Universität für Bodenkultur Wien
University of Natural Resources and Life Sciences, Vienna

How landscapes are framed

– a micro and macro perspective on landscape values

Cumulative Dissertation for obtaining a doctorate degree at the University of Natural Resources and Applied Life Sciences Vienna

Submitted by

Filip Aggestam

Wald-, Umwelt- und Ressourcenpolitik

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From me to you all, thanks a bunch!

Abstract

Starting with the title, it aims to convey the generic notion that, values human beings hold, can be traced from the individual (micro level) up to collective and public perspectives (meso and macro level). These values have, in turn, an impact on the choices individuals and groups make when managing a landscape. Those affect directly the environment that they live in as well as the use and exploitation of the natural resources that make up the landscape. At the micro level, values are specific to individuals and somewhat easy to associate with specific elements in a landscape. Moving vertically to the meso and macro level, these values become more diffuse and spread across groups, and are not interlinked with specific elements but with rather broader concepts that can be connected to the landscape.

The thesis revolves around horizontal and vertical interactions between humans and landscapes, more specifically, how value frames, held by individuals, groups, institutions and policy, are embedded (directly and indirectly) within the landscape. It demonstrates how frames and values can be utilised to improve our understanding of effects that humans have on landscapes. It is essentially based on four peer-reviewed articles that attempt to discern the interlinkages between frames at different levels of operationalization (micro to macro), tracing the framing process horizontally from the individual to groups, policy and science. The landscape concept is principally used to contextualise these horizontal interlinkages and to provide a tool that can illustrate the real impact that frames have on the natural environment. Briefly, the first case study looks at wetland restoration and reviews how landscape frames influence a restoration process. The second case looks at how individual and institutional frames have affected the operationalization of stakeholder participation and the effects this may have on a landscape. The third case explores how the scientific literature and policy documents frame the ecosystem concept over time, as an element of the landscape. Case studies like these are usually analysed separately from each other, but the novel approach taken in the fourth article is to examine framing effects not only at an individual (micro) level, but also at an institutional and policy (meso and macro) levels by integrating the three cases.

The innovative aspect of this work does not only reside in the study of the frames themselves - including accompanying frame typologies - but the vertical integration of the framing process from a micro to macro level. This essentially means taking a “birds-eye” perspective on the various forms and impacts that frames can have, trying to piece together a bigger picture. Taking a birds-eye perspective represents an attempt at practical and theoretical integration of the framing process, across levels. There is ultimately great value in analysing the framing process horizontally and vertically, across individuals, groups, institutions and policy.

The purpose of doing this has been twofold. First, it has been about trying to gain a better understanding of frames and framing, in particular, trying to link specific frames with actual (physical) impacts on the landscape. This is to a large extent missing in the literature. Second, it has been about starting to consider how the framing process can be integrated. This relates to the multi-level synthesis of the framing process and the integration of different theoretical perspectives on frame theory.

Abstrakt

Ausgehend vom Titel versucht die Arbeit die Vorstellung zu vermitteln, dass menschliche Werthaltungen von der individuellen (Mikroebene) bis zur kollektiven und öffentlichen Perspektive (Meso- und Makroebene) nachvollzogen werden können. Diese Werthaltungen haben einen Einfluss auf die Entscheidungen, die Einzelne oder Gruppen in Bezug auf den Naturraum treffen. Diese beeinflussen direkt die Umwelt, in der sie leben, sowie auch den Einsatz und die Nutzung eben jener natürlichen Ressourcen, welche die Landschaft ausmachen. Dies ist vergleichbar mit einer Leiter: auf den unteren Ebenen, beziehen sich die Werte auf Personen und sind einigermaßen einfach mit spezifischen Landschaftselementen verknüpfbar. Beim nach oben rücken auf der Leiter hingegen werden die Werte zunehmend diffus und breiten sich über gesellschaftliche Gruppen hinaus aus. Sie sind dabei weniger mit spezifischen Elementen verflochten sondern mit breiteren Konzepten, die mit der Landschaft verbunden sind.

Die vorliegende Doktorarbeit kreist um diese Idee und um die Rolle von Rahmungsprozessen (Framing) und Werthaltungen. Sie zeigt wie die Verwendung dieser Konzepte das Verständnis der menschlichen Auswirkungen auf die Landschaft verbessern können. Diese Arbeit ist auf vier Artikeln aufgebaut, die einem Peer Review Verfahren unterzogenen wurden und welche die Verbindungen zwischen Rahmungsprozessen auf verschiedenen Operationalisierungsebenen (Mikro bis Makro) untersuchen und die rahmenbildenden Prozesse innerhalb von Individuen bis hin zu Gruppen und Politik und Wissenschaft nachzeichnet. Das Landschaftskonzept wird dabei vorrangig herangezogen, um diese horizontalen Verknüpfungen zu kontextualisieren. Es bietet ein Werkzeug, das die realen Auswirkungen von Rahmungsprozessen auf die Naturlandschaft abbilden kann. Kurz zusammengefasst, untersucht die erste Fallstudie die Wiederherstellung von Feuchtgebieten und untersucht wie Rahmungen von Landschaft durch die beteiligten Akteure das Ergebnis der Renaturierung beeinflusst. Der zweite Fall untersucht die Auswirkungen von Rahmungen durch Individuen und Institutionen auf die Umsetzung von Stakeholder Beteiligung und welche Effekte die auf die Landschaft hatte. Der dritte Fall durchleuchtet die Mechanismen wie wissenschaftliche Literatur und Politikdokumente das Ökosystemkonzept als Element der Landschaft rahmen. Fallstudien wie diese werden für gewöhnlich getrennt voneinander analysiert, dagegen wird hier im vierten Artikel eine neue Herangehensweise vorgeschlagen, indem die Auswirkungen der Rahmungen nicht nur auf individueller (Mikro-) Ebene, sondern auch auf institutioneller und politischer (Meso und Makro) Ebene durch Verbindung der drei Fallstudien untersucht werden.

Der innovative Aspekt dieser Arbeit liegt nicht nur in der Betrachtung der Rahmungen in den unterschiedlichen Fällen an sich – einschließlich der Spezifizierung begleitender Rahmentypologien – sondern in der Integration des Prozesses der Rahmung von der Mikro- bis hin zur Makroebene. Im Wesentlichen wird durch den Versuch, die vielfältigen Formen und Auswirkungen der Rahmen durch die „Vogelperspektive“ zu betrachten, ein größeres Bild zusammengesetzt. Es ist ein Versuch der Integration, sowohl praktisch als auch theoretisch, welche die Grundlage für Entscheidungsfindungsprozesse bieten kann. Letztendlich ist es wertvoll über Rahmungsprozesse in ihrer Gesamtheit zu forschen. Der Grund für diese Vorgangsweise in dieser Arbeit war zweifach: Erstens ging es darum, durch die Verbindung bestimmter Rahmungen mit den jeweiligen (physischen) Auswirkungen auf die Landschaft ein besseres Verständnis von Rahmungsprozessen zu bekommen. Diese Frage wird in der Fachliteratur oft außer Acht gelassen. Zweitens wurde beabsichtigt, einen Prozess in Gang zu setzen, der sich in diesem Fall auf den Wert der Integration bezieht, im Sinne einer mehrstufigen Synthese der Rahmungsprozesse, als auch im Versuch, verschiedene theoretische Perspektiven in die Frame-Theorie zu integrieren.

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Why look at the landscape?

This thesis is based on the straightforward notion that humans perceive landscapes different from each other and the need to study and understand why and how these perspectives affect landscape management. Take for example the picture on the preceding page. What does a random observer see when looking at this landscape? Taking myself as an illustrative example, I would define this as an agricultural landscape that has been shaped by humans to look the way it does at present, probably over generations. It has probably not been designed with a particular image in mind but it is most certainly not a natural environment, it is rather a functional landscape that has been shaped to fulfil distinct functions.

If you - as the reader - take a moment to consider this statement about the landscape, it would be possible to deduce quite a lot about my background, knowledge and values. For instance, categorising the picture as an “agricultural landscape” that is not “natural” would suggests some environmental knowledge and perhaps even a positive bias towards pristine landscapes. For someone else, not having the same background, it could have been defined as a natural landscape (perhaps by a person raised in an urban environment) or it characterises the cultural heritage that is inherent in managing a landscape over generations (perhaps by a person from a farming community). The point here is simply, but importantly, that there is not one way to look at and value a landscape, there is a multitude of different and interacting perspectives.

Varying landscape perspectives are by far nothing new, neither as a research topic nor as part of how landscapes have developed over time. However, while most of us would acknowledge that the perspectives we hold as human beings have an impact on the decisions we take, it is very difficult to pinpoint the actual physical impact a specific value can have on a landscape. Somehow we known that multiple perspectives and humans values are pivotal to landscape management, yet, few tools to-date actually categorise and link values and impacts. This is why the study of values still matter when considering landscape management - or any type of natural resources management - and also why values and the framing of the landscape is the key focus of this thesis. This relates directly to queries, such as, how it is possible to isolate and demonstrate that a human value has a physical impact on a landscape, or how can it be established that personal value orientations and perspectives dictate landscape management. These are essentially interdisciplinary questions that underlie the interest in research on frames and, especially, the interaction between human values and landscapes.

1. Frames, Framing, Framed

The framed landscape picture was included for several reasons. The first was to begin this thesis by prompting reflections on what is meant by a "landscape" and secondly to introduce the puzzle that underlies this work. Both are interrelated as the main interest behind this work is to understand and study how multiple perspectives (or narratives) impact the landscape, not only considering individual actors' but also stakeholders' or collective groups' perspectives, in other words, taking a micro to macro perspective to investigate human-landscape relationships. The picture was also meant to symbolize a physical environment that has been shaped through landscape management, across different types of human activities such as forestry and agriculture (e.g. providing livelihoods), natural hazard management (e.g. protective measures against avalanches) and nature conservation (e.g. protected areas). The way in which any landscape is managed – in a material sense – is based on these past, present and future human activities. It is a temporal process that is affected by local communities, national, regional and global institutions together with natural factors (e.g. soil erosion, bark beetle outbreaks and climate change). Landscape management is a continuous interplay between social, economic and natural factors that determines how a landscape looks and functions. It is a complex and path dependent process (e.g. cultural heritage as a factor in decision-making) where the landscape influences people's daily lives directly and where people in turn influence the landscape directly and over time.

The link between the landscape and natural resources management is however more than an action that physically shapes the landscape. How landscapes are framed play an important role. It is a process that is dependent on how individuals and groups construct meaning and how this meaning-making process is transposed onto the landscape (Eder, 1996, Buijs, 2009a, Linnell et al., 2015) and upon which policy and management decisions are made. This construction of meaning is dependent on how the landscape is experienced, understood and valued (e.g. Kaltenborn and Bjerke, 2002, Waller, 2006, Howley et al., 2011). What this means is that the landscape is a human product, framed by a constructed set of values. It is a concept that can be assigned multiple interpretations as different individuals live in, interact, and ascribe meaning to the same landscape. For this reason, the landscape concept provides the perfect medium for a frame analysis and research on multi-level framing effects.

The aim of this thesis is to improve our understanding of (human) landscape perspectives and how they – directly or indirectly – shape landscape management. More specifically, to investigate value assertions affecting how landscapes are perceived and related management formed guiding research questions. To capture and analyse these types of research questions it was decided to utilise the concept of frames to identify different perspectives as well as to use frame analysis to study and understand the actual framing process and its relationship to landscape management.

These concepts come from frame theory that - at its core - is based on the simple idea that one landscape can be viewed from multiple perspectives (e.g. Bateson, 1954, Goffman, 1974, Kahneman and Tversky, 1984, Minsky, 1975). These multiple perspectives (or metaphorical apples) are dependent on how a person conceptualise the landscape – as part of the framing process – that is shaped by values, beliefs, forms of communication and social environments. The study of these perspectives and processes can be achieved using a frame analysis that categorise frames at different levels in the landscape, ranging from frames that affect individual decision-making to policy-making, along with the impact they may have on the landscape

(Soini and Aakkula, 2007, van der Windt et al., 2007, Herring, 2009, Howley et al., 2011, Coninx et al., 2015).

Frame theory can be found in several academic disciplines, ranging from cognitive psychology to political science to sociology. It has been extensively used to study social conflicts (Snow et al., 1986, Benford and Snow, 2000), the impact from issue framing on environmental conflicts (Buijs et al., 2011, Dewulf and Bouwen, 2012) and framing in media (Entman, 2007, Hanggli and Kriesi, 2012). However, on the whole, the literature on framing falls into two broad strands of research, namely, cognitive psychology and social constructivism. In essence they suggest two ontologically and epistemologically different definitions of what a frame actually is.

Cognitive psychology suggests that frames are a blend between inherited (e.g. genetic) and acquired (e.g. learned) factors. One simple demonstration of this is that political messages are interpreted in accordance with pre-existing knowledge, values and beliefs (Druckman, 2001) and how our brain processes these political messages cognitively (Brewer, 2001, Lakoff, 2010). Social constructivists argue that frames are temporally constructed during an on-going dialogue. From this perspective they are seen as interlinked with similar factors (e.g. power-relationships), but also viewed as dependent on the contextual environment, such as how the political message was delivered (Goodman, 2006, Froehlich and Rudiger, 2006, Daviter, 2007, Entman, 2008). These differences are similar to the nature versus nurture debate as regards to whether it is an individuals DNA or life experiences and environment that shapes a persons behaviour. This implies that one strand of research is anchored in biological determination (e.g. how our brains are wired) and the other strand in the human mind being a tabula rasa (e.g. cognitive development is dependent on learning). In practice, hardly anyone accepts either of these extreme positions, but the origin of the distinction can partly be found there.

The definition adhered to in this thesis falls between these two concepts, biological determination versus tabula rasa. Frames are understood as defined by human cognition as well as by the interactions that we find ourselves in. They are defined as the cognitive structures (or mental models) that facilitate and filter information, as a heuristic device, which determines how people interact and make decisions as well as temporal frames that are contextually formed as part of our social environment.

1.1. Research Topic and Objectives

From the preceding introduction it can be distilled that the scientific research theme of this thesis is essentially the relationship between people, landscapes and policies. By taking a landscape perspective it is possible to investigate human-landscape interactions; in particular as it brings together social, economic and environmental factors under one analytical framework. Even more, the landscape concept allows for inferences about direct framing effects in the landscape. “Landscape framing” is as such – conceptually speaking – a thematic union that fits the objectives perfectly. It can be seen as framing the frame analysis. It should however be highlighted that the “landscape concept” was principally chosen as a descriptive framework and that the findings are equally applicable to other areas (e.g. forestry and rural development) linked with natural resources management.

The emphasis on human-landscape interactions is specifically related to how value frames (as individuals, groups, institutions and policy) and their effects (direct or indirect) are embedded within the landscape. The “landscape” is seen as a real or imaginary product of natural and/or human made components that forms an ‘external’ environment. Landscape components (e.g. forests and water) will be considered in

their entirety (e.g. multifunctional use) as well as varying perspectives (e.g. individual and collective) and values (e.g. instrumental and normative).

Many conflicts that occur in the landscape are based on different value frames (Kaltenborn and Bjerke, 2002, Soini and Aakkula, 2007, Howley et al., 2011, Hermann et al., 2013), they also affect how landscapes are perceived. “Values” or “value-systems”, whether instrumental or normative, influence the individual’s behaviour and perspectives. Values propagated by an individual, a collective or a policy, are thus presumed to influence modes of behaviour and decision-making as regards to the components making up the landscape. Value-systems are consequently bound up with landscape management, priority setting and policy making. In this respect, values are not considered from a restricted viewpoint, the valuation of the landscape in general and that of specific aspects (e.g. forests, water and air) is not reduced to a single dimension (e.g. agricultural or forest land) but rather considered from a multi-level (horizontal and vertical) landscape perspective.

Considering the foreseen multi-level approach, the research objectives are, in somewhat broad terms, the study of:

1. How individuals frame landscapes and its effects on landscape management.
2. How framing in participatory processes can influence landscape management.
3. How concepts that are important to landscape management can be framed over time and associated implications.
4. How framing affects not only the individual but also institutions and policy.

Empirically, these research objectives are addressed throughout the following chapters, through a framework article and three case study articles (see Chapter 7) that address frames and framing at different levels. The case study articles are not geographically related but they explore framing effects at the noted levels of implementation, from landscape management (e.g. involving individuals) to policy-making (e.g. involving institutional actors). To briefly outline, the first article reviews wetland restoration and in what way it is influenced by how we frame landscapes, the second article looks at how individuals and institutions have operationalized stakeholder participation and how framing in the participatory process influence landscape management, and the third article explores how scientific literature and policy documents have framed the ecosystem concept (as a landscape component) over time and the implications this has for the landscape. Articles like these are usually analysed separately, but the novel approach introduced in the framework article is to connect and examine framing effects not only at the individual (micro) level but also at the institutional and policy (meso and macro) level.

The multiple conceptual and theoretical approaches to framing also highlight that there are many definitions of what a frame actually is. For this reason, another objective of this thesis is to utilise the landscape concept to integrate the framing process and to address some of the ontological and epistemological differences. In essence, to develop an integrated approach to framing research that connects theory, different levels of framing (micro to macro) with the landscape concept and its management.

By exploring vertical and horizontal relationships between frames the thesis investigates how frames are linked to the landscape and impact therein. Instead of asking which theoretical approach is the most suitable to do this, the aim was to disentangle how frames are embedded at different levels and to put these bits and pieces into an integrated perspective, taking different theoretical approaches into account. This novel approach has resulted in the development of an analytical

framework that allows this to be done (see pp. 20). This has involved demonstrating the practical utility of a frame analysis, not only for organising empirical material but also for making sense of multiple perspectives and values affecting the landscape. Another objective has as such also been to develop the analytical framework that envelops the case study articles and guide the analysis of the empirical data. The later parts of the investigation is as such the application of this analytical framework, aiming to test its practical applicability and usefulness.

1.2. Guiding Research Questions

The research objectives have been addressed through a set of guiding research questions for each level (micro-to-macro):

Micro level

- *How do individuals or collectives/groups differ in their value orientations towards a scientific landscape?*
- *Do these varying value orientations affect - directly or indirectly - choices individuals or collectives/groups make in landscape management?*

The micro level is linked to the **1st research objective** and exemplifies how people living in an agricultural landscape see themselves – as single individuals or groups – in relation to one another and the landscape.

Meso level

- *How do individual and institutional value orientations affect the design and implementation of stakeholder participation and what are the implications for the landscape?*
- *How do relevant institutions allow varying value orientations to be expressed by individuals in practice?*

The meso level is linked to the **2nd research objective** and reviews both the individual and the institution they work for. It exemplifies how institutions and individuals interact to affect the landscape through environmental projects and address the bridge between practice and policy.

Macro level

- *What kind of value orientations can be found in scientific literature and policy documents and how have these changed over time?*
- *How can value orientations expressed through scientific literature and policy affect landscape perspectives?*

The macro level is linked to the **3rd research objective** and explores value frames over time. This includes the development of a frame typology to organize relevant value expressions concerning the ecosystem concept as a landscape component and it exemplifies how values shape both scientific writing and policymaking.

Multi-level integration

- *How do frames relate to each other on a vertical (micro to macro) and horizontal (case study) level?*
- *Can different framing processes be synthesised by integrating different theoretical perspectives and levels?*

The multi-level integration refers to the testing of a novel analytical approach to break down the framing process. The intent has been to simplify integration, disentangle it from theoretical tunnel visions, and to address one of the main ideas behind this thesis, namely, that frame analysis should integrate different theoretical perspectives and levels (micro-to-macro). The integration between these levels is linked to the **4th research objective** and the intent to explore the connection between framing effects from policy to the individual.

1.3. Organisation of the Thesis

The text is organised into seven chapters. The first six chapters constitute the framework writing for this thesis, followed by four peer-reviewed articles that make up the seventh and final chapter. The four articles correspond to the four levels noted in the preceding section on guiding research questions (see Section 1.2 and Figure 1). It should be noted that the purpose of the fourth article, aside from introducing the novel analytical approach, also served to link the three case study articles (micro to macro level) more explicitly and to connect them to a wider body of research on framing. Significant integration and references is as such made to the final article throughout the following chapters.

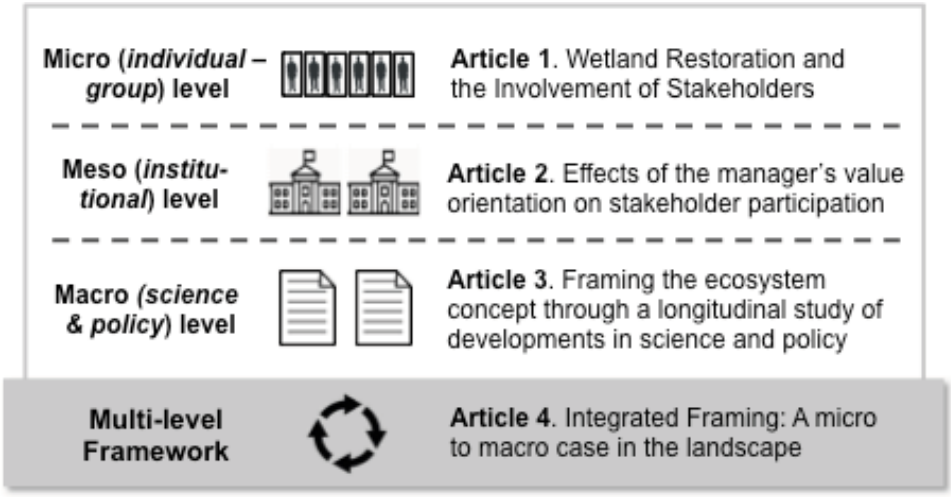

Figure 1. Structure and relationship between the case study articles.

Introduction

The first chapter, representing the preceding text, aimed to present the purpose and topics that will be addressed by this thesis, including the scientific theme, objectives and guiding research questions.

Theoretical framework

The second chapter focus on introducing the different strands of research and ideas behind frame theory. It will expand on some of the key concepts that are introduced in the case study articles and is partly meant to address some of the restricted coverage of frame theory in the case study articles and to go beyond current theoretical frames, essentially, to move beyond current theoretical considerations. The chapter begins by presenting what frames are in accordance with some of the main literature on framing, followed by further elaborations on landscape framing.

Presenting the case studies

The third chapter provides a short overview of the peer-reviewed articles ahead of having a discussion on the methods, results and associated theoretical considerations.

Reflections on the research approach and design

The fourth chapter address the inherent benefits and drawbacks of doing a cumulative dissertation. It introduces the methods of analysis that were used throughout the peer-reviewed articles as well as addresses strengths and

weaknesses of the applied approaches. It has also addresses the validity of the findings and the impact the researcher may have had on the results.

Results and extended theoretical considerations

The fifth chapter serves the purpose of connecting the findings from the different case studies and expanding on the results. It also tackles some key aspects related to the scientific and practical relevance of the findings, and more importantly, it considers the theoretical implications of taking an integrated approach to frame analysis and how the results could be utilised for re-framing.

