd. Hoewel stakeholders consensus hebben bereikt over relevante waarde-informatie voor de besluitvorming (verwachting a), en hoewel dit resulteerde in een inhoudrijkere uitkomst van het proces (verwachting c) met verhoogd draagvlak onder stakeholders (verwachting d), is in het experiment geen actieve inbedding van de stakeholder-waarden in evaluatie bereikt (verwachting b). De dominante (en geïnstitutionaliseerde) benadering en methodologie voor (e)valuatie en besluitvorming binnen de gemeente Middelburg stond het niet toe om de stakeholder-waarden, zoals die in het interactieve proces waren geïdentificeerd, te betrekken. Nadat het interactieve proces van scenario-ontwikkeling was afgerond, werd het informeren van besluitvormers gedomineerd door de representatief-democratische structuur en een neoklassiek economisch perspectief op evaluatie, conform de trends in ruimtelijk watermanagement en de praktijk van evaluatie. Gemeentelijke ambtenaren accepteerden de (niet-monetaire) stakeholder-waarden niet als legitiem om in evaluatie te betrekken. De lokale geschiedenis van ruimtelijke planning en de traditionele benadering binnen de gemeente hebben dit waarschijnlijk versterkt, daar beide een traditionele rol van experts en een nadruk op representatief-democratische structuren in de hand werkten. De startsituatie van het project bleek dan ook van grote invloed te zijn op de gang van zaken en het gedrag van deelnemers.

Op basis van de case en bestudering van de derde onderzoeksvraag heb ik mogelijke verbeteringen voor de benadering van co-waardering vastgesteld en de methode

aangepast, met het hierboven beschreven raamwerk als resultaat. Naast de specificatie van activiteiten waren de belangrijkste aanpassingen; een grotere rol voor experts in het co-waarderingsproces om waarde-informatie te verkrijgen die wordt gedragen door zowel stakeholders als experts, en de actieve inbedding van het proces op zes niveaus: politiek, bestuurlijk, professioneel, beleidsmatig, ambtelijke diensten en maatschappelijk. Ik verwacht dat het uiteindelijke raamwerk voor co-waardering voldoet aan de (initiële) verwachting over de verbetering van het besluitvormingsproces.

...dat actief wordt ingebed.

Co-waardering vereist een zorgvuldig procesontwerp en voorbereiding, waarvoor in het proefschrift diverse aandachtspunten zijn geïdentificeerd. Daarnaast is de toepassing van co-waardering in Nederlands ruimtelijk waterbeleid niet vanzelfsprekend. De case heeft aangetoond dat instituties voor evaluatie en besluitvorming in dit domein een proces van co-waardering in de weg kunnen staan. Daarom dient een proces van co-waardering te worden ingebed in het bestaande systeem op diverse institutionele niveaus (zie eerder), en dienen institutionele arrangementen ambtenaren en experts de legitimiteit te verschaffen om de benadering uit te voeren en erbij betrokken te zijn.

Co-waardering vereist een combinatie van participatie en evaluatie, die institutioneel moet worden ingebed in besluitvorming in formele beleidsdocumenten. Er zijn 'governance arrangementen' nodig die overheidsinstanties stimuleren of verplichten om hun benadering aan te passen. Er zal een verandering moeten plaatsvinden in de expertcultuur van Nederlands waterbeleid, om waardering te kunnen beschouwen als een gezamenlijk en contextafhankelijk proces. Dit vereist aanpassingen in de organisatie van het evaluatieproces, en de ontwikkeling van methoden of benaderingen om verschillende waarden, kennis en perspectieven te combineren. Co-waardering kan als voorbeeld dienen voor (de ontwikkeling van) dergelijke benaderingen. Daarnaast moeten institutionele arrangementen worden ontwikkeld gedurende het interactieve proces en door de deelnemers zelf, die een proces van co-waardering stimuleren in de lokale situatie.