Final conclusions

The sixth chapter wraps-up and presents all the central findings as well as a brief summary. It discusses the research process and methods, present some of the key results in terms of their theoretical contributions and practical utility and provides some suggestions for what may lay ahead for framing research.

Case study articles

The seventh and final chapter consist of the four peer-reviewed articles.

- Article 1 (micro case) can be found on pp. 40,
- Article 2 (the meso case) can be found on pp. 58,
- Article 3 (the macro case) can be found on pp. 75, and
- Article 4, the multi-level integration, can be found on pp. 88.

A note for the reader

The framework writing was done in parallel to putting together the fourth and final article. The original intent was to integrate the article into the actual thesis as a novel approach to write a framework for a cumulative dissertation. Conceptually, this made a lot of sense, but in practice it did not work well, mostly because the text ended up being fragmented and confusing. However, even though the fourth article is now in the final chapter, it should be noted that there are still significant interlinkages and integration, and at times, some repetition.

2. Theoretical Perspectives on Values and Frames

All decision-making, whether concerning the landscape or natural resources, is framed by the context in which it occurs and by the individuals (or institutions) that make the decision. Frames and values, two core concepts in this thesis, are intrinsically interconnected yet they are not the same. When talking about values, we often think about guiding principles that determine our course of action (Rokeach, 1973, Schwartz, 1994, Holstein, 2006). This can at times be difficult to differentiate from frames. The distinguishing factor here is that a frame is not only dictated by what we believe but by a myriad of other factors that affect our perspectives. To name but a few, the way we perceive a landscape is shaped by our education, knowledge, cultural background and values (Buijs, 2009a), the social environment (McFarlane and Boxall, 2003) and our cognitive abilities (Nelson et al., 1997). All these factors would interact to make up a temporally specific frame that affects our behaviour and decision-making. Values, on the other hand, are not as contextually specific and they constitute only one part of what makes up a frame.

Taking this into consideration, the guiding research questions principally targets frames in landscape management. Frame analysis is used to understand how landscape-related values take effect at the level of the individual, institutions (groups and collectives) and policy. Both the framing process (or the act of framing) as well as frame theory are for this reason important components. It makes it important to situate this work in the overall theory surrounding frames, framing and values. In particular as frames (just like values) have been investigated by a wide range of scientific disciplines which represent many fundamentally different perspectives, both ontologically and epistemologically speaking.

It should also be noted that the present thesis engages in a more exploratory and interpretive form of research. It was for this reason decided to adopt an open approach and avoid hypothesis testing as predictive statements of what will be found. This is in line with interpretive policy analysis (Fischer and Forester, 1993, Fischer and Gottweis, 2012) and will be addressed in more detail in Chapter 4.

The following sub-sections extend the theoretical perspectives underlying the work and the main concepts applied. It is seen as an extension of the framework article and case study articles (see pp. 40 and onwards).

2.1. Understanding Values

When talking about values, beliefs, attitudes and norms, this refers to cognitive mental processes that are employed (individually or collectively) to remember, perceive, understand or decide about things in the internal or external environment (e.g. Kluckhohn, 1951, Rokeach, 1973, Homer and Kahle, 1988, Medina, 1993, Aaron et al., 1994, Norton, 2005, Vugteveen et al., 2010). These concepts form a hierarchy ranging from basic (e.g. instrumental) values to specific beliefs, attitudes and norms. To illustrate, a basic value, such as a “desire for social justice”, can branch out into contextually dependent attitudes and norms that can be applied to specific situations, such as addressing the unfair distribution of environmental risks and resources. Each aspect of a persons’ value system exerts an influence on his/her behaviour, intentions and decision-making, such as how s/he responds to environmental exploitation in real life. This means that values affect not only how people interpret information, experiences and events (e.g. basis for biased perspectives) but also their motivations and actions (e.g. favouring one behavioural response over another) (Schwartz, 1994, Stern et al., 1999, Stern, 2011). This also

brings us to one of the main reasons for why values are such an important part of this thesis, namely, its predictive use and its similarities to frames.

Value orientations offer, in short, insights into the behavioural intent of an individual and/or organisation. More specifically, basic values (individual or collective) can be seen as preferences or guiding principles that we utilise in our day-to-day lives (Rokeach, 1973). These values can be directed towards specific aspects of our external environment (e.g. agricultural or forest landscapes), forming value orientations of varying intensity (Kluckhohn, 1951, Fulton et al., 1996, Kaltenborn and Bjerke, 2002, Buijs, 2009a, Needham, 2010). Attitudes and/or norms – as formed by these underlying values and beliefs – are subsequently used to predict whether an individual behaves in one way or another, as illustrated in Figure 2 (Homer and Kahle, 1988, Schultz and Zelezny, 1999, Ajzen, 2001, Ajzen, 2005). There is for instance a substantial body of research focused on revealing and measuring the impact from wildlife value orientations as a landscape component in natural resources management (Herman, 2005, Teel and Manfredo, 2010, McShane et al., 2011, Hermann et al., 2013, Jacobs et al., 2014). To demonstrate, a recent publication by Jacobs et al. (2014) investigated the predictive value of wildlife value orientations on the acceptability of different management interventions. Similar types of studies (yet to a lesser extent) have also been conducted in connection to landscapes. Examples are Kaltenborn and Bjerke (2002) reviewing value orientations and landscape preferences, Soliva and Hunziker (2009), investigating effects from biodiversity and conservation values on landscape preferences, and Howley et al. (2011), exploring public preferences associated with farming landscapes. These publications reveal a spectrum of varying value orientations that can be found to affect the human-landscape relationship, defined by variations in beliefs, attitudes and norms and contextualised by varying socio-economic and cultural conditions (e.g. Holstein, 2006, Waller, 2006, van der Windt et al., 2007, Buijs et al., 2009, Fischer and Marshall, 2010). One commonality for all these articles is the importance of values in landscape planning and management.

The analysis of values and value orientations has been one common denominator throughout the research process. The applied value definition is based on work by Meglino and Ravlin (1998) where values are seen as the building blocks of an individual's beliefs about how they should behave – or their value orientation. The use of Meglino and Ravlin (1998) value definition comes from their focus on values as "modes of behaviour". They specify values as "[…] an individual's personal beliefs about how he or she "should" or "ought" to behave. That is, a person's values do not necessarily reflect how he or she wants or desires to behave, but rather, they describe his or her internalized interpretations about socially desirable ways to fulfil his or her needs" (pp.354). This definition was furthermore utilised as it is applicable to how values can be operationalized by individuals in organisations. On the whole, Meglino and Ravlin provide an extensive review of the value literature (if somewhat dated at this point) that has remained useful for this work.

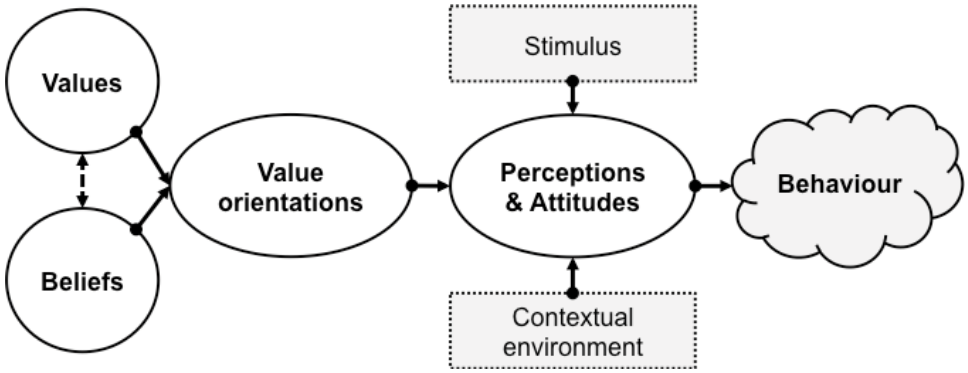

Figure 2. Conceptual structure of values, beliefs and value orientations and their relation to behaviour (based on a figure in Buijs (2009a)).

Another central component of this work has been the use of environmental ethics to define and analyse value orientations. This formed an essential part of the frame analysis rather than testing predefined value types or typologies (e.g. Dunlap's New Ecological Paradigm Scale (2000, 2008) or Mayer and Frantz's Connectedness to Nature Scale (2005)) within case studies. The idea was to utilise ethical principles (e.g. "biodiversity is good") to reflect the types of values that people have about landscape components, such as wetlands and ecosystems (Frankel, 1996, Nordlund and Garvill, 2002, Ehrlich, 2003, Chae et al., 2005, Amérigo et al., 2007). In turn, these ethical principles reflect different ethical theories, such as anthropocentrism, ecocentrism and biocentrism (e.g. Taylor, 1986, Singer, 1993, Elliot, 1995, Callicott, 1997, Proctor, 1998, Attfield, 2003, Callanan, 2010, Miller et al., 2011, Sarkar and Montoya, 2011, de Groot, 2012) that can be used to identify prevalent types of value orientations (or typologies) in groups of people. The main point of using environmental ethics is that ethical principles can be utilised as part of a frame analysis to identify value orientations, without forming pre-conceived frameworks for how people value a landscape.

This essentially means that ethical principles are used as building blocks, rather than a framework or typology, to group values that are unique for each individual (see Figure 3). These would make up individual patterns that can be utilised to define and categorise different value orientations without pre-judging what people actually value. It also makes it easier to identify unique value orientations.

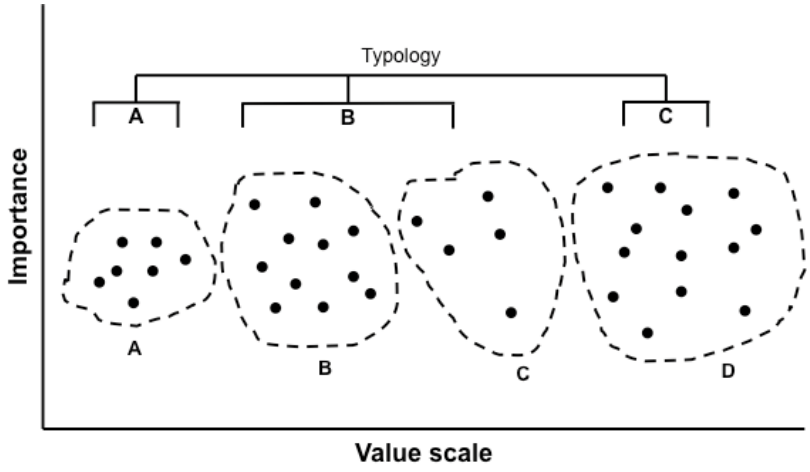

Figure 3. Categorising grouping values versus applying a typology.

Value orientations can also be applied to predict how people behave (Kaltenborn and Bjerke, 2002, Jacobs et al., 2014). For instance, different values (personal and instrumental) held by different stakeholder groups can be linked to demands made on the landscape. This makes it possible to demonstrate a causal link between a value orientation and a specific impact on the landscape.

The reason for expanding on values, the use of environmental ethics and value orientations is the potential it has when applied to a frame analysis as well as for practice communities. More specifically, one argument put forward earlier is that value orientations should not be pre-defined before analysing value systems for a given group. This is in contrast to some work in this area where typologies or value scales (e.g. new ecological paradigm (NEP) scale) are often formulated prior to analysing actual preferences, often as part of the analytical framework (Dunlap et al., 2000, Gallagher, 2001, Dunlap, 2008). The distinction here is that many studies have tried to identify "universal" value orientations (or typologies) that can be applied across different areas and projects with the underlying assumption that it can play a predictive function in management terms (e.g. Fischer et al., 2011). It is of course recognised that there are clear benefits in having pre-defined value systems and in being able to determine how people behave (e.g. estimating the potential for alternative management approaches), but it imposes restrictions on the analysis of people and/or groups.

2.2. Framing the frame

For the purposes of this work, frames are defined as the cognitive structures - or mental models - that facilitate and filter information as a heuristic device, which affects how people interact and make decisions as well as make sense of experiences and problems. This is however a definition that is situated between disciplinary approaches, all with their own theoretical considerations and applications. One key distinction is that cognitive frames are rooted in the individual mind, either biologically or through learning, while interactional frames are located in social interactions and how we socially construct meaning (e.g. Fischer et al., 2011). To shed light on these varying distinctions, the original theoretical accounts of frames will be elaborated. This is complimentary to the reviews conducted as part of the case study articles.

2.2.1. Sociology, Policy studies and Framing

Starting from a significant milestone for frame theory, one of the first authors to put forward the concept of framing (not frames) was Erving Goffman in his book on frame analysis (Goffman, 1974). His outlook on framing is partly inspired by Bateson (1954). Goffman explores framing from the individual's (micro level) perspective – arguing that people, in a nutshell, interpret what is going on in their external environment through frames. These frames are seen as social constructs rather than as part of a person's cognition, constituting a "schemata of interpretation" that affect how we experience the world and our social interactions. Goffman suggest that these schemata are part of a "primary framework" – primary as it is independent and taken for granted by the individual – that we use to interpret information. It is stated as *"[…] we tend to perceive events in terms of primary frameworks, and the type of framework we employ provides a way of describing the event to which it is applied*" (p.24). These primary frameworks are functionally sub-divided into natural and social frameworks affecting the interpretation of information and our responses thereto. For instance, the sunrise is a physical event and our natural response can be to pull down our blinds (no social force involved). Socially driven events are however part of our social framework in which people can affect how others interpret, process and

communicate information. The assumption underlying this process is that we use our primary frameworks on a daily basis, whether we are aware of it or not. Most importantly, Goffman makes the link between frames and behaviour explicit.

Another central aspect to his work is the issue of "keys" or how frames are "keyed". This is comparable to a re-framing process (e.g. Gilliam and Bales, 2001, Spangler, 2003, Anderson et al., 2008, Jerneck and Olsson, 2011) in that it refers to how one frame is temporally changed into another frame. Goffman notes that keys means "*the set of conventions by which a given activity, one already meaningful in terms of some primary framework, is transformed by the participants to be something quite else*" (p. 43). This can for instance refer to "make belief" or "ceremonies" where we are expected to behave in a particular way and thus involve individuals signalling keys to one another. The focus of his work is however on social interactions and everyday type of behaviours where framing refers to the actions of individuals (or groups) and the way they understand situations in terms of frames. There are almost no reference to political processes and policy-making, which is also linked to one of the major criticisms of his work, namely, that many of his concepts cannot be applied to analyse policy processes where different types of meaning are attached to the same problem and/or issue (Jacoby, 2000, Dewulf and Bouwen, 2012, Matthes, 2012b). Nonetheless, Goffman`s concept of framing is important since the actors' behaviour was linked explicitly to the individual's mind as well as the environment in which they live.

This last point is important as Goffman arguably helped to pave the way for research on framing and activities in the political arena. Some significant contributions in this area of research are – coming from political sociology – Schön and Rein (1994) and Gamson (1992) concerned with collective action and controversies in policy-making as well as Snow and Benford's work on ideologies and social movements (e.g. Snow et al., 1986, Snow and Benford, 1988, Benford and Snow, 2000). These authors have, in contrast to Goffman, focused on how frames are operationalized individually and collectively at the social and political level (the meso to macro level).

Schön and Rein (1994) distinguish a number of frames as part of any policy discourse. These are rhetorical frames (used to persuade and shape the policy debate) and action frames (used to inform policy practice) grounded in the institutions that promote them. Action frames are interlinked with different levels of operationalization, ranging from policy (as used by institutional actors), institutional (generic action frames for policy) and metacultural (culturally shared systems of beliefs) through which the actor's construction of a frame is promoted (often intentionally). This constitutes one of the core aspects of their work, more specifically, the fact that our social reality is seen as a process of naming and framing and that frames are not only utilised to make sense of experiences but also to influence people (e.g. basis for normative biases). Schön and Rein are on the whole more concerned with how frames bias actions rather than in how they function as organisers of experiences. One key aspect to Schön and Rein's work is that they provide a comprehensive definition of frames (including a classification of different kinds of frames), how they are operationalized, their function and impact. Their concept of framing is furthermore anchored in the social institutions trying to exert their influence on policy making. Arguably, they do not dedicate much attention to how frames are actually formed, nor what kind of value orientations and perceptions actually form part of the frame construction process (Rein, 1983, Rein and Schön, 1996, Laws and Rein, 2003).

Gamson (1992), on the other hand, is more occupied with the analysis of collective actions frames on a group level and how biases can influence policy making. To

illustrate, he describes three components as part of all collective action frames, namely, injustice, agency, and identity. These components reflect Gamon's work on media framing as "injustice" is defined as a moral indignation that can be traced back to a specific actor, "agency" describes how a problem can be collectively resolved, and "identity" concerns the process of creating an adversary based on differences in value orientations. Gamson is thus much more interested in how frames are actually formed (Gamson, 1992, Thacher, 2005). For example in how shared moral indignations are utilised to create a sense of "we" and how this can evolve collective action frames (e.g. collective strategies and capacities) in connection to political movements. This can be seen as complimentary to Schön and Rein's work, but has been criticised for not saying much about the general function of frames and how frames can be classified (e.g. how actors can move between frames). Gamson nevertheless demonstrates how shared frames are needed to enable collective actions and that they can be organised around certain themes, emotions and moral issues (Scheufele, 1999, Van Gorp, 2007, Davis, 2009).

Finally, we come to Snow and Benford (Snow et al., 1986, Snow and Benford, 1988, Benford and Snow, 2000) who focus on social movements, as carriers of beliefs and ideologies, through framing (diagnostic, prognostic or motivational). For instance, complimentary to Gamson's work on media framing, frame formation and collective action, Snow and Benford (1988) argue that groups that engage in social mobilisation try to actively redefine other people or groups interpretive framework (or frames). This is interlinked with one of their central concepts, "frame alignment" that provides the foundation for a "frame transformation" (or reframing). They define four types of frame alignment that include frame bridging (e.g. linking ideologies), frame amplification (e.g. strengthening values and beliefs), frame extension (e.g. extending boundaries to include more) and finally frame transformation (e.g. making antithetical frames resonate with current views). They furthermore define two types of frame transformation, one that is domain specific (e.g. transforming the status of a group) and one that is global (e.g. transforming worlds views). The latter is characterised as a radical transformation, such as moving from communism to capitalism. However, more importantly for the present thesis, Snow and Benford explicitly link the framing process with value systems and the degree of perceived relevance attached to frames (Benford and Snow, 2000).

The purpose of presenting these significant contributions to frame theory has been to highlight different aspects of the framing process. For example, Goffman provides us with a foundation for framing and frame analysis while Schön and Rein break down, characterise and define what a frame means. Added to this is the frame formation process proposed by Gamson as well as the frame transformation (or reframing) and its link to value systems put forward by Snow and Benford. Together they illustrate different parts of a much bigger picture that forms the overall framing process - from a micro to a macro level.

2.2.2. Cognitive Psychology and Framing

Moving away from the socially constructed take on the framing process it is worthwhile to go back to some of the work coming from cognitive psychology. The cognitive research stream originates partly from Minsky's cognitive frame theory (Minsky, 1975) where frames are often referred to as unconscious structures called "schemas" (Lakoff, 2005, Lakoff, 2010). It is however Kahneman and Tversky's prospect theory that has truly helped to bring the framing concept into the cognitive realm (Kahneman et al., 1982, Kahneman and Tversky, 1984, Kahneman and Tversky, 2000). The work by Kahneman and Tversky originally came out of a study that found a cognitive bias when people make decisions about risk. In essence they

found that people make different decisions based on how the information is presented (or framed). According to prospect theory, we tend to make decisions that avoid loss rather than an equivalent gain, or we favour a sure gain rather than a probabilistic higher gain. For instance, it is more likely that you want to "save 10 out of 100 people" (positive framing) than "loose 90 out of 100 people" (negative framing), even though they are the same. These types of variations in problem formulation generate a framing effect in decision-making that has, amongst other things, been applied to understand political spinning (e.g. issue framing) and effects in social movements (Jacoby, 2000, Benford and Snow, 2000, Gillan, 2008). The basic assumption is that the origins of a framing bias can be found in the individual's psychology and in the external environment (e.g. how problems are formulated, both intentionally and unintentionally), not so much in the social interaction.

The emphasis in cognitive psychology is on our brain as an information processor and how our biological limitations affect our behaviour - whether we are talking about inherent or learnt behaviours. Cognitive biases consequently make it difficult to think about framing without considering cognitive structures that influence how we interpret and react to information in our environment. This is also in line with Minsky's work on framing, which was first applied to understand visual reasoning and natural language processing (Minsky, 1975). His notion of a frame is that they are used to establish the context for a problem (as a remembered framework) and act as a tool to help us reduce the search space (or brain processing) needed to reach a solution or make inferences in different contexts. Frames can thus be depicted as data-structures (or perhaps as key words) in our memory that represent different types of information or knowledge representations (e.g. how to use a frame, specific relationships between individuals, what to expect and how to behave) used in a computational manner and as a heuristic technique. This concept of a frame is comparable to the idea of simple heuristics put forward by Gigerenzer and Todd (1999) who argues that "*cognition is the art of focusing on the relevant and deliberately ignoring the rest*" (p.21) using heuristic principles to guide our thinking. Both frames and simple heuristics emphasize that the mind uses a collection of strategies or decision rules to make decision-making easier. For example, social norms help us decide how to act in a social environment based on limited time and knowledge. In a nutshell, frames make certain considerations more accessible and more likely to be used in decision-making.

Early research into psychological processes that underlie framing is also reflected in social sciences (and its close cousin social psychology). For instance, Robert Entman's (1993) defines framing as a process where we select some "[…] *aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation*" (p. 52) in his research on media framing. This corresponds to a process where our minds have hierarchically stored information in long-term memory that dictates accessibility to the same information. The implications are that when we make a decision or analyse a landscape, we only use portions of this stored information to make judgement calls and we tend to utilise the most accessible information in this process. It is in this way that frames help to make decision-making easier (in terms of processing) but it also narrows our focus and reinforces pre-existing perspectives and biases (Gross and D'Ambrosio, 2004, Hanggli and Kriesi, 2012). We are for example more attuned to information that confirms (rather then challenges) our pre-existing frames. This is illustrated through research by Chong and Druckman (2007) who indicate that individuals with strong values are affected less by frames that contradict those values.

2.2.3. Social Psychology and Framing

The previous section eludes to the role that social psychology has played in media framing and in bridging the disciplinary divide between different approaches to frame theory. One example of this bridging – while not intentional nor dealing with frame theory explicitly – is through work on social representation theory. Research on social representation by Serge Moscovici has some significant parallels to the framing concept. In simplified terms Moscovici argues that social representation provides people with a framework (or code) that is used in social exchanges (e.g. naming and classifying our social environment) to determine how we should behave (Moscovici, 2000). More interestingly, he contends that we have a "cognitive operational system" that processes information and we have a "metasystem" that operates based on the information provided by our cognition. The focus in this case is on mental and perceptual processes but it applies (similarly to Minsky) the concept of "schemas" and structures of "representations" used to navigate through life (e.g. our social identity). It is as such a concept that not only shares some of the key functions of framing but it provides interlinkages between our cognitive processes, our social environment and behaviour (individual and collective).

There is also a direct link to framing research, such as Moscovici's "anchoring" process (as part of social representation theory), which is a well-documented framing effect in media (Moscovici, 2000). This was in fact first theorised by Kahneman and Tversky, as a cognitive bias (Kahneman et al., 1982). In this case anchoring involves the process of assigning a meaning to previously unknown information by trying to integrate it with pre-existing perspectives and knowledge structures (the "anchor"). This means we are essentially biased toward interpreting other information around the anchor (or frame). Basically, social representation theory helps to demonstrate how our cognition imposes a frame (or interpretive framework) on information processing, and more importantly, how this process can be influenced through social environments (e.g. keying), creating a connection between scientific disciplines (e.g. between and social sciences).

2.3. Framing the Landscape

The link between "frame theory" and the "landscape" is one fundamental consideration for this thesis, both through the framework text and articles. Frame theory (and variations thereof) that relate to the environment is often applied in research concerned with negotiation, conflict resolution and natural resources management studies that attempt to explain why and how people (or groups) behave in a certain manner. The use of frames in environmental disputes has been nicely articulated by Kaufman et al. (2003) as "*differing conceptual frames held by the parties involved in a dispute form the basis on which they act. Each party to a conflict has its own perception and understanding of their agenda, the relevance of various issues, their priorities, and the opportunities and risks involved with different choices. This assemblage of factors can be considered as a set of lenses, or filters, through which the various parties view the conflict, and is called the frame*" (p.2). Essentially, it is more often about frames affecting our interactions and less how it effects the landscape.

The range of researchers that draw on the framing concept in environmental conflicts and natural resources management research reflect the spectrum of disciplines and conceptual approaches to frame theory presented throughout the previous sub-sections (Gillan, 2008). For instance, Barbara Grey (2003), a prominent researcher on environmental conflicts, principally draws her framing concept based on the work by Schön and Rein (1994). In another example, Lakoff (2010) defines environmental

frames as the "*(typically unconscious) conceptual structures that people have in their brain circuitry to understand environmental issues*" (pp. 73) - a definition that can be traced back to Minsky as well as Kahneman and Tversky's work and the use of "schemas". Two other examples are the works of Carragee and Roefs (2004) and Goodman (2006), the former on political and social power and the later on how media frame biohazards. Both relate to the effects that media framing can have and draw heavily on Gamson's work and arguably promote an approach to framing that goes back to Goffman. As a final example, Dewulf et al. (2009) address some of these underlying conceptual differences in an article that presents a "meta-paradigmatic perspective" and proposes a way to integrate the "cognitive and interactional paradigm" in framing research.

The purpose of these examples is twofold. First, they demonstrate the inherent variation in environmental frame research, and secondly, they highlight the significant ontological, epistemological and methodological differences that characterises frame theory.

Disregarding whether you take a more cognitive (deterministic) or constructivist stance, the framing concept has been extensively and successfully applied to showcase how we perceive our natural environment. This ability has been one core argument for choosing to use the framing concept for this thesis as well. It is ultimately a useful concept when applied to understanding not only varied perspectives of the landscape (Eder, 1996, Waller, 2006, Soini and Aakkula, 2007, Linnell et al., 2015) but also to the wide range of value orientations that are attached to these perspectives (Kaltenborn and Bjerke, 2002, Brewer and Gross, 2005, Soyez et al., 2009, Needham, 2010, Hermann et al., 2013, Jacobs et al., 2014). One interesting example in this area of research comes from Buijs et al. (2011). This study investigated a management-related conflict concerning a Dutch national park and examined the link between framing strategies and the cultural background of these strategies. The work by Buijs et al. combines frame theory with social representations theory in an effort to disentangle the framing of an environmental conflict from cultural values and the attitudes on which these frames are based. The study found three main categories of framing underlying the environmental conflict, namely, the relationship between actors (related to social identity), contextual variations (related to interactional procedures) and the actual framing of the woodlands (value-related perspectives on nature). Each aspect had a significant impact on the outcome of the environmental conflict. Another example, also related to woodlands, comes from Fischer and Marshall (2010). This study investigated the influence of environmental discourses (e.g. animal welfare and global environmental change) on woodland restoration and moorland management in Scotland. One of the main conclusions from the study was that people have a tendency to position themselves according to prevailing societal discourses on land management (e.g. social, ecological and utilitarian rationales) as well as within a network of actors (e.g. membership to specific stakeholder groups). Each frame provided a different rationale that was dependent on societal and personal values as well as demands on the land, which in turn had implications for landscape management. These examples, amongst many others, demonstrate how frames are used to understand environmental conflicts in different ways and how frames vary depending on cognitive and contextual factors (e.g. social identity and actors networks). More importantly, they demonstrate a direct link between environmental frames (individual and collective) and landscape management.

The theory as well as the motivation for using the landscape as a unifying concept is expanded on in the framework article (see pp. 88), there are however some additional studies that are specifically concerned with landscapes and framing that

are worth noting. For instance, linked both to values and framing, Soini and Aakkula (2007) conducted a study on the constructs and conceptions held as regards to biodiversity in agricultural landscapes, focusing on scenic, symbolic and ecological aspects. The study revealed significantly different values and perspectives attached to the biodiversity concept. Another study by Buijs et al. (2009) explored variations in images of nature (wilderness, functional and inclusive images) and landscape preferences based on varying cultural backgrounds. The images (or frames) were defined using ethical theories as a foundation for prescribing values to the landscape, such as a "wilderness" image that focuses on ecocentric values and the independence of nature. It demonstrates the potential to use of value-based frame variations to predict how people behave and suggests that the framing concept can play an important role for the practice community as well as for landscape management. Yet another example related to landscape preferences comes from Howley et al. (2011), who similarly investigated variations in framing across demographic groups (e.g. looking at age and gender) as well as environmental value orientations. They found systematic differences in preferences associated with farming landscapes (e.g. traditional versus extensive farming) and that value orientations are important factors affecting individual landscape preferences. It is argued that the heterogeneity of landscape preferences (e.g. preferring wild, water-related and/or forest landscapes) are important to consider for the social acceptability of different landscape management approaches.

For a more recent example, Coninx et al. (2015) examine how the ecosystem services concept can be operationalized in collaborative landscape planning. The study characterises three types of frames, which are socio-cultural frames (emphasising social-cultural services), economic frames (emphasising production services) and sustainability frames (emphasising regulation services). Interestingly, and in contrast to other studies, this work not only analysed how varied interests, values and beliefs affect individual perceptions but also tested the use of frames in landscape planning. It is for this reason a relevant study as it moves away from being only desktop (or laboratory) research to practice. It is argued that this practical application of frames in landscape management is necessary to truly understand how knowledge about frames can be better utilised by the practice community, such as to align contradictory views on the human-landscape relationship and to help bridge different interests. Coninx et al. also propose a conceptual framework to break down the framing process into attitudinal, sender–receiver and contextual factors.

2.4. Gaps in the literature

The selection of articles presented above demonstrates, on the one hand, that there is a significant body of work on landscape framing, but on the other hand, it demonstrates that not much has been done to apply this knowledge in practical terms. There has been a tendency to focus on defining how people, or groups, in a given time and place frame a landscape (e.g. frame typologies), which has significant limitations in terms of transferability. For instance, this thesis argues that frames are contextually specific and that knowledge about perceptions is principally only valuable if we use it to predict how people behave. The added value of landscape frames thus resides in actively using this information in planning processes (e.g. improving acceptance of different landscape management approaches) and to facilitate participation (e.g. taking account of varied landscape perspectives). It is also clear from these studies that the landscape concept has not been utilised in the same way as foreseen by this thesis, namely, to connect framing at different levels of operationalization, from micro to macro level.

Another gap in the literature has been the absence of integration between on-going work and theories on frames and framing. Or put in another way, there is a need to take a “birds-eye” perspective, meaning that the entire framing process is considered. The assumption here is that a birds-eye perspective can provide new insights, to connect the dots, and facilitate increased understanding as regards to how frames work and as regards their impact. The issue of integration will be considered in more detail in section 5.3.

3. Framework and Case Study Articles

The framework and case study articles focus on exploring framing effects at different levels of implementation - from the micro to the macro level - with the overall intent to integrate the different levels. Thus, before moving on to introduce the methods (chapter 4) and the main results (chapter 5), a short summary of each article will be provided below to help contextualise the continued discussion.

3.1. Micro level: Wetland Restoration and the Involvement of Stakeholders: An Analysis Based on Value-Perspectives.

The first article was published in Landscape Research in 2014 (Aggestam, 2014b). It presents an analysis of the values that individuals and groups have about landscapes. The purpose of the ground level exploration was to see how human values interact and influence wetland restoration as one major component of the agricultural landscape. The focus was on two rivers, Kävlinge and Höje Rivers, in Southern Sweden. Values were analysed by applying environmental ethics as an analytical framework - a value-based approach that was also adopted in Article 3.

Wetland restoration was chosen as a case study - for the micro level - as it is linked with how we (as humans) are re-modelling landscapes. The restoration programmes in this case relied on voluntary stakeholder participation, which made the restoration process entirely dependent on the values and preferences of its participants. This allowed for an analysis of framing effects on the landscape. For example, the importance and function assigned to wetlands and the agricultural landscape by individuals and groups compromised the programmes environmental impact. This article argues for a better understanding of environmental ethics and values and how this can be utilised to improve landscape management, e.g. by engaging disparate stakeholder groups and developing incentives for participation.

Article 1 can be found on page 40.

3.2. Meso level: Effects of the manager's value orientation on stakeholder participation: at the front line of policy implementation.

The second article was published in Water Policy in 2014 (Aggestam, 2014a). It focuses on two respective layers of framing. The first layer considers how individual values affect stakeholder participation in terms of the perspectives held by project managers and how these can influence projects that are implemented in the landscape. The second layer considers the institutional framing of stakeholder participation and how institutes (e.g. UNDP, ICPDR & IIASA) affect the participatory process. Accordingly, this article looks at the interplay between individual and institutional framing, taking into account a complex system of actors and institutions, including varying problem definitions as regards to stakeholder participation.

The link to the landscape is more indirect in this case study as the focus is not on landscape impacts, even though each project in the study was implemented in the landscape. Given this material link to the landscape it was assumed that framing effects on stakeholder participation have a knock-on effect on the landscape (e.g. priority-setting). The article links work being done by a practice community, commissioning institutions and policy implementation. It is argued that the decision-making freedom accorded to project managers defines whether stakeholder participation is implemented according to individual value orientations, the institutions or policy. Arguments connected to landscape management are thus concerned with

individual and institutional framing effects on project management and the viability of projects. It should be noted that the multi-level analysis (Article 4) focuses on how institutional framing affects the landscape.

Article 2 can be found on page 58.

3.3. Macro level: Framing the ecosystem concept through a longitudinal study of developments in science and policy.

The third article was published in Conservation Biology in 2015 (Aggestam, 2015). It exemplifies a longitudinal analysis of scientific literature and policy documents and how these have framed the ecosystem concept as a landscape component. The intent was to investigate whether prevailing value frames at the policy-level changes over time and whether science has a different view on the ecosystem concept. The objective of this approach was to review how value frames are characterised in science and policy.

This was achieved by developing a frame typology to organise relevant and prevailing value orientations. As for the first article, environmental ethics was applied as a framework for the frame typology. The aim was also to look at value differences and frame interactions as characterised by the science-policy dialogue. For example, have any value-based developments in science triggered any changes in policy, or vice versa. It was found that ecosystem research is often characterized by unstated value judgments while policy documents are characterized by clear value expressions that are principally management driven and human-centred. However, the macro-level analysis does not allow for inferences about direct impacts on the landscape. Ecosystem framing can only be presumed to create indirect effects but the ecosystem concept is considered to be a fundamental component of the landscape concept. This article argues that the system properties of landscape management will only change if there is a shift in how landscapes are being framed.

Article 3 can be found on page 75.

3.4. Multi-level: Integrated Framing: Micro to Macro Cases in the Landscape.

The fourth (framework) article has been submitted for review to Landscape and Urban Planning and is still in the first round of review (Aggestam, 2016). This final article takes up the overarching challenge to propose an integrated approach to framing research by using the landscape concept to explore vertical and horizontal relationships between frames. The general objective was to explore how framing effects can be linked to the landscape, whether directly or indirectly, and to methodologically integrate the three case study articles under a common conceptual framework. This was particularly important as the case study articles are not topically or geographically related, but they effectively look at framing effects at different levels of operationalization using different empirical sources.

Another purpose of this article has been to stress the practical utility of framing research. For instance, results from the micro case can be used to improve the deliberative scope of environmental projects, while results from the meso case provide insights for improving the institutional uptake of new practices, and the macro case provide hints to advance reframing techniques. All of these results can be used within the context of developing alternative approaches to landscape management.

Article 4 can be found on page 88.

4. Research design

The puzzle under investigation is complex and subject to different analytical approaches. Given the contextuality (e.g. varying levels of analysis) and subjectivity (e.g. varying frames) as integral parts of the research topic, it is recognised that the methods and approaches applied have – as any research process – both positive and negative aspects. This section has been written to present the methodological framework across the peer-reviewed articles.

4.1. Methods

The analysis of value orientations and frames has followed an exploratory and interpretive research approach (Yanow, 2000). The purpose has been not only to gain an understanding of the frames associated with different landscape components (e.g. wetlands and the ecosystem concept) as symbols, but also to understand what these context-specific perspectives mean for the landscape (e.g. direct and indirect impacts).

Table 1 below provides an overview of the form of data collection and data analysis applied in each article. Reference to where each methods section can be found in the current text is also provided.

Table 1. Methods in the framework and case study articles.

	Article and level	Methods	Page
Article 1	**Micro case**: Wetland Restoration and the Involvement of Stakeholders: An Analysis Based on Value-Perspectives. Published in Landscape Research.	Bottom-up (inductive) analytical approach: • *Data collection*: Comparative document analysis and a two-page questionnaire to complement semi-structured interviews and group discussions. • *Data analysis*: Interview transcription, categorisation, ranking and clustering.	p. 44
Article 2	**Meso case**: Effects of the manager's value orientation on stakeholder participation: at the front line of policy implementation Published in Water Policy.	Bottom-up (inductive) analytical approach: • *Data collection*: Comparative document analysis, semi-structured interviews & focus group discussion. • *Data analysis*: Interview transcription, categorisation, ranking and clustering.	p. 62
Article 3	**Macro case**: Framing the ecosystem concept through a longitudinal study of developments in science and policy. Published in Conservation Biology.	Bottom-up (inductive) analytical approach: • *Data collection*: Longitudinal and quantitative document analysis consisting of reading and screening each document for relevant key terms. • *Data analysis*: Content analysis of documents, frame typology development based on value expressions extrapolated from the content analysis.	p. 78
Article 4	**Multi-level Framework**: Integrated Framing: Micro to Macro Cases in the Landscape. Submitted to Land Use Policy.	Case study approach: • Synthesis of case specific empirical findings (articles 1 to 3). • Literature review.	p. 93

One central aspect of the methodological framework has been to take what was labelled as a "semi-grounded" theory approach to the extent that this was possible (e.g. Glaser and Strauss, 1967, Strauss and Corbin, 1990, Thomas and James, 2006, Breckenridge and Elliott, 2012). This is in line with notions of interpretive policy analysis. The inductive aspect of the general research approach entered at a later stage of the research process and features most strongly in the micro and macro article. To avoid confusion, it should be noted that the articles were not written in a linear fashion (meaning micro to macro), it was actually the meso article that was put together first. The arguments for taking a grounded approach were to allow the empirical data, rather than theoretical assumptions, to shape the analysis and conclusions. This is used as an argument in the framework article to avoid theoretical tunnel vision and to allow for theoretical and methodological integration. Tunnel vision is seen as the prevalence of a particular theoretical orientation towards the world in both frame theory and analysis. The implication from tunnel vision is a restriction (or essentially a bias) in how data and observations are interpreted.

Some of these distinctions are fine-grained, however, the underlying reasoning for taking a semi-grounded approach is that there is a risk of fitting individuals into categorical boxes they do not necessarily belong to when pre-defined typologies are applied. It may be suitable to use typologies during the analysis, as a form of template or system to understand people, but not during data collection. The benefits of using environmental ethics as part of the analytical framework is thus that it provides another perspective on value orientations and associated typologies. For instance, a semi-grounded approach implied using ethics principles as a descriptive framework when characterising key value statements. This provides a more appropriate understanding of the types of value orientations that dominate a group of people. It is in turn possible to use this contextually specific data to group people and to link them with pre-existing typologies. Arguably this provides a more open approach – focused on contextual specificities – where value-structures are defined after rather than prior to data collection and where more accurate predictions for how people behave is possible.

The methods adopted for the frame analysis have as such focused on inductively understanding and deconstructing the meaning of the frames held by different communities at each respective level of analysis – individual/group, institutional and policy level. The interpretive framework has focused on characterising the complex relationships between the meanings attributed to the landscape at different levels of analysis as well as actions (at the micro level) and implications (at the meso and macro level) for the landscape (as a symbolic object). To make this possible, most of the methods have been qualitative. However, whenever possible, methods have been mixed to improve the robustness of the results (Greene, 2007, Johnson et al., 2007, Morgan, 2007, Buijs, 2009b). For instance, Article 1 combines semi-structured interviews with quantitative data collected through a questionnaire. This provided the basis for a statistical analysis that complemented data from the interviews. Another example comes from Article 3 that developed a frame typology based on a text-based analysis. In this case the extrapolated data were converted into codes that allowed the typology to be based on the numerical prevalence of specific value statements. The prevalence of certain terms (e.g. ecosystem services) were also analysed across the documents. The reason for having both quantitative and qualitative methods within the same research design has not only been to provide more robust results, but also to provide richer and more nuanced data on which to build the frame analysis.

This mix between quantitative and qualitative approaches has arguably strengthened the results, but may also warrant some additional explanation as regards to the use of grounded theory. It should be recalled that the "semi-grounded" approach meant that some pre-defined concepts using environmental ethics were employed during data collection to enable the quantification (see p. 78). This approach is comparable to "data fishing" where the pre-defined concepts were used to categorise and subsequently quantify information that was found in the documents and interview transcripts without actually devising a specific hypothesis or typology in advance.

It should also be noted that frames have been constructed based on disparate empirical materials collected for the case study articles. This is especially relevant as the articles are stand-alone studies, which implies that the empirical data and analytical aspect of each article do not stem from the same sample (e.g. it was only possible to apply random sampling in Article 3). For each level of analysis (micro to macro) its own analytical framework was applied, even though there are common methodological aspects that have allowed for integration. First and foremost amongst these is the analysis of values and value orientation as a basis for describing and reconstructing frames. This part of the frame analysis was inspired in large parts by literature on environmental ethics and its practical utility in defining how people value a landscape (e.g., Kaltenborn and Bjerke, 2002, Buijs et al., 2009, Fischer and Marshall, 2010, Kohsaka, 2004, Holstein, 2006). This novel approach is elaborated in Article 1 (see p. 46), but essentially means using constellations of ethical principles that depict the value orientations held by individuals and groups (or as articulated in policy) towards a landscape component. Secondly, to allow for an integrated approach, the framing process and associated research areas were distinguished into three functional categories (cognitive, contextual and purpose-driven framing) in the framework article (see p. 93). These categories were applied as meta-frames that integrate different theoretical strands that depict the framing process. More importantly, it allowed for an analytical comparison across the case study articles that used the same concepts.

Taken together, this means that while the research process has been largely interpretive and inductive, the use of environmental ethics to categorise value orientations and frames implies some elements of deduction. This has been seen as an iterative (deductive/inductive) process that has required some top-down elements that allowed the analyst to make sense of the collected data from the bottom-up. Having pre-determined value perspectives is the main reason why a fully grounded approach has not been possible. Instead, it is labelled as a semi-grounded approach where value perspectives (or ethical principles) are utilised as a sense-making tool during the analysis. This approach has not limited the investigation but has rather complemented the frame analysis and features as an innovative aspect of the methodological approach in all case study articles.

5. Results and extended theoretical considerations

5.1. Case studies – main results

The intent of this section is not to repeat all of the findings from the case study articles, but to present a brief summary of the main results as in the framework article.[1]

5.1.1. Article 1. Wetland Restoration and the Involvement of Stakeholders: An Analysis Based on Value-Perspectives.

The micro level article demonstrates how landscape frames are typified by values that we have about our environment, society and culture. Environmental ethics provided the opportunity to explore these values and how they interacted with the landscape. What was important for this article was to illustrate how our value orientations can affect the landscape directly and to show that it is an empirical question that can be addressed using environmental ethics.

One key objective was to define landscape frames. In this instance it was found that the individual's moral rationale for restoring a wetland varied significantly depending on the value orientations associated with the landscape. The prevailing landscape frames presented a mixed picture of anthropocentric and ecocentric principles, depending on individual outlooks. These varying outlooks and associated value orientations generated a number of framing effects that influenced how the landscape was framed and how wetlands (as a landscape component) were restored. In essence, it was possible to link frames and value orientations with environmental impacts generated through the restorations process.

Another relevant findings concerned the dual representation of values. This means that several individuals distinguished between professional and personal values. Interestingly the interplay between what was presented as professional and personal values was most often based on contradictory ethical principles. This is somewhat similar to the dual-system frame defined in Article 3 (see p. 80) where opposing value statements are operationalized by the same frame. This indicates that people believe in and support contradictory values depending on contextual factors. The practical implications are that they also supported mutually exclusive management approaches depending on their position (e.g. as a professional or private citizen).

In connection with the use of environmental ethics as part of the frame analysis it was furthermore found that there is a general lack of knowledge as regards to environmental ethics amongst practitioners. More specifically this refers to a lack of understanding about how values affect perceptions and decision-making and demonstrates a general inability to reflect on personal biases generated by different frames. This suggests that an increased awareness (or knowledge transfer) about frames can have a genuine impact on landscape management.

Finally, one central outcome from Article 1 is the development and use of a value-based approach as part of the frame analysis. Using ethical principles to characterise value systems has allowed the study to link environmentally significant behaviours with frames and value orientations toward the landscape. In effect it linked values (as the meaning making process) with actions and impacts on the landscape level.

[1] The reader can find more detailed information on each case in the framework article (see pp. 88-103) and the case study articles (see pp. 40-87)

5.1.2. Article 2. Effects of the managers value orientation on stakeholder participation: at the front line of policy implementation

The meso level article demonstrates that institutions conform to normative expectations - as imposed by policy - while not enforcing new practices if it departs from the institutional frames - as conformed by its employees. The emphasis is on the interplay between individual and institutional frames and the effects this has on landscape-relevant policy implementation. The implication for the landscape is two-fold. At the meso level, institutional frames affect how policies are implemented in the landscape, and at the micro level, individual and collective frames affect landscape management, such as through environmental target setting.