Daar co-waardering dient te worden georganiseerd als onderdeel van, of variatie op, interactieve besluitvorming, zullen de arrangementen voor co-waardering deels samenvallen met die voor interactieve processen. Toch kan geen blauwdruk worden gegeven voor een enkel en specifiek soort arrangement of governance systeem, omdat elke (project) situatie zal vragen om specifieke arrangementen, regels, afspraken en aandachtspunten.

Aanbevelingen

De inzichten die met het onderzoek beschreven in dit proefschrift zijn verkregen, het raamwerk voor co-waardering en de suggesties voor het procesontwerp daarvan, kunnen van waarde zijn voor lokale overheden, procesbegeleiders en watermanagers. Het kan lokale overheden helpen en stimuleren om hun besluitvormingsprocessen te verbeteren door het meer actief betrekken van stakeholders in evaluatie. Het kan procesbegeleiders helpen om economische benaderingen te integreren in interactieve *governance*-processen, wat de institutionele inbedding van deze processen ten goede zal komen. Het kan watermanagers helpen in hun doelstelling om met behulp van participatie integrale plannen voor ruimtelijk watermanagement te ontwikkelen. Niettemin stelt de toepassing van co-waardering diverse eisen aan het proces. Ook is de toepassing

ervan niet zonder consequenties voor verdere besluitvorming en behandeling van de resultaten van het (co-waarderings-) proces. Besluitvormers in de gemeente Middelburg zouden dit ter harte moeten nemen.

Vanuit een theoretisch oogpunt bezien, passen de economische en de bestuurskundige wetenschap verschillende perspectieven toe; traditioneel benaderen zij ofwel de uitkomst ofwel het proces waarin deze uitkomst wordt bereikt. Gedurende de laatste decennia hebben beide disciplines een beweging vertoond richting meer adaptieve en inclusieve benaderingen. Ook in (e)valuatie vindt geleidelijk een dergelijke integratie plaats. De dominante rol van experts is in toenemende mate onderwerp van debat. De aandacht verschuift in de richting van deliberatieve processen die ook de kennis en inzichten van stakeholders betrekken. Evaluatiemethoden zullen zich moeten aanpassen aan interactieve *governance*-benaderingen om van nut te kunnen blijven in ruimtelijk watermanagement. Evaluatiemethodologie zou ook het gebruik van deliberatieve methoden toe moeten staan, om onvergelijkbare variabelen en een meer sociaalconstructivistische interpretatie van waarde toe te laten. Dit vereist verder onderzoek naar interactieve evaluatie en naar de omstandigheden waarin een dergelijke benadering zinvol is. De huidige neoklassieke benadering in evaluatie moet worden heroverwogen en recente inzichten uit de gedragseconomie en evaluatie studies dienen te worden gecombineerd. Economen zouden de potentie van de extra waarde-informatie die co-waardering verschaft voor evaluatie en de relatie met neoklassieke waarderingsproblemen moeten overwegen.

Dit proefschrift heeft inzichten verschaft in het waarderingsproces van stakeholders, maar de connectie tussen deze stakeholder-waarden en expert-informatie bleef onduidelijk. Nader onderzoek is nodig naar de interconnectie van deze informatie in interactieve governance processen. Onderzoek naar de volgende onderwerpen zou een bijdrage kunnen leveren aan de ontwikkeling en toepassing van een benadering om stakeholder-waarden in evaluatie en besluitvorming te betrekken. Onderzoek zou zich moeten richten op de rol van experts en expert-informatie in interactieve governance-processen, de combinatie en verbinding van expert- en stakeholder-informatie, communicatie en samenwerking tussen deze groepen, en de manier waarop besluitvormers deze gecombineerde informatie kunnen gebruiken. Een ander relevant onderzoeksonderwerp zijn de factoren die de toepasbaarheid en effectiviteit van co-waardering (in verschillende situaties) beïnvloeden. Culturele verschillen zouden een interessant onderwerp van studie kunnen zijn, bijvoorbeeld in het geval van culturen die een andere geschiedenis van watermanagement of van publieke betrokkenheid bij overheidsbeslissingen hebben dan de Nederlandse.