This study found that the project managers personality and aspirations caused them to frame stakeholder participation as either significantly positive or negative (e.g. as loss of power (negative) or as a form of empowerment for the public (positive). These perspectives were translated into individual frames that incorporated a wide range of personal and professional values. The institutional frame was, on the other hand, largely defined by prevailing organisational customs and corporate culture, driven only in part by a policy shift concerning stakeholder participation.

The framing effects (or interplay) comes from how these individual frames were allowed, by the institutions, to be operationalized in the landscape. It was found that personal value orientations affected the project design and management, which in turn affected how stakeholders were involved and, more importantly, how policies and problem areas were interpreted during project implementation. In this case, neither the institutional frame nor policy objectives prevented project managers from operationalizing personal value orientations in practice.

The power of the project managers shows the importance of contextuality. More specifically, the institutional frame reveals the relevance of context-specific factors (e.g. informal institutional customs) in how individual frames (as represented by managers) are operationalized on the ground as well as the integration of collective frames (as represented by stakeholder groups) in the landscape.

5.1.3. Article 3. Framing the ecosystem concept through a longitudinal study of developments in science and policy.

The macro level article focuses on scientific literature and policy documents and how the ecosystem concept - as a landscape component - is framed and how these frames have shaped scientific dialogue and policy making over time. This study allowed the development of a frame typology based on value orientations. The typology illustrates how different frames have altered perspectives of the ecosystem concept. In this case the implications for the landscape are indirect. It is argued that land-use planning and management is dominated by anthropocentric frames that only change if the policy-making process is reframed.

One output from this article is the science and policy frames surrounding the ecosystem concept. Interestingly it was found that the definitions of the ecosystem concept from science and policy reflect value orientations that have been surprisingly stable over the last 80 years, dominated by anthropocentrism. These value orientations were translated into a frame typology consisting of 6 core frames that were seen as stable over time and 14 temporal sub-frames that reflect developments under the core frames. The full presentation of the typology can be found on page 80.

It is interesting to note that the case of the ecosystem concept demonstrates how a term can change from initially being a scientific term to becoming a normative concept. In this case it was found that most policy documents and scientific publications centralise humankind. It was only in very rare cases that ecocentric or biocentric frames were applied. This reflects the value orientations that are an inherent part of the frames that make up the ecosystem concept, which also have policy implications. For instance, the value orientations communicated by academic communities demonstrate that scientists arrive at different positions based on societal and personal values. This affects how the ecosystem concept is interpreted and taken up by policy-makers.

The relationship between how we frame a landscape component and management is indirect in this case study. However, while it is not possible to quantify the physical impact on the landscape, it is argued that frames (individual as well as collective) have an impact that is dependent on social and personal value orientations used to conceptualise and operationalize the ecosystem concept. This is demonstrated by frames in policy documents that are having a direct impact on the landscape, such as those of the convention on biological diversity. Policy frames are value-laden and their link to landscape management shows how framing at the macro level filter down to the micro level.

Finally, the macro article argues for the potential to reframe. It is argued that that the system properties for landscape management will only change if there is a shift (or reframing) of prevalent subframes, under given core frames, in policy. This can be achieved by allowing alternative frames in policy.

5.1.4. Article 4. Integrated Framing: Micro to Macro Cases in the Landscape.

The framework article investigates vertical and horizontal relationships between frames and expands on how framing can have a cumulative impact on the landscape. The micro to macro case study articles are used to demonstrate an integrated approach to frame analysis and the framing process. This is principally achieved through the grounded analytical framework as well as a proposed theory neutral breakdown of the framing process.

In line with the analytical approach that was introduced in the micro case study, the framework article continues to demonstrate the usefulness of environmental ethics to characterise value orientations and frames. It is furthermore argued that the application of a value-based approach within the broader analytical framework put forward helps the analyst to avoid a theoretical tunnel vision.

Part of the reason for taking a multi-level approach was to make inferences concerning framing effects from the macro to the micro level (or the other way around). In a sense this process can be compared to a “value chain” of frames - from upstream to downstream - that is operationalized within the landscape. Links are made between individual frames having concrete and direct impacts on the landscape (Article 1) to more abstract framing effects at the institutional and policy level that are also having an impact on the landscape (Article 2 and 3), even if these later cases cannot be quantified.

The multi-level approach is interlinked with integrating different theoretical perspectives within the same analytical framework. In essence the idea was to allow the analysis to combine several theoretical perspectives to provide a more complete picture of the framing process. For instance, as argued throughout all case study articles, it is not possible to fully understand how frames interact vertically without

integrating concepts and propositions from different theories, essentially disregarding epistemological and ontological differences. It is recognised that this proposition deserves more space which is why integrated framing is discussed in more detail in Section 5.3. However, the main point of the exercise in the framework article has been to demonstrate that there can be significant added value by merging different theoretical perspectives.

5.2. Scientific and practical relevance

This research contributes to a number of areas related to framing research. It has, first and foremost, been a theoretically and analytically oriented thesis. The objective of the theoretical aspects was to develop an integrated approach to framing research and to connect different levels of framing (micro to macro) with the landscape concept and its management. The secondary aim has been to develop an analytical framework that can envelop the respective case study articles and guide the continued analysis of the empirical data, as introduced in the framework article. The later parts of the investigation have been an application of the analytical framework, as applied to the case studies, with the aim to demonstrate its practical applicability and usefulness.

There are also several practical aspects related more specifically to landscape management and the role framing can play therein. One central aspect for this thesis has been that people and institutions in effect meet and interact in the landscape. This can for example be people and institutions that represent different sectoral interests (e.g. agriculture, forestry and energy) that are competing over the same natural resources (e.g. lumber). Gaining a better understanding of how these actors and sectors frame the landscape (including their related perspectives) can help management. This is demonstrated in the wetland restoration case, where an understanding of value orientations would have had a positive impact on project performance (Aggestam, 2014b), or the case on stakeholder participation, where an understanding of how participation is being framed would have called for stricter enforcement of policy concerned with stakeholder involvement (Aggestam, 2014a). Other work supports this notion. For instance, studies by Kaltenborn and Bjerke (2002), Waller (2006) and Howley et al. (2011) demonstrate that knowledge about frames can reduce conflicts over limited resources through the use of reframing techniques, in other cases, Soini and Aakkula (2007), Vugteveen et al. (2010), Jerneck and Olsson (2011) show that projects can be more successful by simply allowing for more informed participatory processes to be designed and implemented. There is consequently significant practical utility in the analysis of value frames and in taking a landscape perspective.

Another reason for putting an emphasis on the landscape has been to move framing research away from a conceptual and often laboratory-based setting[2] (at least on the cognitive side) to become more operational and practically oriented. This has been explicitly called for in a recent issue on framing politics published by the American Behavioural Sciences (Matthes, 2012b). One critical aspect of both scientific and practical relevance has thus been the selection of the empirical environments to be investigated, more specifically, to be able to demonstrate how frames have a concrete impact on a landscape. This is achieved in the micro-level case study on wetland restoration. Given the paucity of research on actual (not presumed) framing

[2] Laboratory-based setting for social science implies in this case its lack of practically oriented research, e.g. developing reframing techniques, and an emphasis on desktop research.

effects in our natural environment, this thesis provides a valuable and relevant contribution to the framing literature, both methodologically and theoretically.

The analysis of individual frames (as done in Article 1), institutional frames (as done in Article 2) and framing in policy and science (as done in Article 3) provided the opportunity to link framing effects at different levels of operationalization (as done in Article 4). This has been the overall purpose of the analytical approach (to separate the framing process from theory) applied in the framework article (see p. 90) and in taking an integrated approach (see p. 93). The key message here is simply that integration allows different theoretical perspectives (often with different ontological and epistemological backgrounds) within the same framework, such as analysing institutional frames as well as policy frames under the same conceptual umbrella. This may not go over to well with people favouring a mono-disciplinary approach, but the explanatory value of integration is significant. It allows researchers to choose the theoretical framework that fits the circumstances and data best. Taking a grounded approach, breaking down the framing process and analysing the main results unburdened by theoretical tunnel visions allows much richer and explanatory conclusions, coming to the heart of the issue.

5.3. Taking an integrated approach

From the preceding sections it is perhaps not clear what frames are now, or were ever intended to be. However, the true strength of the framing concepts resides in revealing general conceptions about how individuals and society works. One of the main propositions coming out from this thesis is that we can learn more about framing by taking an integrated approach. To demonstrate areas where frames are compatible with alternative theories or perspectives. This is not a new or novel suggestion (e.g. Dewulf et al., 2009, Donahue et al., 2011). For instance, in a recent special issue on framing politics published by the American Behavioural Sciences it is argued that framing is in need of an integrated research approach (Matthes, 2012b). The notion of “integrated” framing research presented through a range of articles in this special issue is nevertheless different from the one taken in this thesis. More specifically, the special issue argues that framing research needs to move beyond single case studies to link findings across cases in larger integrated projects. It is suggested that we should pursue integrated models of framing (Matthes, 2012a) and to look at the entire framing process (micro to macro) and not only segments (de Vreese, 2012). This application of the concept makes it important to define what is actually meant by an integrated approach and to define how it differs from non-integrated ones.

This thesis argues that linking different levels of frames (or different steps in the framing process) to larger models on framing is only part of an integrated approach. In fact, the original idea was to link framing research at the micro to macro level, a notion that clearly fits with the above-noted concept behind an integrated approach. However, as the work underlying this thesis evolved, the realisation came that many researchers are also blinded by different theoretical approaches or ideas behind the framing concept. Something that has been labelled theoretical tunnel vision (see pp. 90-93) and that it is this limitation that we must address as a core aspect of an integrated approach. It can be described as a blend between Dewulf’s (2009) “meta-paradigmatic perspective” and Matthes (2012a) call for an integrated model on framing. By not only reviewing framing effects through a wider micro to macro lens, it is important to go beyond mono-disciplinary “comfort zones” and mix different theoretical strands, disregarding conflicting perspectives based on ontological and epistemological differences. Expressed in a different way it is crucial to move beyond the limitations imposed by specific strands of framing research and engage ourselves

in true inter-disciplinary research, such as between the cognitive and constructivist framing concept. Lastly, as a general observation, it is recognised that what was once thought of as a novel idea has often been considered by someone else. An example of this comes from the very same special issue where it is argued that we need to move framing research from the desktop into practice (Matthes, 2012a, Matthes, 2012b). The research in this thesis was inspired by this idea, namely, in the effort to demonstrate direct and actual framing effects in the real world – or the landscape – even though the explicit call for integration by other research communities was found at a later stage of this research process. However, this demonstrates that the propositions are up-to-date and contributes to a wider body of work on frame theory.

It is also relevant to note that the original idea for taking an integrated approach was inspired by classic grounded theory, including the proposition that we should focus less on the nature of the process of research and more on the product (Glaser and Strauss, 1967, Strauss and Corbin, 1990, Thomas and James, 2006, Mutshewa, 2010, Breckenridge and Elliott, 2012). The criteria for good research should be that it makes a difference rather than propagating a specific philosophy of research in advance of the study. Simply put, collecting data for a frame analysis should not be attached to a specific theoretical perspective or methodological assumptions. It is recognised that this is an area that is subject to much debate, especially amongst social scientists that are (almost) expected to be explicit about their philosophical position. For example, the constructivist view is only one way to look at data. There are obviously serious concerns as regards the epistemological and ontological compatibility of different theories that are outside the scope of this thesis (Dewulf et al., 2009). However, the main argument for integration is that we should use whatever perspectives and methods that fit the research process. Results should be considered equally valid even with differing philosophical assumptions as long as the methodological approach can be considered robust and valid. This argument is equally applicable when integrating different aspects of the framing process, to mix complimentary perspectives of the same process that help to improve our understanding.

5.3.1. Re-framing

Integrating different perspectives on the framing process also has its values when considering reframing. Spangler (2003) defines reframing as "*the process of changing the way a thought is presented so that it maintains its fundamental meaning but is more likely to support resolution efforts*" and it is defined by Jerneck and Olsson (2011) as a "*process of shifting one's thinking into a different system and structure of concepts, language and cognitions. It is also clear that reframing can trigger redefinitions of problems, dilemmas or conflicts and thus reveal new facets that may support resolution*" (p.258). In both instances it is clear that reframing is about changing how we perceive core problems and reaching a solution by aligning how people "frame" it. However, while this thesis has not engaged directly in efforts concerned with reframing, it has made inferences concerning reframing in practice (see pp. 56 and 86). The main proposition is simply that reframing can help to solve or address core problems in landscape management.

The present work fits within this broader area of research on reframing as it rather improves our understanding of what frames are and how they can be utilised to change perspectives, it does not empirically test how reframing can be achieved. This is also the case for most of the literature on reframing. For instance, the above noted work by Jerneck and Olsson (2011) utilise reframing, transition theory and transition management to consider and theorise about sustainability impasses (e.g.

cooking for energy and deforestation) but they do not test it. Similarly, Emery et al. (2013) look into interactional processes affecting decision-making in a river restoration project and how reframing can act as a mechanism in environmental conflict management, but yet again, the focus is on reframing as a concept. As a side-note, it is interesting to note that Emery highlights the importance of contextually shaping how information is conveyed. This is comparable to propositions in Article 1 (e.g. concerned with the negotiators communication skills) and arguments concerned with contextuality (or situationality) for the reframing process in the framework article (e.g. as a separate component in the analytical framework). Lastly, reframing has also been a popular topic in climate change research, in particular as a potential tool to make people more "climate friendly". As one recent example demonstrates, Eriksen et al. (2015) argues for the importance of reframing climate change adaptation as a socio-political process. Reframing is described by Eriksen as a form of social transformation where adaptation efforts can be utilised to challenge pre-existing power-relations and help us to "*question subjectivities inherent in discourses and problem understandings*" (p.9). This particular study is part of a larger special issue and as with the previous examples it argues for the potential of reframing without actually testing it empirically.

From this follows that there are several articles that call for more research into the practical application of reframing (e.g. Gilliam and Bales, 2001, Matthes, 2012b, Eriksen et al., 2015) and most study reframing after it has occurred (e.g. Thomas, 2012, Emery et al., 2013) while there are surprisingly few studies that actually attempt to empirically test approaches to reframing. One exception is for instance Asah et al. (2012) who applies both cognitive and interactional reframing (using Q methodology) to reveal consensus areas that allows the problem area for an intractable environment conflict to be analysed and subsequently managed. It is however important to note that reframing was only seen as a diagnostic tool in this study and it was not actually applied to stimulate reframing. As such, one message is that the next step for any research agenda on framing should look more at reframing and how it can be practically applied in landscape management (or other forms of natural resources management). This is something that has been suggested throughout the case study articles and could be tackled in future research projects.

5.3.2. An Integrated Approach to Frame Analysis

Results from the framework article highlight that different aspects of the framing process are prioritised and interpreted differently depending on the theoretical approach taken. For example, the micro case on wetland restoration is clearly subject to cognitive factors that affect how wetlands are framed (e.g. values, beliefs and knowledge), while frames applied during the negotiation process are subject to social construction (e.g. power relations) as well as purpose-driven frames from the political administration (e.g. targets for a cleaner and more diverse agricultural landscape). All interact to generate an impact on the landscape that cannot be fully understood without taking an integrated multi-level approach. To allow for an integrated frame analysis, the framework article suggests that the framing process (and associated research areas) is distinguished into three functional categories – cognitive, contextual and purpose-driven frames. These functional categories can be seen as analytical meta-frames that integrate parts of different theoretical strands to depict the entire framing process.

There are two main aspects to this analytical approach. The first requires that we describe elements that are comparable between each case. This is achieved by defining each case as a separate interaction and by applying the same conceptual structure. For the thesis, this included breaking down the framing process into the

above-noted functional categories. The first of these concerns our cognition (how individuals or groups evaluate information), the second is the context in which people find themselves (e.g. a political rally or reading an advertisement) and the third is the underlying purpose (e.g. the specific intent of the framing process). The purpose here is primarily to argue that by dividing the framing process into three functional categories, it is possible to take an integrated and theory neutral approach.

This proposition is linked to a more inductive and interpretive approach to frame analysis, to avoid focusing on only some theoretical explanations. For example, taking a Foucauldian approach to framing research, the issue of power (e.g. operation, enactment and resistance to power) dominates many analytical approaches. This can be found in the literature on management and organisation, such as Entman (1993, 2007, 2008), who focuses on the power of media in political systems, or more recently by Van Buren et al. (2014), who focuses on power relationships in the climate change debate. Power is also naturally an important explanatory factor. For instance, coming back to the micro case, the negotiator successfully played with power dynamics by setting individuals at ease and making them feel in control during the negotiation process. This purpose-driven manipulation of power dynamics affected the environmental performance of the programmes negatively, while at the same time facilitating stakeholder "buy-in". On the one hand, this illustrates how power can both affect the landscape directly and be used as an analytical tool. On the other hand, by only focusing on power-relations the researcher neglects how different value orientations and historical perspectives (e.g. some landowners remembered a more diverse landscape) dominated heuristics as well as the impact of the communication skills and credibility employed by the negotiator in manipulating the framing process.

It is recognised that the balance between discipline-based and integrated approaches to framing research cannot be fully resolved here. One problem is the difficulties associated with taking an integrated multi-level approach in contrast with the strengths and contributions of monodisciplinary research (see section 5.4). Another problem is that an integrated approach, despite its benefits, requires not only deep-level interdisciplinarity but also structural changes in how research is funded. Funding agencies would have to adopt different structures and procedures to promote this type of collaborative research (Holm et al., 2013). Nevertheless, the main output (and take-home message) from the integrated approach taken in the framework article is that a multi-level viewpoint can help to further framing research and to advance it beyond path-dependent thinking.

5.4. Reflections on the research approach - strengths and weaknesses

The method section (see section 4.1) clarified that the data behind this thesis have been collected in different geographical locations, across different samples (random and non-random) and at varying levels (individuals, groups and policy). This has been done using both quantitative and qualitative approaches each with their own strengths and weaknesses. It is important to reflect on the implications this has on the validity of the findings, methods and the role of the researcher.

5.4.1. Validity of the findings

One reoccurring question throughout the research process has been whether the empirical data and analytical approaches adopted in the framework and case study articles are valid and whether they allow for the direct and indirect connections that are made between the case study articles (e.g. cumulative frame impacts). One way to increase the validity and robustness of the results has been to apply a mixed

method approach. It should however be noted that while attempts were made to integrate quantitative methods during the empirical analysis, the methods that have been used are predominantly qualitative. This opens up for argumentation that the results hide subjectivities and that the interpretive approach does not allow for any definitive truths, such as arguing for representativeness. Arguments that may be hard to refute. It should however be emphasised that landscape frames are (by their very nature) temporally specific and fluid constructs. They cannot be argued as being representative nor that they represent definitive truths, they simply correspond to certain perspectives at specific moments and contexts in time. This can be illustrated by the evolving sub-frames that are presented as part of Article 3 or by the individual frames presented throughout Article 1 and 2. In the later case, these individual frames were derived from small samples (e.g. Article 1 was based on 32 participants), which imply that they are representative of how these specific people have framed different landscape components, but not the wider public. Having said that, the respective forms of frame analysis are considered to be valid and robust based on the peer-review process that each methodological section has undergone. It is simply the type of context-specificity that any research project of this type would have to address.

Linked to methodological validation is the issue of generalisation. More appropriately the question is whether the results are transferable or applicable to other situations and contexts. It is recognised that the empirical results, as composed out of semi-structured interviews and written documentation, cannot be generalised across populations, in particular as each case study sample is limited and contextually specific. To demonstrate this, Article 1 makes inferences concerning different landowners, their value orientations and how these influence wetland restoration while Article 3 assumes that the random sample of scientific and policy documents are representative. These analytical restrictions do not affect the validity of the findings but only the extent to which the results can be generalised. Ultimately, the empirics do tell us something about how people make sense out of a landscape and how this shapes actions that are taken, whether this is universal or not. More importantly, the main argument is that generalisations contribute to a wider theoretical framework and its continued development. The results that come out of this work fits and complements previous findings and investigations into the human-landscape relationship and also make suggestions for how future research effort may look or be improved.

5.4.2. Methods of analysis

It remains to ask whether the analytical framework that guided the choice of methods have been fruitful or not, in particular as there are many ways to investigate frames and the framing process. One already noted shortcoming has been the lack of a direct empirical link between the case study articles. This is addressed through the added layer of analysis in the framework article, but it is recognised that the case studies themselves have affected the types of questions that were asked in the respective studies. This is seen as both a strength and a weakness of the present work. In the stand-alone publications, the research approach used at each level of analysis has held the advantage that empirical data were analysed more freely, yet the cases do not allow for cross-validation in terms of reconstructing framing effects between levels.

Playing the devils advocate, another analytical framework applied across the empirical examples could have generated other types of insights and results, but this might have also lead to different forms of research questions. This is arguably a minor weakness, but the multi-level source of empirical information has improved the

quality of the research process and has provided clear arguments for framing effects at each level. The clear and isolated case study examples at different levels of operationalization demonstrate the benefits of looking at frames from a micro to macro level and highlight that each level of analysis can bring important perspectives into the discussion. Used together the case studies strengthen and validate the overall findings. It can also be noted that not much research has been done in this way as the comparative component is difficult to emplo.

Ultimately, methodological choice corresponds to a form of boxing in, categorising and simplifying an external environment to explain a phenomenon. Just like a frame! For this reason, the process of analysing empirical cases also limits the conclusions or inferences that can be made. For instance, there has been a focus on value orientations throughout the framework and case study articles, often used synonymously with the framing concept. The benefits of doing this are noted in Article 1 (see p. 46), but the point to raise here is that the focus on values can limit the framing process to value frames. This was also emphasised by Yanow (2000) as "*frames direct attention towards some elements while simultaneously diverting attention from other elements*" (p. 11), which is applicable not only in how frames are used by people, but in limiting (or boxing in) the analysis and shaping (or categorising) how data are presented to the reader. The approach taken for the frame analysis is consequently a compromise (or balance) between identifying a meaning at different levels of interpretation and accommodating multiple perspectives within an analytical framework that makes sense. It is a compromise that has enabled the analyst to look into the relationship between value orientations, frames and landscapes. As called for at the onset of this thesis (using the landscape picture) the principal aim is achieved in that the frame analysis improves our understanding of individual, institutional and policy frames, how they are attributed meanings and how these in turn influence landscapes.

5.4.3. The role of the researcher

In addition to being largely qualitative and inductive, the research process has been designed and implemented by one researcher. It has not been a participatory process (e.g. cooperative inquiry) but it has been subjected to supervision and external review. This implies that the frame analysis and results have been validated, but that the potential influence from the researcher may be substantial. It is for this reason recognised that the researcher has a set of values and beliefs (or frames) through which all the data have been digested, interpreted and later published. Arguably it is impossible to avoid that different perspectives enter the type of qualitative story that is being told throughout the articles and this thesis. It is part of the whole framing concept in a way. This issue has been acknowledged from the very onset of the research process and steps were taken to minimise biases during data collection and analysis. One step was, for example, to engage in continuous reflexivity (e.g. critically examine the findings) and engaging in a dialogue with colleagues (peer validation) having an outside perspective. The peer-review process is also seen as part of a broader review where the methods and results have been scrutinised by external researchers. This has been the strategy to avoid prejudging the results and to bring out biases during data interpretation.

Utilising a (semi) grounded theory approach to collect and analyse data has also been seen as a method that helps to uncover and reconstruct value frames as well as avoid biases. For instance, the screening process applied in Article 3 (see p. 78) was a progressive and iterative procedure where codes were assigned depending on the findings (e.g. thematic focus), which in turn provided the basis for developing a frame typology. Mixed methods were also applied when possible (Greene, 2007,

Johnson et al., 2007), if not in a strict methodological sense. For instance, the frame analysis in Article 1 was based on both a questionnaire and semi-structured interviews (see pp. 46-47). Thus, by having two types of data (quantitative and qualitative) for the analysis, it was foreseen that any social factors between the interviewer and interviewee was minimised, such as skewed accounts given due to the interviewers frames. The argument here is simply that data collection was free (as far as possible) from having any preconceived notions of what was going to be found and that the researchers role was addressed throughout the case study articles.

Finally, it should be re-iterated that being entirely objective in a principally qualitative research project is near to impossible. This is supported by one finding put forward in Article 3 (see p. 83), namely, that the scientific community (including the researcher) does not shy away from articulating value preferences, even if it this is not made explicit or intentional. This is reflected in some of the discussions and argumentation put forward, such as statements linked to how reframing techniques should be applied to improve biodiversity conservation. Even if it is not explicitly stated in the article, this is a clear value statement. The only thing that can be done is to recognise these inherent restrictions and to take as many steps as possible to avoid subjectivities and biases, as well as to continuously and critically examine the research process.

6. Final Conclusions

The first chapter started with a brief introduction to the research questions and structure of this work, including an introduction to the articles that make up the backbone, so to speak. It was explained that the framework article was an integral part of this process as well as having been originally foreseen to be integrated into the body of the text. The reader is as such encouraged to review Article 4 (see p. 88) as a complement to the work presented throughout the preceding sections.

However, let us briefly return to the landscape picture at the onset of this thesis. Its main purpose was to make you - the reader - consider the link between frames and the impact your frames can have on a real environment, utilising the landscape concept to emphasize different framing effects. This provided the backdrop to introduce the idea that frames play an important role in landscape management and that effects from landscape framing warrants additional studies and research. To address this overarching objective, the three case study articles presented and analysed to demonstrate framing effects at different levels of operationalization. The purpose of the articles, in part, to show measurable impacts of framing on the landscape, at a micro level, and more intangible framing effects, at a meso and macro level. The idea behind this multi-level approach was to distinguish, if not quantify, the cumulative impact of framing and to discuss an integrated approach to framing research.

The innovative aspect of this approach has been the attempt to connect results from the micro to the macro level, ranging from value frames in science and policy (macro level) to institutions and policy implementation (meso level) to individuals and interest groups affecting project implementation (micro level) in the landscape. The objective for the multi-level synthesis - as part of the framework article - has been to argue for an integrated approach to framing research, combining different theoretical perspectives and landscape levels. This is a novel suggestion for being “integrative” in that it combines the physical landscape (e.g. distance from the landscape) with a theory neutral (or grounded) approach to framing. To provide a better sense for why this was done, the sub-sections below will first deal with the implications this may

have for landscape management followed by the theoretical and analytical contributions of this work.

6.1. Governing the Landscape

The three case study articles deal with different topics and levels – wetland restoration, stakeholder participation and the ecosystem concept – and they demonstrate the power of frames and how framing influences the landscape, be it directly or indirectly. Interestingly, the cases reveal both horizontal and vertical framing effects. This can be demonstrated by using the ecosystem concept and how this concept is operationalized in the landscape (as in Article 3). In more simplistic terms, this process would first be subject to macro-level value frames conveyed through scientific literature and policy documents (e.g. guidelines and legislation). Consider for instance the concept of payment for ecosystem services. This concept would be taken up at the meso level by institutions and individuals that impose their own frames on the policy implementation process. For example, project managers can attempt to minimise the impact from policy on their work (as in Article 2). In turn, individuals at the micro level that are affected by the "new" payment for ecosystem services concept would also attempt to influence the implementation process through whatever contextual means are provided to them. This could be through participatory processes or negotiations organised by implementing agencies (as in Article 1).

These framing steps are comparable to an industrial value chain, where frames would correspond to different levels of processing, and where each level of processing is influenced by the frames that are passed on from the preceding level. Ultimately, at the end of the value chain, the way we frame the ecosystem concept would be dependent on the earlier steps in the value chain, such as the transformation of a landscape due to the monetisation of certain ecosystem service. The key message here is however that the impact on the landscape may be very different from what was originally intended or conveyed at the macro level. This comparison is of course a simplification – as our natural environment would not only be affected by frames that filter down the value chain – but would also be subject to frames that travel upwards or even sideways along different value chains. Nonetheless, the point is simply that frames interact across levels and can have a cumulative impact on the landscape.

Taking this into account, the case study articles improve our understanding of "how" individuals and collectives value different landscape components and "what" this implies for project implementation in a multi-level landscape. Knowledge about value orientations can be applied to improve stakeholder participation, develop incentives that help to engage or even reframe stakeholder perspectives, improve the deliberative scope of projects that are implemented in the landscape and improve the institutional uptake of new practices. This is not an exhaustive list of examples but merely meant to point out that the results have wider practical relevance aside from their theoretical contributions. Ultimately framing research can be used in any form of natural resources management even though the focus has been on the landscape in this thesis.

Increased knowledge about how we frame a landscape can have numerous positive effects and support the management of complex environmental issues. This is however not a novel suggestion. It is for example commonly recognised that broader, more inclusive, participatory management of natural resources can generate many economic, environmental and social benefits (Keeney, 1996, Schultz and Zelezny, 1999, Brody, 2003, Reed, 2008). Stakeholder participation, in and by itself, is a form of recognition of the power of frames and framing research (Dewulf et al., 2004). The

main contribution from this work rather comes from the suggested interconnections between frames and levels within the landscape itself. By taking a birds-eye perspective – or multi-level approach – to consider landscape framing, it is possible to consider the effects of frames in new and interesting ways. For instance, frames that are articulated through scientific publications affect how landscapes are framed in policy, which affect institutions and companies, and then the individuals that live and physically interact, directly and indirectly, with the landscape. This complex web of frames is a continuously shifting and dynamic system that make up parts of our social fabric. The shift from a single to multi-level perspective on frames helps to disentangle this process, which could lead to novel ways in which framing (and reframing) can be utilised to improve landscape governance. At the very least it can make us think outside the box and help to find new solutions.

6.2. Theoretical and Analytical Contributions

Another objective has been to develop a framework of analysis that allows us to break down the framing process despite different data sources and to explore its usefulness as part of a broader perspective on frames and framing. Underlying the design of the analytical approach in the framework article was the desire for an approach that can divide the framing process into functional categories – defined in this case as cognitive, contextual and purpose-driven framing – that allows theoretical integration. These categories are basically seen as neutral "meta-frames" that can integrate different theoretical strands to depict the framing process.

In short, the integration entails dividing the framing process into three components that can be used to characterise any type of interaction we can find ourselves in, namely, our cognition (e.g. based on predefined physiology and experiences), the social and physical environment we are in (e.g. classroom setting), and the type of interaction (e.g. student presenting his doctoral thesis).

This allows us to think about the framing process through different theoretical approaches, with varying ontological and epistemological backgrounds, to provide a more comprehensive picture. For example, when the "nervous" student has to defend his/her doctoral thesis, the aim of the interaction would be to persuade his/her peers that the work is of sufficient quality to pass, which is essentially a process of **purpose-driven framing** and possibly even re-framing. However, success would be dependent on **contextual factors**, such as the power-relationship between the student and professor and the physical setting (e.g. impact from the audience) as well as the student's **cognition**, such as the student's level of knowledge and predispositions. On the one hand, the interaction itself enables us to think about temporally specific and "constructed" frames that are unique to the time and place and, on the other hand, it also allows us to think about the individual's inherent "cognitive" abilities that affect the outcome of the interaction. This way the analytical approach integrates fundamentally different theoretical perspectives that are combined to provide one picture (see p. 99).

Thus, on a theoretical level, the analytical approach allows us to move away from a mono-disciplinary approach to the framing process and in practical terms facilitate different theoretical explanations at different levels of operationalization. This interdisciplinary take has included disciplines such as cognitive and social psychology, environmental ethics, sociology and political science. However, the multi-disciplinary form of analysis is by itself not a new theoretical approach to framing, simply the integration of several categories stemming from different disciplines. It may be argued that the main contribution from this work is more analytical and not theoretical, even though the results have theoretical implications.

More specifically, the analytical approach was utilised to guide the horizontal integration of the case study articles, focusing on a multi-level synthesis of framing as outlined in the framework article. However, we often hear, not only in academic circles, that you cannot compare apples and pears. The argument here is nonetheless that this is somewhat of a fallacy. Even though the apple, nor the pear, would agree to this, they share many characteristics that can be extrapolated and compared if you take a macro perspective. The term for this is integration. The same argumentation is applicable to the framing process, meaning that there are several aspects from all theoretical perspectives that can be considered together. Perspectives that may seem conflicting due to their ontological and epistemological background but that in fact are complimentary. The main work has as such not been about extending theory as much as it has been about arguing for the complementarity of different theories.

Two additional questions would be relevant to address here. First, whether the analytical approach has in fact been useful to clarify the framing process, and second, whether it actually contributes to frame theory? The answer to these questions would be that the analytical framework has provided a conceptual structure without being "clouded" by theoretical assumptions. It has practical utility as an analytical approach in that it can depict the framing process and at the same time illustrate the cumulative impact of framing despite different levels of analysis (individual, institutional and policy). This implies that it has been useful on a pragmatic level. It has furthermore made it possible to have a discussion on how framing research can be integrative. The main proposition coming out from the framework article is that we need to take a grounded approach to framing and avoid focusing on only some theoretical explanations. It is argued that there is great value in theoretical diversity, especially when applied to a theoretical "meta" concept like framing. For these reasons, it is argued that the ambition to construct a functional approach for a value-related frame analysis can be considered as an achievement. Moreover, the value-related frames in the case study articles have been used as a point of departure for expanding on what can be considered as integrated frame theory and to expand on the concept of multi-level framing.

There are, of course, certain limitations to this approach and the results that should be recognised. For instance. this work cannot resolve whether a discipline-based or an integrated approach to framing research is "better". An integrated multi-level approach as well as monodisciplinary research has distinct benefits when studying the framing process. Distinct theoretical approaches do as such have their benefits and limitations in the sense that they project one way of seeing the empirical material at the expense of other perspectives. Furthermore, a certain degree of caution needs to be taken in drawing broader conclusions. For one, there is no empirical link between the case study articles, meaning that the framing effects demonstrated in the macro case cannot be linked with the effects discussed in the micro case. This is in part also due to this research being project based. However, even if an empirical link can be established, it would be nearly impossible to definitively argue that policy frames influence individual frames in one way or another. The range of factors that affect our heuristics (either as groups or individuals) can not be simplified to that extent and, even more, most framing research is by nature qualitative and subject to subjectivities (Donahue et al., 2011, Van Gorp, 2010).

Nevertheless, the main purpose has been to demonstrate that frames can be linked and operationalized in complex natural and social environments and to argue that a multi-level synthesis of the framing process cannot be achieved without integrating different theoretical perspectives and levels. Dissolving boundaries between different levels of analysis through the use of an integrated framework of analysis guided by

overarching categories stemming from different disciplines allows new perspectives on how values and frames are interconnected. It essentially enables us to connect the dots, so to speak. Moreover, taking a birds-eye perspective brings additional insights that may open up new avenues for research into frames and framing.

The findings that come out from the case study articles, and the application of the analytical approach, is in line with the literature. For instance, Article 1 demonstrates that landowners (or farmers) in this case had anthropocentric perspectives, often focused on stewardship, such as wanting to maintain a productive landscape. These findings are similar to Soini and Aakkula (2007) work on values and framing and the different values and perspectives attached to the biodiversity concept that they revealed. Even more, Soini and Aakkula demonstrated the importance of pre-existing knowledge (e.g. farmers' knowledge system) and value systems (e.g. aesthetic values) in how landscapes are perceived and in how they can be managed, which also fits with the overall picture that emerge from Article 1.

The use of ethical theories in Article 1 and 3 provided the foundation for prescribing values to the landscape. Significant dissimilarities in landscape preferences were found in these cases, such as a preference for a natural versus managed landscape based on group-dependent cultural differences and prevailing frames within the respective groups. These findings are similar to Buijs (2009a) study on variations in images of nature (wilderness, functional and inclusive images) and landscape preferences (e.g. a "wilderness" image focusing on ecocentric values and the independence of nature), based on varying cultural backgrounds. The use of environmental ethics is also similar to the approach adopted by Howley et al. (2011) in their work on landscape preferences that demonstrate systematic differences in preferences associated with farming landscapes. Amongst other things, they highlighted the importance of considering the heterogeneity of landscape preferences. This assertion is also in accordance with the notion put forward in this thesis and the need to account for value frames in landscape management.

Coninx et al. (2015) work on ecosystem services and collaborative landscape planning is another article with similar ideas. This study characterised three types of frames and tested their use in landscape planning. The main proposition to use information on frames to affect environmentally significant behaviours is in accordance with the suggestions made in this thesis. The practical use of frames in landscape management represents a potentially powerful tool for the practice community. Coninx et al. proposition to break down the framing process into attitudinal, sender–receiver and contextual factors is also quite similar to the analytical framework put forward in the framework article.

These results from the literature serve to demonstrate that this thesis is largely aligned with previous research efforts. More importantly, it makes it evident that there is a need for integration, for practice (micro to macro level) and theory. Coming back to the benefits of taking a birds-eye perspective, this work fills a gap by providing a comprehensive overview of the framing process, from the macro to the micro level.

Finally, as for any research process, there are several new and interesting questions at the end of this work. In many respects it has only been possible to scratch the surface in this area of research, and there are many avenues of questioning that deserve attention in the future. In an attempt to recognise some of these areas, the next section will present possible research topics that can build on the results and propositions made in this thesis.

6.3. The Way Forward

There are at least essentially three areas that would warrant additional and continued research:

1. **Explore the added value of an Integrated Frame Theory**: The concept of integrated framing deserves more attention, in particular, expanding on the notion of integration developed here (as well as elsewhere) and consistently investigating the added value (theoretical and practical) in pursuing an integrated approach to framing. This would require a project that can concretely connect case studies (horizontally and vertically) under the same analytical framework and to explicitly consolidate the wide range of ontologically and epistemologically different approaches to frame analysis and theory. Combining concepts and propositions from several existing theories into a single set of integrated concepts and propositions, or a "macro" frame if you so wish, could be of great value. This should involve looking into commonalities across theories even more closely and address some of the limitations of taking a multidisciplinary approach. This may ultimately provide an alternative strategy for theory development.

2. **Develop a Frame Typology Database**: Many studies have focused on developing (ex post) frame typologies together with associated behavioural frameworks (e.g. Levin et al., 1998, Shmueli et al., 2006, Buijs, 2009a, López-i-Gelats et al., 2009). The body of work presented here is not an exception to this trend. It is however commonly noted that knowledge about frames has a functional value in landscape management (or other forms of natural resources management). What is lacking is a useful tool for practitioners that would allow them to easily distil information about conflicting frames and likely behavioural responses from stakeholders. One approach to resolve this issue would be to interlink the application of participatory tools with the development of a database of frame typologies. The development of a frame database would in principle aim to collate as many different types of value frames as possible from the literature, including the identification of different types of related behaviours and project specific (contextual) factors. This could be utilised by practitioners to delineate prevalent types of frames in accordance with their own project specificities and assist in identifying appropriate managerial actions, not in a prescriptive but advisory fashion. This type of database could also serve research as it would allow the comparison of cases across regions, geographical boarders and topics, as well as broaden the focus of qualitative framing research that is usually geared towards the study of small populations.

3. **Consider Reframing for Practice**: Arguments have been made throughout the four articles and of this thesis as regards to the potential value of reframing for the practice community. Even though this was not explicitly studied, it was noted that most studies explore framing after it has happened, accompanied by a repertoire of how's, why's and don'ts. The same is also the case for the work here. Reframing is in fact a very difficult process to capture in action, which explains why it is most often studied after it has occurred. There is nonetheless potentially a great value in reframing, especially as a tool for conflict resolution (Proctor, 1998, Lewicki et al., 2002, Dewulf et al., 2009, Buijs et al., 2011, Shmueli, 2008). The potential of reframing in purely practical terms should for this reason not be overlooked. It would make sense to empirically use approaches to reframing in different participatory processes linked to the substantive body of work done on stakeholder participation. This could help to determine whether reframing has something more to offer other than being a nice conceptual idea.

7. Case Study Articles

Following below is first the framework article followed by the 3 case study articles that have been written as a core part of this thesis. Article 4 has been placed first simply because it is the framework article that connects the three case study articles.

7.1. Article 1. Wetland Restoration and the Involvement of Stakeholders: An Analysis Based on Value-Perspectives

Wetland Restoration and the Involvement of Stakeholders: An Analysis Based on Value-Perspectives

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ABSTRACT *This work represents an analysis of the values that underlie our perception of nature and how these interact and influence wetland restoration. The focus is on the restoration of wetlands along Kävlinge and Höje Rivers in Sweden. Applying environmental ethics as a framework, the study addresses the difficulties that may arise when a project is dependent on voluntary stakeholder participation. The values and preferences of 32 individuals concerning programme objectives and implementation were captured through a review of project documents, a questionnaire, interviews and group discussions. The results suggest that the participants' values not only differ in terms of how they perceive nature, but also in terms of the importance and function associated with wetlands and the agricultural landscape. Despite the successful construction of a number of wetlands, value-based differences caused the administration to make compromises that reduced the programmes' environmental impact. It is argued that a better understanding of ethics and the interplay between professional and personal values on decision behaviour should be utilised when engaged in the management of disparate stakeholder groups and the development of incentives for participation.*

KEY WORDS: Stakeholder participation, value-systems, project management, ethics

1. Introduction

The benefits of making stakeholder participation an integral part of project management are today well established, especially when it is used as a tool to assist in decision-making and to help stakeholders reach a common understanding (Reed, 2008; Reed et al., 2009). These benefits can relate to the incorporation of expert and experiential knowledge (Failing, Horn, & Higgins, 2004; Primmer & Karppinen, 2010), awareness raising (van der Windt, Swart, & Keulartz, 2007) or social learning (Schusler, Decker, & Pfeffer, 2003). Stakeholder participation is thus important for projects that have to interact with the landscape and that require cooperation and communication between disparate stakeholder groups (Amérigo, Aragonés, De Frutos, Sevillano, & Cortés 2007).

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Stakeholder participation can also, however, hamper the management of a project by interfering with the communication between stakeholders. Participation can in effect become the root cause of a conflict for a project. Conflicts are more often than not a result of diverging values and normative orientations between stakeholders (Nordlund & Garvill, 2002; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). There is, in addition, a broad spectrum of socio-economic factors that can have an impact on the relationship between humans and nature, such as personal experiences and knowledge (de Groot, 2012) and land use perspectives (Groot et al., 2007). All these factors can affect landscape preferences (Kaltenborn & Bjerke, 2002) or our image of nature (Buijs, Elands, & Langers, 2009) and in turn influence how the landscape is managed.

This paper seeks to explore the human–nature relationship in the context of wetland restoration, and specifically how value orientations can shape the restoration process through a case study of the Kävlinge River and Höje River programmes (hereinafter, the 'programmes'), which were responsible for restoring wetlands in southern Sweden (Söderqvist, 2003). This is a particularly interesting case study, as the programmes depended on voluntary stakeholder participation, which meant that the restoration process relied on voluntary contributions from landowners in the region (Lindahl & Söderqvist, 2004). It is presumed that this model increases the impact of the landowner's value orientation on the restoration process (Buijs, 2009; Groot et al., 2007). As the programmes' operational aim was to maximise environmental benefits, this provides a suitable framework through which the interplay between humans and the landscape can be analysed.

This paper will not investigate the restoration process per se, but focuses instead on how stakeholders influence the landscape and the value assertions that have framed wetland restoration. Using quantitative and qualitative techniques, the study aims to elicit value orientations from the groups that were involved in the restoration and/or construction of wetlands. The participants were chosen to demonstrate the interactions between the different stakeholder groups—landowners, consultants, researchers and NGOs, and the public administration—politicians and civil servants.

Two research questions drive this study: i) whether the stakeholders, as individuals or groups, differ in the values they associate with the programmes' objectives, and ii) whether any differences between stakeholder value orientations influenced the wetland restoration/construction process. These questions exemplify the story of who we are in relation to one another and the environment. The emphasis is on discussing the value-based (and ethical) dimension of wetland restoration and the implications this may have for stakeholder participation in the landscape.

2. Applying Environmental Ethics to Stakeholder Values

To explain how stakeholders value wetlands, three frames based on environmental ethics are used to describe the value systems involved and correspond to how stakeholder values characterise wetland restoration (Buijs, 2009; Vugteveen et al., 2010). The field of environmental ethics has been used for the framing process, as it can be used to define conflicts of interest (e.g. monetary) and value conflicts (e.g. normative) that stem from the human relationship with the landscape (Frankel, 1996). Ethical principles reflect the values that define how wetland restoration and the programme objectives are conceptualised (Chae, Paradice, Courtney, & Cagle, 2005).

Before defining any frame, however, we need to explain what is meant by values, particularly as values are prominently discussed in the literature, where they are defined in many ways and ascribed various effects. This work follows Meglino & Ravlin (1998) in their definition of values as the building blocks of an individual's internalised beliefs about how they should behave (or their value orientation). Values are basic components of beliefs that contribute to the formation of an individual's value orientation (Kaltenborn & Bjerke, 2002). In turn, value orientations affect the interpretation of experiences, facts and events (Stern et al., 1999), and the motivational structures (e.g. preferences and perspectives) that form the basis of how we make decisions (Bruno & Lay, 2008). It is, for instance, expected that the landowners' value orientation will influence the demands they make on the restoration process (Amérigo et al., 2007; Buijs, 2009).

Ethical principles are compatible with values that we apply to the landscape and can be used to characterise the value orientation that a person would use to make a decision (Kaltenborn & Bjerke, 2002). Each principle emphasises a different value that can demonstrate variations in how the landscape is perceived (Frankel, 1996). These principles are also part of the ethical theories (or frames) used in this study's analysis, namely, *anthropocentrism*, *ecocentrism* and *biocentrism*. Briefly, *ecocentrism* is the belief that ecosystems and concepts, such as a species, have intrinsic value and this alone is reason to protect the environment. *Anthropocentrism* is the belief that the environment is important due to its benefits for humankind. *Biocentrism* is the belief that while all animals and plants possess intrinsic value, non-living objects and concepts, such as an ecosystem, do not (Bjerke & Kaltenborn, 1999; Ehrlich, 2003). Although the debate over whether humans or non-human entities have intrinsic value cannot be summarised here in brief, more extensive reviews are available in Amerigo et al. (2007) and Kortenkamp (2001).