Voor de studie van dergelijke onderwerpen kan ik een onderzoeksmethodologie zoals toegepast in dit proefschrift sterk aanbevelen. PAO is een nuttige, waardevolle en betrokken manier van onderzoek die goed past bij de studie van maatschappelijke, complexe en contextafhankelijke processen. Studie van dergelijke processen vereist dat een onderzoeker actief betrokken is bij het onderzoeksobject om *inside*-informatie te verkrijgen, maar tegelijkertijd de situatie meer van een afstand observeert. Een dergelijke benadering van onderzoek heeft de potentie om de kloof te overbruggen tussen geobserveerd gedrag en fenomenen, en theoretische assumpties hierover. Het onderzoek dat in dit proefschrift is gepresenteerd heeft laten zien dat deze kloof nog steeds aanwezig kan zijn.

Acknowledgements

'"Where shall I begin […]', he asked. 'Begin at the beginning', the King said. […] 'and go on till you come to the end: then stop.'"
(Carroll, L. (1960). Alice's adventures in wonderland. Clarkson Potter Inc.: 158)

In Carroll's famous book, this is what the King asked the White Rabbit to do when reading a story out loud. It appeared fairly logical, and easy. In writing, however, I found that neither the beginning nor the end might be logical or easy, at least not for the writer. There may be various, and the writer will have to choose which will be the beginning of his story, and where (and how) he is to stop. No King to tell. Writing is just not a linear process. One rewrites, skips whole chapters for the time being, improves previous attempts, starts all over again and usually, the beginning comes only at the end.

I am grateful to Mats Hellman, my partner, who was very helpful in this process. He kept telling me to take one step at a time, several times a day if needed. Thank you! I am also thankful to Liedeke Postma, my mother, who supported me during the process and helped me to see things in perspective. Besides, there are several others I would like to thank for their support, I am sure that each of them will know what this is for: Johan and Grada Hellman, Jochem and Irene Baselmans, Jeroen Reimerink, and Dana Veltman. Jochem and Jeroen, thank you for standing by me as down-to-earth and relaxed paranymphs.

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I would like to pay special attention to the many participants in the project Around Arnemuiden, especially those in the advisory group. Thanks to their enthusiasm, trust, and willingness to share their values and perceptions with me and others of the research team, I had very interesting empirical results to write about. It was their enthusiasm, frustration, interesting reactions and points of view that made me realize the societal relevance of my study.

I owe a great deal to the research team that executed the project Around Arnemuiden: Marc Rijnveld and Mike Duijn (TNO), Matthijs Nijboer, Han de Wit and Reinder Siebinga (Tauw), and Jurian Edelenbos, Lasse Gerrits and Jacko van Ast (EUR). Together with the participants we created the project, and I look back with many lively memories. Just a few words on some of them. Albeit in profoundly different ways, Jurian and Marc both taught me very valuable lessons, not only concerning research and mediating with municipality but also on how to cope in a scientific habitat. Thank you, for your continu-

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This thesis presents an approach of *co-valuation* to combine participation and evaluation in decision-making. In co-valuation, stakeholders, experts and civil servants collaborate in the identification, construction, and adaptation of, and the learning about the values they perceive as relevant to decision-making. This has the potential to increase societal support and integral outcomes, which may improve current problems in Dutch spatial water management with participation and integral assessment.

As interactive governance is increasingly applied in Dutch spatial water management and is expected to increase public support for decisions, an approach is needed to combine the values and information of experts and stakeholders in evaluation. Co-valuation provides a means to integrate economic valuation in the governance process.

The approach was developed 'in action' during participatory action research of the author in the interactive decision-making project Around Arnemuiden, in 2006-2007. This project was executed in a collaboration of the municipality of Middelburg, the province of Zeeland, Rijkswaterstaat, DLG, and the Water Board, with Erasmus University Rotterdam, TNO, and Tauw as external project organizers. It was co-financed by Leven met Water.