Rather than using a predefined scale for values, such as Dunlap's New Ecological Paradigm Scale of (2008) or Mayer and Frantz's Connectedness to Nature Scale (2005), the use of ethical principles here opened up this study to a grounded approach to the characterisation of value orientations (Thomas & James, 2006). To illustrate, Figure 1 presents a basic constellation of ethical principles that correspond to the values held by three individuals. These constellations allowed the characterisation of the i) type of frames and ii) value orientations that affect wetland restoration. The frames (or ethical theories) are value systems made up of ethical principles, while value orientations represent specific ethical principles on which individuals (or groups) either agree or disagree (Nordlund & Garvill, 2002; Spash, 2000). Other examples of how the general public assigns values to nature can be found in the work of Miller, Minteer, and Malan (2011) or de Groot (2012).

As different frames can produce the same value based conclusion on a restoration objective, value orientations are central to the analysis in this study. As both anthropocentrism and ecocentrism can argue that biodiversity restoration is 'good' (Buijs et al., 2009; Failing et al., 2004), the issue is not 'if' the restoration objective is intrinsically good or bad, but 'how' it should be achieved and the pre-ordained consequences of such an approach (Schultz & Zelezny, 1999; Stern et al., 1999). For example, an anthropocentric approach could favour a technocratic solution that has a strong focus on the potential benefits to humankind, while an ecocentric approach could argue for a return to a pristine environment free from human influence. Value

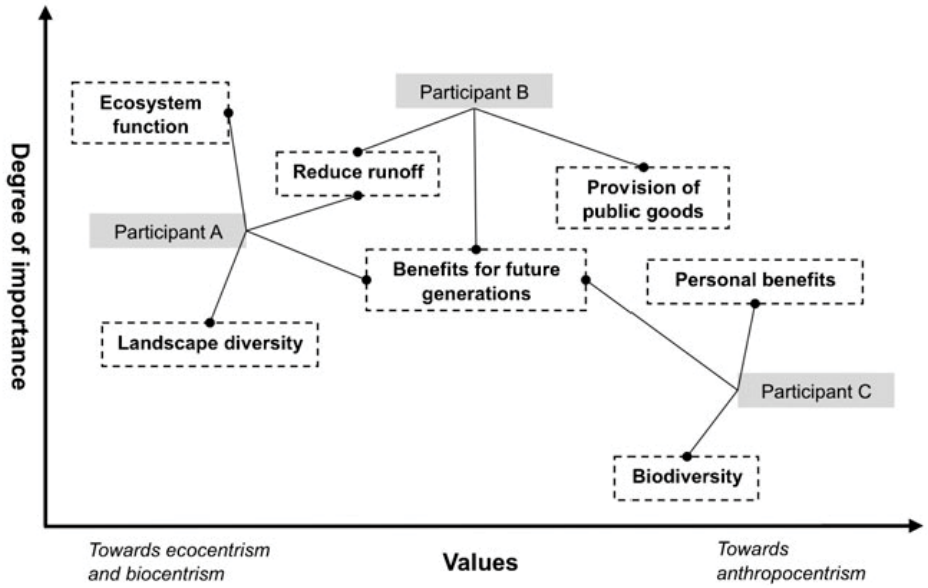

Figure 1. Hypothetical illustration of values associated with parts of a wetland (e.g. biodiversity).

orientations are, viewed in this way, vital to an understanding of the diversity of values that can lie behind a restoration objective, particularly as this same diversity can become the basis for conflict (e.g. environmental vs economic interests) that restricts the operational options for a programme, such as the how wetlands should be designed (Frankel, 1996; Primmer & Karppinen, 2010).

2.1. Conceptual Model: Environmental Ethics to Evaluate Programme Implementation

The conceptual model in Figure 2 shows how values can interact with an individual's motivational structure (e.g. preferences and perspectives) for restoring a wetland. Value orientations restrict the range of operational options available to the programme, while the restoration process itself may in turn influence the individual's values. Value-based differences (whether in conflict or unity) can improve or undermine a project's performance (Reed, 2008; Reed et al., 2009) and either increase or decrease its environmental benefits. These types of value-based limitations become particularly apparent when operational options are restricted by other factors, such as funding or time.

In order to analyse and map value orientations a grounded approach is required (Thomas & James, 2006). This should be used to identify any value-based conflicts and to find ways in which the communication between stakeholders can be improved. Used in this way, a grounded approach may help to reveal the values and ethical principles that motivate wetland restoration. More importantly, the majority of work on the human nature relationship is based on preference elicitation surveys that do not provide a causal link between value orientations and effects on the landscape (Kaltenborn & Bjerke, 2002). The suggested grounded approach, used empirically, can, however, demonstrate the impact that value orientations have on the landscape.

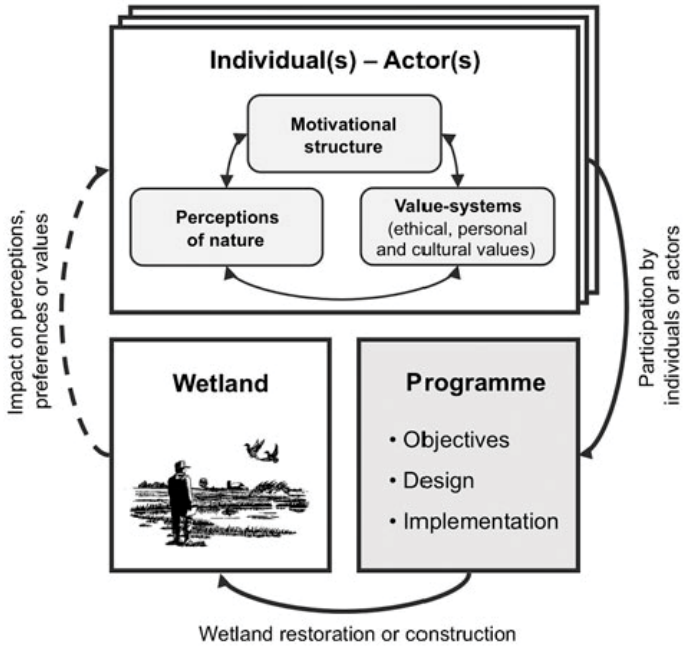

Figure 2. Conceptual model: Impact of values on wetland restoration.

Value orientations are only one aspect of stakeholder participation and represent only one of a range of factors that define an individuals' motivational structure. According to Stern et al. (1999), four types of causal factors influence decision-making behaviour; attitudinal and contextual factors, personal capabilities, and habits/routines, which means that socio-economic factors (e.g. education and social status) interact with the stakeholders' decision-making behaviour (Buijs, 2009; Failing et al., 2004). The focus of this paper is, nonetheless, on the interaction between value orientations and the environmental performance of the programmes. Effects driven by other socio-economic factors will only be considered when relevant to the overall objectives of the study.

3. Materials and Methods

3.1. Study Area

This study covers two catchment areas: Kävlinge River and Höje River in the county of Scania in southern Sweden (see Figure 3). These two programmes were launched Kävlinge in 1995 and Höje in 1991 to reduce nutrient runoff into the Baltic Sea (Söderqvist, 2002). Both programmes were catchment-based and included the entire drainage basins for both rivers, making them compliant with the EU Water Framework Directive (Lindahl & Söderqvist, 2004; Turner, Van Den Bergh, & Brouwer, 2003), even though the Directive was adopted after the programmes were launched. The programmes aimed to restore, or rehabilitate, wetlands and to construct new wetlands, ponds and riparian zones and thus reduce the inflow of nutrients into rivers and lakes (Turner et al., 2003) and contribute to Sweden's long-term objective of reducing nutrient runoff from the agricultural landscape (Ekologgruppen, 2003; Lindahl &

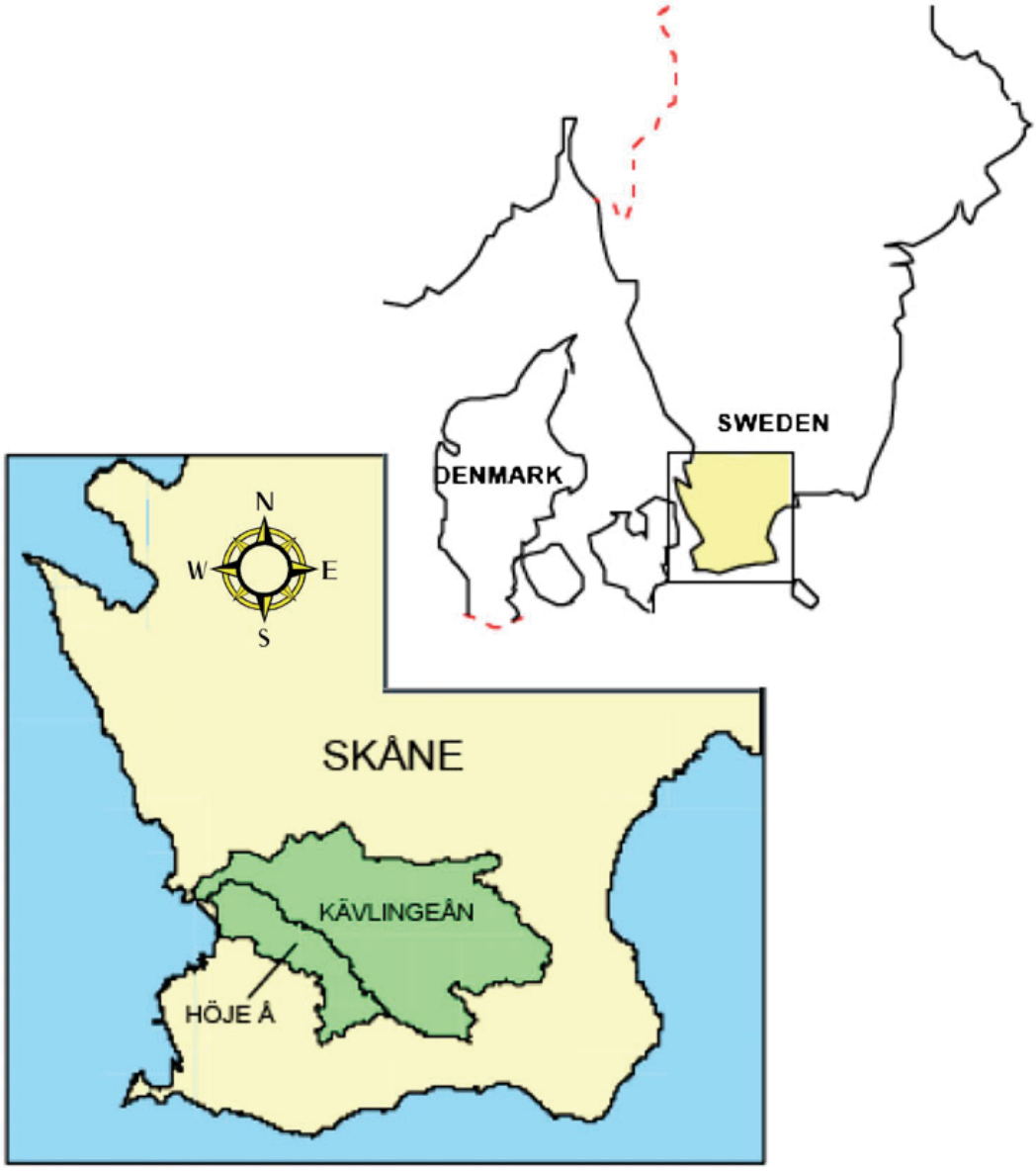

Figure 3. Kävlinge River and Höje River (source: http://www.ekologgruppen.com).

Söderqvist, 2004). Land use in the two catchment areas is dominated by farming, making the programmes dependent on the voluntary contribution of land from large to small-scale farms in the surrounding area. Around 200 hectares of wetlands and/or ponds, as well as 217 hectares of buffer strips, were restored or constructed over a total drainage area of 1516 km^2 (Ekologgruppen, 2004, 2007).

The operational objectives of the programmes were to: 1) reduce nutrient runoff, 2) improve water quality, and 3) increase biodiversity in intensively cultivated farmland. An additional and fourth factor driving the programmes was the desire to increase recreational opportunities (Söderqvist, 2002, 2003). While a hierarchy of objectives was not drawn up, out of the four, the most important objective was to reduce nutrient

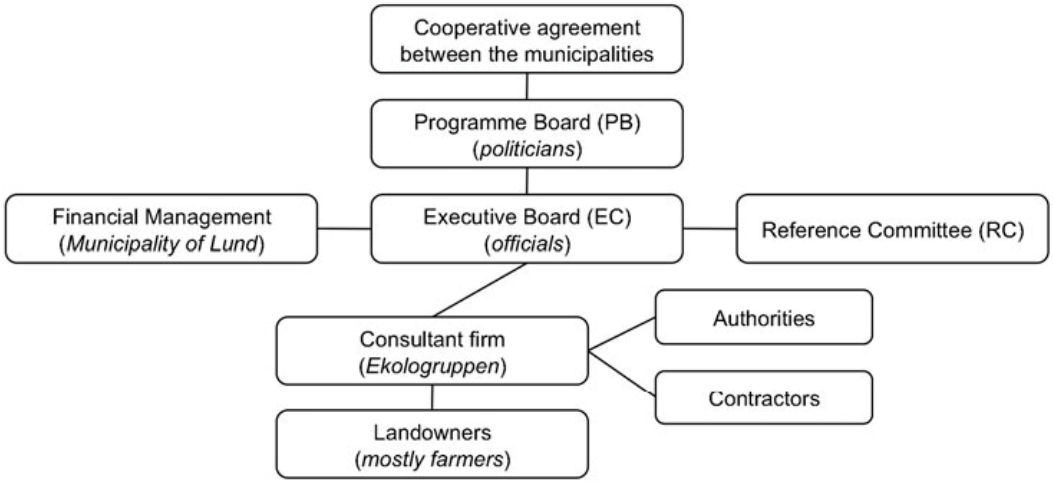

Figure 4. Organisational framework (adopted from Ekologgruppen, 2004).

runoff. Increasing biodiversity and recreational opportunities were considered as added benefits of the programmes (Ekologgruppen, 2007).

Both programmes were managed through a cooperative agreement signed by all the municipalities in the respective watersheds (see Figure 4). The same individuals (the chairman, project coordinator and consultancy firm) operated the programmes for both river basins. The programmes received financial support from the European Commission's LIFE+ fund as part of the 'Wetlands in agricultural areas' project (Ekologgruppen, 2007).

The Programme Board and Executive Board comprised politicians and civil servants from the participating municipalities and carried out the strategic decision-making. Working groups consisted of environmental officers from the municipalities, chairman from LIFE+, and consultants from Ekologgruppen (an independent environmental consultancy) in Landskrona. The working groups carried out the planning for all the wetlands to be restored. Ekologgruppen carried out the preparation and construction of wetlands and acted as the mediating agent between the Executive Board and the landowners, carrying out the negotiations with landowners. Finally, the programmes had a Reference Committee of farmers and scientists from the University of Lund as well as environmental and fishing associations (see www.ekologgruppen.com).

3.2. Data Collection and Analysis Procedure

The research design was structured into four steps and draws its findings from published information from the programmes and data collected through questionnaires, interviews and group discussions. It should be noted that the respondents in this study represent a small sample (see section 3.3), any generalisations drawn from their responses relate to the programmes only, and not any wider social group.

Step 1: *A comparative analysis of public project documents and publications* was conducted to define the problem environment (e.g. characterise stakeholder conflicts). Its

purpose was also to identify stakeholders and to find information for a questionnaire and interviews. Project documents were identified through the programme websites (www.ekologgruppen.com, www.hojea.lund.se and www.kavlingeaprojektet.se). Peer-reviewed articles were screened using science-specific search engines (e.g. www.sciencedirect.com) and key search terms (e.g. wetland restoration and environmental ethics).

Step 2: *A two-page questionnaire* was distributed a week prior to the interviews to collect quantitative data to complement the interviews (Step 3). The questionnaire was not anonymous and developed to obtain data on the participants' role within the programmes, how they perceived its success, and how they valued the objectives and associated environmental concepts. Before being administered, it was trialled by 20 people randomly selected from the public. All but two questions were closed-answer questions and all in all 32 questionnaires were distributed and collected.

Step 3: *Semi-structured interviews and group discussions* were held with the aim of covering three thematic areas: 1) wetland restoration and perspectives on nature (e.g. wetland location and design), 2) programme implementation and objectives (e.g. programme success), and 3) value orientations associated with the other two thematic areas (e.g. why the stakeholder decided to participate). Questions were not asked in a standardised manner, instead the respondent's reactions and answers were used to guide the discussion, which allowed for in-depth discussions. As individual interviews were not possible in two cases, group discussions were also organised with individuals from the same organisation. A typical interview lasted between one to two hours. The author has translated all quotes from the interviews.

Step 4: *Interviews were transcribed and analysed* to reveal critical responses. Utilising a grounded theory approach, the responses were divided into categories that emerged from the data and that were relevant to the study objectives (Thomas & James, 2006). The category system covered the: i) programme success, ii) problem environment, iii) views on the programme and its objectives, and iv) relevant issues for the future. The degree of importance for relevant statements (from *very* to *least* important) was also clarified during the course of the interviews, or derived from repeated statements made by the participants. After assigning categories, all critical responses were clustered according to similarities within each category. This process provided not only clusters but a hierarchy of responses within the dataset and a comprehensive representation of value-statements.

3.3. Participants

Twenty-one individuals participated in face-to-face interviews. Two group discussions were also conducted and comprised seven and four participants, respectively. All of the interviewees had been involved in either of the programmes. Table 1 shows a breakdown of the participants and the criterion for selection. The five groups assigned (administrators, consultants, researchers, NGOs and landowners) will hereinafter refer to these stakeholders.

Table 1. List of participating stakeholder groups

Group	Stakeholder(s)	Criterion for selection	No.
Administrators	Regional politicians and civil servants from the municipalities of Lund and Eslöv.	**Administrators** were politicians or civil servants that managed the programmes.	5
	Civil servants from the municipalities of Lund and Eslöv and the Malmö County Administration.		4
Consultants	Ekologgruppen in Landskrona - Environmental engineers - Private sector ecologists - Negotiator	**Consultants** implemented the programmes and had varying professional and academic backgrounds	8
Researchers	Natural scientists from the University of Lund	**NGOs** were natural scientists employed by a regional NGO. **Researchers** were natural scientists employed by the University of Lund. Both were part of the reference committee or did research on wetlands	3
Non-governmental organisations (NGOs)	Researchers from the World Wildlife Foundation (WWF)		3
Landowners	Farmers	**Landowners** depended economically on their land and volunteered land for wetland restoration.	6
	Other landowners		3

4. Results and Analysis

4.1. Questionnaire: Programme Objectives—Prioritisation, Performance and Value Orientations

The sample size limits any generalisations concerning the social groups to which the stakeholders belonged, however, some relevant findings from the questionnaire can be found in Table 2.

The results confirm that the stakeholder groups differ in their outlook on wetland restoration and the ethical principles that motivate wetland restorations. For instance, the landowners' negative outlook on wetland restoration may be due to the effects that wetlands have on the agricultural landscape (e.g. raising the water table) and agricultural practices (e.g. drainage), which affect profitability. As regards programme performance, the consultants' emphasis on the key objective (clean water) may be linked to professional obligations in terms of wetland construction, while the administrators' balanced ranking may be due to professional obligations to achieve all programme objectives (see Figure 6). These variations suggest that the ranking is based not only on expert knowledge but also on a professional value orientation that is dependent on the groups' relationship to the programmes.

These findings not only demonstrate the impact an individual's professional position and/or knowledge can have on an assessment, but also reflect personal value-based differences, such as in the instrumental values associated with nature. For example, the landowners display a professional interest in wanting to use wetlands as an irrigation

Table 2. Key findings from the questionnaire

Key finding	Questionnaire results
• *Degree of relevance assigned to wetland restoration differed considerably across the groups.*	Administrators (77.8%), researchers (66.7%) and consultants (62.5%) considered wetland restoration to be very important. No landowner ranked wetland restoration as very important.
• *Programme performance was ranked differently across the groups.*	All groups considered the provision of recreational opportunities the least successful while increasing biodiversity was perceived as the most successful, except by the consultants (see Figure 5). The expert groups (consultants, researchers and NGOs) varied significantly in how successful they considered the programmes to have been (see Figure 5).
• *Environmental functions of a wetland were ranked differently across the groups.*	Examples are improved water quality and wildlife habitats that were ranked considerably different across the groups (see Figure 6).
• *Nature was characterised considerably different across the groups.*	Humankind ($p = 0.022$), animal populations ($p = 0.002$), ecosystem processes ($p = 0.009$) and genetic diversity ($p = 0.008$) were ranked significantly different across the groups. 21% of the landowners noted that ecosystems and species have intrinsic value, in contrast to 81% of the other respondents. 77% of the landowners were anthropocentric as regards to the human-nature relationship, while 78% of the administrators and 83% of the researchers and NGOs were ecocentric.

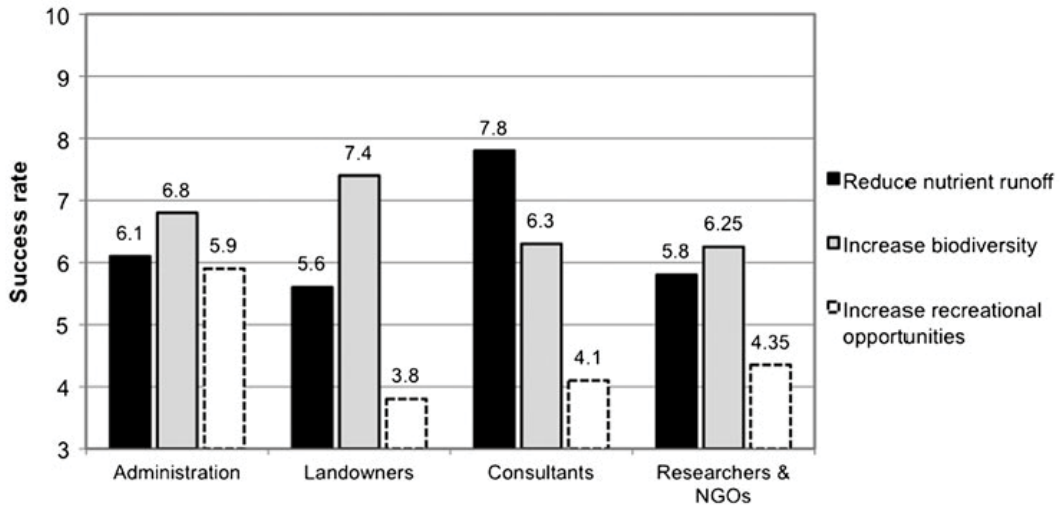

Figure 5. How is the performance of the programme objectives perceived?
*Researchers and NGOs were pooled due to the small sample size and similarities in ranking and backgrounds.

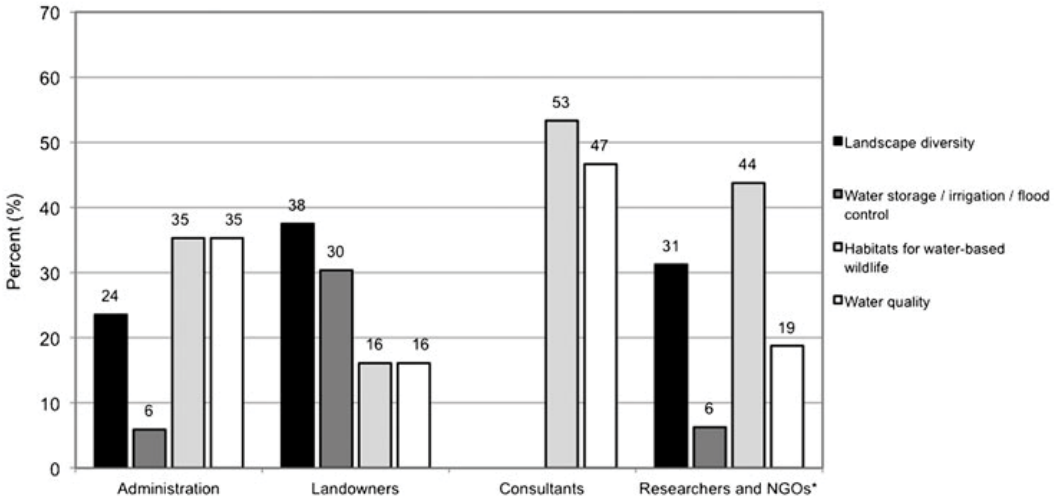

Figure 6. How are different wetland functions (e.g. landscape diversity) ranked across the stakeholders?

reservoir while revealing personal value orientations when emphasising the landscape rather than wildlife and clean water (see Figure 6). Moreover, the results confirm that the groups share a similar value orientation towards wetlands.

4.2. Interviews and Group Discussions

4.2.1. Stakeholder value-orientations and programme objectives

Biodiversity was selected by the author to present the participants different value orientations. This is based on questionnaire and interview results in which biodiversity was perceived as a positive objective by the respondents. More importantly, the values associated with biodiversity varied greatly between the stakeholder groups, which make it a suitable reference point for a discussion. Biodiversity was conceptually defined by the interviewer at the onset of the interview as the variation of species in the landscape. However, it became clear that the participants often associated biodiversity with keystone species, such as the reintroduced stork. Landscape diversity was referred to as the variability of the landscape in spatial terms.

The values that the administrator associated with biodiversity focused principally on the benefits of immaterial public services, such as recreational and aesthetic experiences. It was stated that "[…] the programme board had a strong focus on the public's relationship to the environment" (C#3). It may not, however, come as a surprise that a public administration motivate wetland restoration based on the instrumental values generated for the public. In fact, many from the administration stated that "[…] our landscape is a political product" (A#3), which corresponds to an anthropocentric and utilitarian orientation. Despite this outlook, the administrators often argued that animals have instrumental value, with some even arguing that biodiversity has intrinsic value. These value statements suggest a respect for wildlife influenced by ecocentric principles. It is, moreover, interesting to note that, when asked to clarify, many administrators consistently distinguished between anthropocentric values expressed in a professional capacity and ecocentric values expressed on a personal level. This suggests that ecocentric values are closer to the administrators' core personal values.

Compared to the other groups, the landowners' value orientation differs the most. The values that they associated with nature reflect a sense of themselves as the steward of their land, an interest in maintaining its productivity for future generations, and the need to make a living. Many landowners noted that restoring the agricultural landscape needs to be economically motivated. This was expressed as "If you receive monetary compensation, the wetland suddenly represents a source of income. It becomes a product that I can be proud of" (L#6). Besides wanting to safeguard their livelihood, most landowners prioritised landscape diversity (e.g. landscape structure) over biodiversity (e.g. species variation) and the other programme objectives. It is likely that the financial and occupational relationship with the agricultural landscape shapes this preference. As the respondents had a high average age (60+), and most had lived their whole lives in the region, this preference is also linked to the historical development of the landscape. Comparisons were in fact often made with how they recalled the agricultural landscape to be. In addition, most landowners argued that we are morally obliged to restore and preserve our landscape and biodiversity, if not for ourselves then for future generations. These value orientations were, however, most often rooted in anthropocentric principles, a sentiment expressed at one point as "the most important species is the human, all we do should benefit humankind, if we do not, something is wrong" (L#5). This is a strong value-statement, yet it demonstrates that, even though landowners express ecocentric arguments, most of their values are linked to the well-being of humankind. That is not to say that landowners are purely anthropocentric but that there is a tendency to centralise humankind.

As a group, the environmental experts (the researchers, consultants and NGOs) conveyed more non-human centred values. As one participant stated, "If we do anything that can be perceived as making things better, like restoring biodiversity, then I think we have the obligation to do so. […] We can no longer claim that nature is solely there to benefit humankind" (R#2). The environmental experts consistently argued for restoring wetlands and biodiversity, and they provided the most clearly articulated ecocentric values. Factors, such as ecosystem function, were often considered more important than biodiversity. This reflects a preference for ecocentric rather than biocentric values, but also a better understanding of environmental systems. It is likely that this understanding stems from the experts' educational and professional background. But despite the prevalence of ecocentric values (biocentric values were rarely expressed), a sense of responsibility toward future generations and the importance of agricultural productivity were frequently stated viewpoints. This shows that anthropocentric values are important to all the respondents and that it is rather the mixture of (and belief in) specific ethical principles that are relevant to understand a groups or individual's decision-making. The environmental experts also consistently distinguished between professional and personal values, something that was especially pronounced among the consultants.

4.2.2. Programme implementation, values and wetland restoration

During the interviews, it became clear that several landowners did not participate in the programmes, while some imposed restrictions (e.g. limiting infrastructure for recreation) due to value-based differences. This is interlinked with the voluntary nature of participation, making the willingness of the landowner a key determinant in how much

(or any) land was made available to the programmes. Together with the landowners' professional interests, this resulted in less favourable conditions for wetland restoration, such as limited site selection and construction alternatives. Because of this, value orientations had a direct impact on the restoration and construction of wetlands.

Most of the stakeholders agreed that bringing back the former diversity of the agricultural landscape was a positive action. Participants rather disagreed on 'how' (e.g. shape and form) and for 'whom' (e.g. public, private or nature) we should restore our landscape. Generally speaking, the 'anthropocentric' landowner favoured a landscape that was a product of historical agricultural activities, while the 'ecocentric' researcher argued for increasing biodiversity and reducing human influence. These values are not only limited to how the environment is perceived but how it is managed. A case in point is how most landowners consider land drainage to be positive for farming, with one participant stating that "[it] is not perceived as a 'negative' action for a farmer to drain his land, but it has been a 'sacrifice' to restore wetlands" (C#7). Wetland restoration was accordingly perceived as a negative process from the onset. This is also evident in how the programme negotiator had to overcome an instinctive opposition to wetland restoration even before a discussion could commence. The landowners' values consequently restricted the operational alternatives available to the programmes. This was principally due to the landowners' negative view on wetlands in the landscape (defined as personal values), professional interests, negative experiences with the municipality and the public (e.g. property damage), and a lack of knowledge. In some cases these factors prevented wetland restoration.

Financial compensation and structural adjustments to the wetlands were identified as the most important factors during the negotiation process with landowners (Lindahl & Söderqvist, 2004; Söderqvist, 2002). The negotiator was, however, also noted as being crucial to the landowner's decision-making: "[The mediator] was the first to bring forward the aesthetic and environmental benefits, which, coupled with the economic benefits, made me understand that it would not affect my economy" (L#1). In spite of this, the most recurring structural adjustment, made to accommodate professional interests, was to increase the depth of the wetland to convert it into a reservoir for irrigation. Personal value orientations were, on the other hand, often accommodated by making the wetland more aesthetically pleasing, as one respondent noted: "Many landowners are completely uninterested by the fact that there are insects in the water, or that certain birds breed in that area. Many simply want an open and clear water body where they can enjoy themselves" (A#5). These structural adjustments reduced the wetlands capacity to retain nutrient runoff (Ekologgruppen, 2003). In some cases, they even open questions over whether the wetlands can be classified as having been restored as opposed to having had alterations made.

On the one hand, the area (in hectares), and the sheer number, of wetlands restored and/or constructed (see section 3.1) prove that the programmes were successful (Ekologgruppen, 2003, 2007). On the other, it is clear that personal and professional value orientations towards the landscape, biodiversity and wetlands reduced the environmental impact of the programmes. It is, however, difficult to quantify this impact simply because other physical and socio-economic prerequisites affected stakeholder decision-making, such as the landowners' economic dependence on the land. In fact, willingness to participate most often depended on the costs and benefits of restoring a wetland, and the programmes would have performed worse if no

compromises had been made. There are, nevertheless, serious concerns raised by these results regarding the extent to which ecosystem function should be compromised over aesthetic features and agricultural functions.

4.2.3. Programme implementation and the effects of external interests and power relations

The County Administration, as part of the reference committee, was responsible for a significant conflict between the programmes and regional fishing associations. Defined as an external conflict, it corresponded to the interests of fishing associations in Scania (represented by the County Administration). The effects of this conflict were described as being that "[There] has nearly been a complete stop on all wetland construction due to the people who represent fishing associations. It has also affected where and how ponds can be constructed" (C#2). The main issue was the impact on trout stocks, since wetland areas are suitable habitats for pike and other predatory fish (Ekologgruppen, 2007). Seeing that the revenue from recreational fishing exceeded that received from industrial fishing, the County Administration was worried that wetland restoration would have a negative impact on the regional economy (Ekologgruppen, 2007). This meant that the County Administration, based on economic interests, allocated a higher value to trout in comparison with other species. The main arguments for this 'conflict-of-interest' (not a genuine conflict-of-values) were thus utilitarian and anthropocentric (Bjerke & Kaltenborn, 1999; Kortenkamp, 2001) and its impact on wetland restoration was the efforts made to minimise the effect of the programmes on trout stocks. This was most commonly achieved by lowering the effective water flow into the wetland, which not only reduces predation on trout but also the wetland's ability to retain nutrient runoff.

The programmes benefited from the support provided by local research communities and NGOs, but these stakeholders (including administrators and consultants) also expressed dissatisfaction with the restoration process. This was frequently stated as being due to "measures that decreased the wetland's capacity to reduce nutrient runoff" (C#4). These measures refer to all the structural adjustments noted above, such as constructing smaller and/or deeper wetlands for landowners or reducing the effective water flow for fishing associations. Nonetheless, it became clear that the researchers and NGOs were also dissatisfied because most of the wetlands did not look like natural wetlands, marshes or bogs. This is an effect largely caused by the landowner's perception of a natural wetland as something negative, while a pond with an open water surface accompanied by keystone species and an 'attractive' biodiversity was considered valuable. Effectively the landowners' value orientations made the restoration of natural wetlands close to impossible.

The unequal accommodation of value orientations highlights a difference in power relations between the stakeholder groups. It is apparent that the landowners' value orientations were prioritised because of their importance to the restoration process, which demonstrates the landowners' position of power and the dependence of the programmes on their willingness to participate. This impact on the wetland restoration process was furthermore exacerbated by the administration's prioritisation of nutrient runoff reduction and pressure from the County Administration to account for regional economic interests. Consequently, there was not only an imbalance

between the stakeholders in terms of power but also in the importance that was assigned to nutrient runoff and economic interests over biodiversity and recreational opportunities.

5. Discussion

One aim of this paper was to determine whether the stakeholders involved in Kävlinge and Höje River Programmes varied in the value orientations associated with the objectives of the programmes. It is evident from the analysis that the stakeholders expressed diverging value orientations. The participants' frames were, first and foremost, a mixture of anthropocentric and ecocentric principles (Schultz & Zelezny, 1999; Vugteveen et al., 2010). This generalisation can be applied for all the respondents, whereas the moral rationale and value orientations associated with wetland restoration varied significantly (Amérigo et al., 2007; Kortenkamp, 2001). One important difference concerned who was judged to be the ultimate beneficiary of the restoration process. On the one hand, all participants agreed that the agricultural landscape should be restored for future generations. On the other hand, they varied in the personal value orientations associated with wetland restoration. To illustrate, the landowners were often anthropocentric in that they highlighted the instrumental and economic value of wetlands (e.g. duck hunting). In contrast, the researchers and NGOs were often ecocentric in stressing the intrinsic value of wetlands (e.g. landscape diversity). These value based differences most likely account for the varying degree of importance and success assigned to wetland restoration.

The second aim was to establish whether value orientations influenced the implementation of the programmes. The first conclusion is that many of the restored wetlands are not natural in that they are not undisturbed and historically equivalent to original (or even natural) wetlands. The wetlands were primarily restored to reduce nutrient runoff from the agricultural landscape. Furthermore, structural adjustments requested by landowners (and later the County Administration) imposed restrictions on how the wetlands could be restored (or constructed), which ultimately reduced the wetlands ability to retain nutrient runoff. That is why value orientations (primarily those of the landowners and fishing associations) influenced how the wetlands actually looked and reduced the programmes' environmental impact.

It should be stressed, however, that other social, economic and environmental factors also interact with an individual's value orientation, making the interplay between participation in the restoration process and values more complex (Amérigo et al., 2007). Several technical difficulties (e.g. groundwater levels) and socio-economic factors (e.g. age and education) influenced the type of restrictions imposed on the restoration process (Buijs, 2009; Vugteveen et al., 2010). Moreover, the restoration process generated other socio-economic benefits, such as, recreational opportunities (social benefits) and hunting revenues (economic benefits). Environmental compromises may therefore have helped to ensure the long-term sustainability of the programmes, from a social and economic perspective.

Since the programmes were dependent on the willingness of their participants, the key to success would have been to find a way to influence this willingness to participate. The compromises made during negotiations generated stakeholders' support

and 'buy-in', but instead of resorting to structural adjustments and financial incentives, steps could have been taken to improve environmental performance. For example, the participatory process could have been structured to address conflicting values and motivational structures through social learning (Schusler, Decker, & Pfeffer, 2003) or awareness raising (Reed, 2008). Having an understanding of value orientations could help find new ways to develop non-financial incentives for participation, such as innovative methods to disseminate knowledge (e.g. explaining environmental benefits) that affect willingness (Söderqvist, 2003) or stimulate environmental concern (Nordlund & Garvill, 2002). Alternatively, it could clarify conflicts surrounding land use changes, by developing arguments for wetland restoration (Kaltenborn & Bjerke, 2002). The purpose here is to demonstrate that an understanding of stakeholders' value orientations provides the opportunity to identify a participatory approach that fits a specific project environment (de Groot, 2012; Vugteveen et al., 2010). It is, for instance, equally important to recognise that if an actor is unwilling to compromise there may be no point to engage in a participatory process (Reed, 2008; Reed et al., 2009).

Another interesting finding was the respondents' tendency to distinguish between professional and personal values (Failing et al., 2004; Primmer & Karppinen, 2010). The administrators gave the impression of prioritising nutrient runoff, accompanied with an emphasis on professional obligations towards the public. However, during in-depth discussions, there was a preference towards increasing biodiversity. This demonstrates that 'reducing nutrient runoff' was prioritised at a professional level, while 'increasing biodiversity' was prioritised at a personal level. Both objectives are desirable, but the value statements are based on contradictory ethical principles. This behaviour was also found among the consultants and demonstrates that an individual can advocate (and even believe in) contradictory values (Bruno & Lay, 2008; Nordlund & Garvill, 2002). In contrast, researchers, NGOs and landowners expressed personal values more freely. It is unclear whether these primary and secondary values (e.g. professional versus personal) had an effect on programme management, but they have implications for how expert-based input should be utilised to evaluate environmental interventions. If expert-based input is influenced by personal and/or professional values or subjectivities, as in this case, any evaluation risks being biased. Future research would be needed to verify this dual representation of values and explore its effects on project management and expert-based assessment procedures.

In practice, the findings in this paper relate to an improved understanding of how value orientations interact with decision-making and the interplay between professional and personal values. These factors have a direct (or indirect) impact on the landscape, as in how the landscape is allowed to look. Future projects could make use of this type of information to improve the management of and/or communication with disparate stakeholder groups (e.g. collaborative planning) and improve incentives for participation (de Groot, 2012). These data could also be utilised when developing project objectives that require value judgments and trade-offs (Chae et al., 2005; Frankel, 1996). This is particularly relevant for wetland restoration, which theoretically decides 'what' to save. When considering these types of questions, the relevance of environmental ethics for project management is clear (Ehrlich, 2003; Miller et al., 2011; Spash, 2000). The results have further demonstrated that there is a lack of knowledge of values and environmental ethics amongst practitioners, as well as a prevalent inability to reflect on personal biases generated by different frames (Bruno & Lay, 2008; Nordlund & Garvill,

2002). This suggests that a purely scientific and expert led approach is not enough to legitimise wetland restoration. It is thus essential that practitioners consider how values affect project management and, ultimately, the landscape.

5.1. Shaping a Landscape for Future Generations

Landscape frames are embedded with values that we have about our environment, society and culture (Buijs et al., 2009; Kaltenborn & Bjerke, 2002). This paper has demonstrated that environmental ethics provide an opportunity to explore these values and also how people interact with the landscape. How we choose to restore the landscape for future generations and promote public (or other) values is, in the end, an empirical question that can be addressed using environmental ethics (Kaltenborn & Bjerke, 2002; van der Windt et al., 2007). This value-based approach can show us that environmentally significant behaviours can be influenced, for example, through public participation (e.g. collaborative planning), awareness raising (e.g. disseminating knowledge) or other incentives (e.g. ecocentric arguments) (de Groot, 2012; Schultz & Zelezny, 1999; Stern et al., 1999), particularly as it allows us to identify those who hold different value orientations toward the same landscape. Utilising this kind of information (together with a suitable participatory tool) may enhance the deliberative scope of environmental projects and, furthermore, makes it possible to find a balance between conflicting value orientations that affect the landscape and improve the legitimacy of landscape restoration.

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7.2. Article 2. Effects of the manager's value orientation on stakeholder participation: at the front line of policy implementation

Effects of the manager's value orientation on stakeholder participation: at the front line of policy implementation

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Abstract

Managers who implement stakeholder participation often have to navigate a complex subsystem of actors, policy-making institutions, and varying problem definitions. This paper examines how these managers' values affect decision-making and the operationalisation of stakeholder participation, and how the institutional framework in which the managers are embedded affects these values. It is based on the inside views of 23 managers and expert consultants involved in nine projects implemented by international organisations. Their values and preferences were captured through a review of project documents and interviews. The results demonstrate that the managers' personal value orientations affect the participatory process when there is a lack of control and support from their commissioning organisation, and also in cases where policy is ambiguous. The decision-making freedom accorded to the project manager defines whether they design stakeholder participation in accordance with personal value orientations, the organisation or policy. This study suggests that more stringent regulations and guidelines, as well as improved educational and awareness-raising activities, are required to resolve this problem. It is also suggested that evaluation tools should be improved to account for the impact that stakeholders have. This may encourage managers to become more actively involved in the use of stakeholder input.

Keywords: Integrated water resources management; Project management; Stakeholder participation; Value orientations

1. Introduction

It is often argued that real-world problems require the involvement of stakeholders, particularly within the context of natural resources management. In line with this argument, several international and

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European policies require that stakeholders[1] are invited and integrated into the process of managing natural resources (Sadoff & Grey, 2002; Reed, 2008). As stated in the Rio Declaration, 'environmental issues are best handled with the participation of all concerned citizens, at the relevant level' (part of Principle 10)[2], while organisations such as the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF) have increasingly promoted stakeholder participation. Underlying this trend is the belief that participatory methods can improve how we manage natural resources (Failing *et al.*, 2004), which reflects a system of management that is replacing the conception of environmental management as a technical process best left to experts (Creighton *et al.*, 1998; Hare & Pahl-Wostl, 2002; Reed, 2008).

Despite efforts to move away from a technocratic approach to natural resource management, many obstacles still emerge with stakeholder participation in practice. These include issues such as shortage of time and resources (Taut, 2008), data or value conflicts (Creighton *et al.*, 1998), and biased stakeholder involvement (Urwin & Jordan, 2008; Vugteveen *et al.*, 2010). The obstacles illustrate a gap between theory about participation, on the one hand, and actual practice and policy outcomes, on the other. For instance, in practice, the project manager (PM) (or 'street-level bureaucrat') who implements stakeholder participation policy often has to navigate a complex subsystem of actors and policy-making institutions that hold conflicting goals and problem definitions (Lipsky, 1980; Sandström, 2011). This contextual background to policy implementation (e.g. existing belief coalitions and policy beliefs) may affect how the PM frames stakeholder participation (e.g. valuation of stakeholder input) (Sabatier, 2007; Buijs, 2009). This may, in turn, influence the manager's operational decision-making on such issues as how stakeholder participation is designed (Hill, 2003; May & Winter, 2007).

The aim of this paper is to improve our understanding of how PMs interpret policies on stakeholder participation and, more specifically, how value orientations affect the operationalisation of stakeholder participation. The objectives are to analyse how PMs perceive stakeholder participation, establish whether value orientations affect the design of the participatory process, and examine the role stakeholders are allowed to play in projects. The analysis also investigates effects of the institutional design and corporate culture on decision-making and the discretion provided to the manager when implementing policy.

2. Theoretical and conceptual background

There are many international and European policies and conventions that address stakeholder participation in water resources management. One prominent example is the EU Water Framework Directive (WFD)[3] requiring projects to take into account stakeholders' views. Other examples are the Aarhus Convention[4] and the RAMSAR Wetlands Convention[5]. Yet, despite legal requirements, stakeholder participation remains weakly defined in international and European policies. The WFD, for instance,

[1] The 'stakeholder' is defined as any person, group or organisation that has an influence on or interest in a project and/or is affected directly (or indirectly) by its decision-making (Freeman, 2010).
[2] See http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163.
[3] See http://ec.europa.eu/environment/water/water-framework/.
[4] See http://ec.europa.eu/environment/aarhus/.
[5] See http://www.ramsar.org.

does not define how stakeholders' views should be taken into account. As a consequence, the diffuse wording in policy may allow for variations in implementation. The presumption is that policy implementation in the area of stakeholder participation may be framed by the PM or organisation in charge (Dewulf *et al.*, 2004; Urwin & Jordan, 2008). *Framing* refers to the values, preferences and perspectives that PMs and/or organisations rely on to understand and define stakeholder participation (Buijs, 2009). It is thus the PM, at the front line of policy implementation, who defines what these policies mean at an operational level (Hill, 2003; May & Winter, 2007).

However, before entering into further discussion on stakeholder participation, it is also relevant to introduce a distinction between what is meant by the PM ('street-level bureaucrat') in charge of conceptualising and managing the project and the expert employees or consultants ('front-line workers') in charge of operationalising policy (May & Winter, 2007). Both have an impact on stakeholder participation: the street-level bureaucrat in terms of interpreting policy and designing the project and the participatory method, the frontline worker in terms of the actual hands-on implementation of the (pre)designed project. As both street-level bureaucrats and frontline workers have an effect on policy implementation, the analysis will distinguish between them in cases where different persons take these roles.

2.1. Stakeholder participation at the front line

It was argued by Lipsky (1980) that the street-level bureaucrat (a role fulfilled here by the PM) creates the policy that citizens will experience. This process is shaped by both the implementer's knowledge (Yanow, 1996) and by contextual factors such as the institutional framework (Sabatier, 2007). Project activities are thus influenced by different belief coalitions (e.g. diverging coalitions in a region, host organisation or project) that generate competing views on policy problems (vertical and horizontal complexity) and varying interpretations of the legal framework and policy solutions for stakeholder participation (Sandström, 2011). Analysing how stakeholder participation is implemented allows for an assessment of how policy is interpreted in practice (not the actual wording of legislation) and how it is influenced from the bottom-up (the policy implementers' perspective).

Here it is presumed that stakeholder participation is introduced into practice as a response to policy demand (external adaptation) and is not necessarily internally enforced due to prevailing organisational practices (internal integration) (Schein, 1985). This means that an organisation may adhere to changing policy demands out of necessity (e.g. operational requirements), rather than having an actual belief in the added value of changing practice (May & Winter, 2007). The institutional framework (e.g. formal rules, distribution of power and organisational values) might therefore affect how the PM integrates stakeholders into the process (Hill, 2003). Lipsky (1980) contends that it is the nature of the work itself that empowers the manager with policy-making abilities, and that the conditions of the project environment dictate whether the manager can implement policy according to personal preferences.

This refers to what Wierzbicki *et al.* (2000) call a soft decision-making approach, often applied by managers when making decisions on a project: the manager attempts to 'perceive the whole picture' by observing the problem area from various angles and making decisions based on expert intuition, such as on how stakeholders should be involved (Bruno & Lay, 2008; Moxley *et al.*, 2012). The freedom that this approach affords might enable managers, even when embedded within the same institutional framework, to make different decisions from one another (Hill, 2003). This suggests that the PM also makes value judgements and executes decisions based on personal values (Hall & Davis, 2007).

2.2. How values shape stakeholder participation

Although values can be the primary source of environmental conflicts (Creighton *et al.*, 1998), they are difficult to conceptualise in project management, particularly as values are prominently discussed in the literature, in which many definitions and effects are described. This study adopts the Meglino & Ravlin (1998) definition of values, namely that they provide the basis for an individual's internalised beliefs about how a person should behave (their value orientation). Values are effectively the basic components of beliefs that form an individual's value orientation (Kaltenborn & Bjerke, 2002) and which influence the interpretation of experiences, facts and events (Stern *et al.*, 1999; Vugteveen *et al.*, 2010) and shape the motivational structures (e.g. preferences and perspectives) that subsequently affect decision-making (Bruno & Lay, 2008).

The relationship between value orientations and policy implementation is less clear. PMs can, for instance, switch between the values on which they put an emphasis. This could depend on contextual factors (e.g. personal or professional values) and the importance assigned to specific value orientations (e.g. organisational or public good), which makes them decide differently (Bruno & Lay, 2008; Aggestam, 2013). The project environment, as defined by the contextual background and policy, also has an impact on how the PM can (or is allowed to) express values in decision-making (Appelstrand, 2002). It is, nonetheless, clear that the manager has to interpret directives from policy, and balance stakeholder interests, project objectives and the host organisation's interests. The PM effectively becomes the 'normative' gatekeeper (or filter) that determines how policy is implemented at the front line (see Figure 1).

As illustrated by Figure 1, the inclusion of new values and knowledge (organisational or public) can have an impact on the manager's preferences and perspectives. The introduction of new values could, for example, expose biased perspectives that in turn affect the PM's decision-making (Raymond *et al.*, 2010; Moxley *et al.*, 2012). This means that the level of involvement corresponds to a value statement by the PM, and, more specifically, how open the manager is to stakeholder input (unless dictated by the host organisation or policy). Value orientations can thus be expressed through different levels of involvement, ranging from information provision to active involvement during project implementation (Arnstein, 1969; Vugteveen *et al.*, 2010). This contextual background for stakeholder participation presupposes freedom (or discretion) that has been provided for in the design of the participatory process.

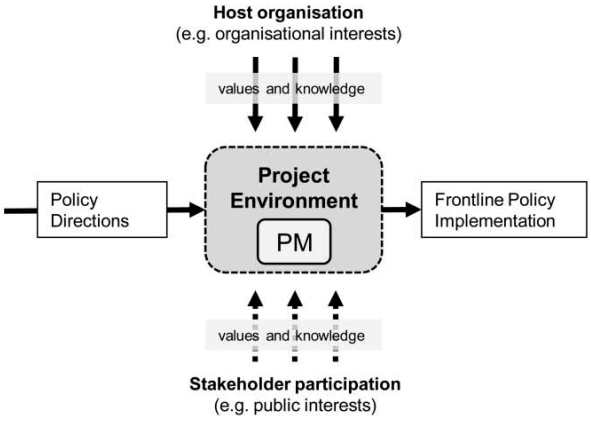

Fig. 1. Conceptual model: normative gatekeeping by the manager.

The manager is assumed to be striving to control the process in accordance with their own value orientations in order to maintain what they perceive as the status quo, such as a technocratic approach to project implementation (Stern *et al.*, 1999; Castelletti & Soncini-Sessa, 2007). The emphasis in the analyses is on how the PM constructs a meaning out of policy, which shall provide insights into how their value orientations impact policy implementation.

3. Materials and methods

3.1. Background and case studies

This paper reviews projects implemented by the UNDP, the International Commission for the Protection of the Danube River (ICPDR), the International Institute for Applied Systems Analysis (IIASA), and partner organisations. Nine projects were selected and grouped into three separate cases on the basis of who implemented the projects: more specifically, the same host organisation(s), the same PM(s) (or street-level bureaucrats) and the same project teams (or front-line workers). All projects were at the forefront of stakeholder participation, where they took a leading position on participatory methods. Individual projects will be highlighted only to illustrate specific issues as regards stakeholder participation.

Table 1 presents background details for Case I.

- Case I. ICPDR and UNDP projects based on the TDA and SAP methodology

  Five of the nine projects in the Danube and Tisza river basin were implemented by the UNDP and ICPDR. All applied the transboundary diagnostic analysis (TDA) and strategic action programme

Table 1. Study background.

	ICPDR and the Danube basin	Transboundary diagnostic analysis (TDA) and strategic action programme (SAP) methodology
Background	ICPDR is a transnational body (or commission) established to implement the Danube River Protection Convention. It comprises a delegation of all contracting parties to the convention.	The TDA is a diagnostic and adaptive management tool used to identify the cause-and-effect relationships for transboundary water problems.
Function	The commission functions as the platform for implementing the transboundary aspects of the EU Water Framework Directive (WFD).	The TDA functions as a tool for the development of a SAP that is then used for project implementation.
Stakeholder Participation	ICPDR recognises that participation is multi-dimensional and their strategy focuses on spatial scales (international, national and local level) and on progressive levels of involvement (ICPDR, 2006).	The TDA should include full consultation and stakeholder participation (GEF/C.7/6.).
Format	The progressive levels of involvement are based on WFD Article 14 and defined as information supply, consultation and active involvement (e.g. policy deliberations) (ICPDR, 2009).	The method prescribes/defines steps, starting from project conceptualisation to joint fact-finding and the SAP. The TDA/SAP does not operate as a prescriptive methodology but leaves room for flexibility to be adopted to local conditions (UNDP, 2002; Teng, 2006).

(SAP) methodology, and received financing from GEF (see Table 1 for more details). The five projects[6] focused on integrated land and water management, or rural water management, and/or the conservation and restoration of biodiversity in the Danube and Tisza river basin. They were also transboundary and participatory. The analysis will focus on how the PMs applied the TDA and SAP method to achieve operational requirements for stakeholder participation.

- Case II. IIASA research-based projects

  Two further projects in the Tisza river basin were implemented by IIASA. The first project explored the set-up of an adaptive management framework for the re-naturalisation of the Tisza river basin by allowing stakeholders and scientists to collaborate in the research into and the revision of policy and local practices (Sendzimir *et al.*, 2006, 2007; Krolikowska *et al.*, 2007). The second project explored stakeholder views on flooding in the Upper Tisza river basin. The results were to be integrated into a flood catastrophe model to develop policy alternatives for flood insurance (Vári, 2001; Vári *et al.*, 2003; Linnerooth-Bayer & Vári, 2006).
- Case III. Caspian Sea and Kura–Aras basin

  Finally, two projects in the Caspian Sea and Kura–Aras river basin were implemented by the UNDP. They were included in the analysis based on input provided by frontline workers from Case I. The first project was a stakeholder analysis for the Caspian Environment Programme (CEP), as part of its participatory strategy, which sought endorsement among the Caspian states. It further sought to define the environmental problems facing the region (CEP, 2002). The second project aimed to reduce environmental degradation in the Kura–Aras basin (UNDP/GEF, 2005) and was designed to involve stakeholders in improving the provision of clean drinking water and to reduce the degeneration of natural resources.

Table 2 presents a summary of the main elements of the case studies.

Table 2. Summary of case studies.

	Case I	Case II	Case III
Type of projects	Development-driven projects.	Research-driven projects.	Development-driven projects.
Background and format	Stakeholders were engaged as part of the *TDA/SAP methodology* and *operational requirements* from the funding agent.	Stakeholders were engaged in the *conducting of research* into *participatory methods*.	Stakeholders were engaged as part of the *TDA/SAP methodology*. Distinct from Case I as it concerns different geographical regions.
Stakeholder participation	Information provision, manipulation and consultation.	Active involvement.	Information provision and active involvement.

[6] The five projects are Tisza Community-Led Demonstration Project for Sustainable Development and Integrated Land and Water Management; Integration of Rural Water Management in River Basin Management in the Tisza Basin; Establishment of Mechanisms for Integrated Land and Water Management in the Tisza River Basin; Conservation and Restoration of the Globally Significant Biodiversity of the Tisza River Floodplain through Integrated Floodplain Management; and Transboundary River Basin Management of the Körös/Crisuri River Project. See http://waterwiki.net for more information.

3.2. Data collection and analysis

This study draws on document analysis, a series of face-to-face interviews, and a focus-group discussion through an online forum. Secondary data were collected through project documents, published information on the projects, and peer-reviewed articles. Data were collected in 2006 through a cross-regional UNDP conference 'Stakeholder Management in Water Projects' (held on 17 November 2006 for the UNDP Water Knowledge Fair). This conference provided access to and input from experts in the field, as well as a platform for the online forum. This was followed up with another round of data collection throughout 2007 and 2008 that focused on interviewing PMs and expert consultants. Some stakeholders were also interviewed. However, as this study analyses a rather small sample (see Step 2 below) of projects/cases, it refrains from generalisation beyond these projects.

The interviewees and focus-group participants were PMs (street-level bureaucrats) and expert consultants (front-line workers) who hold, in common, an *expertise* (e.g. technical knowledge on stakeholder participation) and *leadership* (e.g. control of policy implementation). All the participants worked for either UNDP, ICPDR, IIASA, the Regional Environmental Centre for Central and Eastern Europe, Nimfea Environment and Nature Conservation Association, the CEP or the Tisza Biodiversity Programme. The managers' leadership position forms the basis for investigating how value orientations are expressed in the design of participatory processes. Data were collected and analysed in three steps:

Step 1. Comparative analysis of public project documents and publications

- Document review and comparative analysis aimed to define the problem area (e.g. direction provided by policy and the host organisation). It was also carried out to identify PMs and expert consultants, and to find information in preparation for the interviews. Project documents were identified through the host organisations and project websites (e.g. http://waterwiki.net and http://caspian.iwlearn.org/). External information was also collected through peer-reviewed articles using science-based search engines (e.g. www.sciencedirect.com) and specific key terms (e.g. Danube basin, water resources management).

Step 2. Semi-structured interviews and forum discussion

- Individuals participated in face-to-face interviews, and an additional 11 participants took part in the forum-based focus-group discussion. Data collected through the forum provided information on how stakeholder participation was being implemented by the host organisation(s). The interviews were semi-structured and covered three thematic areas: (a) project environment (e.g. design and objectives); (b) project implementation (e.g. how stakeholders were engaged); and (c) value orientations associated with the other two thematic areas (e.g. why stakeholders were engaged). Questions were not asked in a standardised manner, and, instead, the respondents' reactions and answers guided the conversation, which allowed for in-depth discussions. Representatives of stakeholder groups were also included. A typical interview lasted between 1 and 2 hours.

Step 3. Interview transcription and analysis

- Forum discussion and transcribed interviews were merged to produce a structured document containing critical responses. This was achieved by dividing all the responses into categories that correspond to the

study objectives. The category system covered: (i) project success and problems; (ii) views on the project and the institutional framework; and (iii) views on stakeholder participation. General observations and the degree of importance allocated to each statement were also noted. The interviewees were asked about the degree of importance (very to least important) during the interviews. After the initial categorisation, critical responses were identified and clustered according to similarities. This approach provided a hierarchy of responses within the dataset and a comprehensive representation of value statements across the cases.

4. Results

4.1. How do PMs perceive stakeholder participation?

Before proceeding to the cases, the managers' definition and rationale for a stakeholder analysis will be considered briefly. The purpose is to address one of the study's objectives: to shed light on how PMs perceive participation and the role of stakeholders therein. When asked to define a stakeholder analysis, PMs provided a surprisingly wide variety of answers. These definitions of stakeholder participation ranged from: a process by which you 'identify people in the broader sense who have an interest' [I2][7] with the aim of involving stakeholders (active involvement and partnership), to conducting an empirical measurement of 'perceptions in terms of causes and relationships' [I7] with the aim of understanding how stakeholders are affecting the environment (informing and consultation), to 'looking at power relationships between stakeholders and where they sit in a network' [I9] with the aim of influencing key stakeholders (informing and manipulating). While these definitions correspond to different ways of analysing stakeholders, they also show the type of participation that would follow these analytical steps. Disregarding external limitations (e.g. financial constraints) and the contextual background (e.g. the institutional framework), these definitions equate to different levels of stakeholder involvement that are similar to specific steps of the classic ladder of participation defined by Arnstein (1969), which ranged from active involvement to non-participation (as noted in the brackets above).

The different definitions of how to analyse stakeholders (and the implication for participation) are important to consider because of the conceptual ambiguity that surrounds stakeholder participation in policy and the many purposes for which stakeholder participation is employed in practice. This demonstrates that the participatory process is dependent on the manager's value orientation. In fact, it was stated by one interviewee that the 'law on participation can only be guided by what the project manger wants stakeholder involvement or engagement to achieve' [I5]. This supports the presumption made earlier with regard to participation being controlled by the manager, despite legal requirements for policy to be inclusive.

4.2. Case I. ICPDR and UNDP projects based on the TDA and SAP methodology

4.2.1. The project and institutional framework. ICPDR, in collaboration with the EU, UNDP and other Danube countries, has promoted an integrated approach to the management of the Danube river basin since 1998, when ICPDR was created. There has been a strong emphasis on stakeholder participation following ICPDR's first stakeholder conference in 2005 (ICPDR, 2006). For the projects in this study, ICPDR and UNDP operationalised their own policy on stakeholder participation through the

[7] Information in square brackets after a quotation refers to the coding given to interviews.

TDA and SAP methodology, as required by the GEF. It comprised the main framework for the stakeholder analysis and public involvement (UNDP, 2002; Teng, 2006). The TDA and SAP framework furthermore prescribed steps for specific actions (e.g. policy, legal or institutional reforms) to reduce transboundary water problems for each project.

Despite the host organisation's public emphasis on active involvement, PMs were granted the discretion to decide on the level of stakeholder involvement. Several interviewees noted similar statements, such as that 'actively involving them [the stakeholders] as part of the decision-making process was only encouraged [by the organisation]' [F]. This confirms that stakeholders were, for the most part, involved because of operational requirements, and not because of the benefits that stakeholder participation can generate. Key stakeholders were not even allowed to participate in some projects, to avoid conflicts and delays, and/or to facilitate consensus. Referring to the TDA and SAP methodology, it was stated that the 'weights of the different [project] elements were decided by the manager, and the manager can shift funding from one section to another depending on [their] preferences' [I5], demonstrating a financial discretion linked to the host organisations' lack of control during project development. In effect, this implies that stakeholder participation was controlled through both design and restricted financing by the PM.

4.2.2. Rationale for stakeholder participation. Most of the PMs and expert consultants agreed that stakeholder participation was vital, especially to resolve disagreements on project objectives, something which applied to all projects. Most of the managers did, however, prefer a one-way communication process (e.g. input through consultation) rather than having to invest in a two-way process (e.g. partnership). Furthermore, several PMs did not know who the key stakeholders were during project conceptualisation. As a result, many key stakeholders had nothing to do with project implementation, nor were they involved at a stage when the project design could be changed. This is a problem that has been emphasised in the literature, namely that stakeholders are not involved early enough in the project cycle (Brody, 2003; Schusler *et al.*, 2003). The interviewees' most common argument for not involving stakeholders was that stakeholder input in decision-making was considered negative to project performance. These perceptions and/or assumptions were often supported by practical arguments, such as limited funding, difficulties in persuading governments, the host organisation's lack of support for stakeholder participation, and the difficulty of finding a representative list of stakeholders. It was also often noted that stakeholders had a narrow and local view of the problem area.

In contrast to the PMs' perspective, responses from stakeholders illustrate differences between how the PMs and stakeholders defined the problem area. Among stakeholders there was a prevailing disappointment, in that they were not allowed to influence decision-making, nor provide input at relevant stages of the project cycle. This suggests that many PMs only aimed to fulfil operational requirements, such as providing information and/or consultation. In effect, PMs (and the host organisations) preferred a literal interpretation of the WFD, which only requires that stakeholders are heard and considered. In practice, this meant that stakeholders were heard, but not considered.

While all projects involved some elements of participation, PMs avoided active stakeholder involvement (e.g. inclusive decision-making) during project conceptualisation and in the early stages of the project cycle. Several managers even expressed unease at going beyond the minimum operational requirements for stakeholder participation. Relinquishing control through stakeholder participation was opposed, suggesting an unease at the changing of power dynamics. In fact, most managers preferred neither to challenge their own perception of the problem area nor to engage stakeholders once the projects were up and running, leaving no alternatives to change project implementation. This suggests a

prevailing technocratic perspective on project management that does not challenge the managers' own value orientation.

4.2.3. Shaping participation policy implementation. From the results presented above, it is clear that the TDA and SAP, EU policy, and the operational requirements by GEF provided the official driving force for involving stakeholders. It was surprising to find that the project environment still allowed for significant operational variations as regards how stakeholder participation was implemented, despite guidelines provided through the TDA and SAP. In many cases the reluctance towards participation was because it challenged the managers' perception of the problem area and/or their position of power. This caused them to take steps to limit the impact that stakeholders could have, by reducing the funding for stakeholder participation, which effectively limited the level of involvement (from inclusive to non-participatory). Alternatively, they controlled requirements for consensus-building by only inviting specific stakeholders who did not jeopardise the PMs' vision for the project or create conflicts. Managers also designed the project so that the participatory process came at a late stage of the project cycle, making it impossible for stakeholders to influence the outcome and/or design of the project. These steps were common measures that PMs applied to maintain control and/or impose value orientations that were contradictory to those held by stakeholders. This is also linked to the institutional arrangement, since the host organisations did not impose policy directions, and the institutional framework allowed for discretion during policy implementation. All in all, serious concerns are raised for the legitimacy of the projects' participatory processes.

4.3. Case II. IIASA research-based projects

4.3.1. The project and institutional framework. In 2006, IIASA implemented two research-oriented projects in the Tisza river basin. The first project collaborated with scientists and non-governmental organisation (NGO) activists to develop tools for communicating complex ideas and creating qualitative or quantitative models for stakeholders (Sendzimir *et al.*, 2006, 2007; Krolikowska *et al.*, 2007). The second project was summed up by one of its contributors as investigating situations 'where you can accept one solution for different reasons' [I8]. It aspired to explore discourse on flooding and why flooding constitutes a problem for some but not for others (Sendzimir *et al.*, 2006, 2007).

Owing to the research objectives of the project, and the contextual background of being implemented by a research-driven organisation, IIASA associated different values with stakeholder participation as compared to UNDP and ICPDR. One interviewee noted that IIASA engaged stakeholders in discussions of paradigms and mental models. The key to IIASA's approach was to respect differences – 'not to come up with a consensus view … and not imposing a 'right' and 'wrong'' [I8] – in the participatory process. So, while the host organisation did not impose more control over the project design, the institutional framework (e.g. informal customs and norms) encouraged stakeholder participation and the inclusion of other value orientations.

4.3.2. Rationale for stakeholder participation. Stakeholder participation was central to the IIASA projects, which required active stakeholder involvement and commitment from the PM. These managerial considerations (different from Case I) support the assumption that stakeholder participation is not marginalised if the PM agrees with policy on stakeholder participation. In this case, it was even argued that managers (and stakeholders) should adapt their behavioural filter (or mental models), to see beyond their

own value orientations. This highlights an important difference in that managers need to associate positive values with stakeholder participation for it to be successful. In this case, the involvement of stakeholders was seen as crucial rather than as a burden or barrier to project performance.

It is of further interest to note that the managers in this case still preferred to involve stakeholders after project conceptualisation. So even when a project focuses exclusively on participation, there are managers who are not open to challenging their value orientation (or perspectives) as regards to how a project should be designed. This reluctance was not linked to power dynamics (as in Case I) but rather the managers' expertise. There is thus prevailing support for a technocratic approach, not for the whole project cycle but at least for how a project should be conceptualised. For instance, a prevailing argument for not involving stakeholders (in both cases) remains linked to costs and benefits, especially when discussing early stakeholder involvement. Finally, as noted by one interviewee, the IIASA projects also demonstrate that active stakeholder involvement might not always be realistic, considering the time and financial resources that need to be invested.

4.3.3. Shaping participation policy implementation. The trade-offs required to actively involve stakeholders are significant (e.g. time and financing). There is consequently a correlation between the managers' willingness (or openness) to engage stakeholders and the arguments, such as the cost/benefits of stakeholder participation, being applied to marginalise stakeholder participation. This case further substantiates the impact that managers and organisations can have on policy implementation. For participation, the results highlight either that the manager or host organisation needs to value stakeholder participation, or that policy on participation needs to become stricter, to ensure that stakeholder input is integrated into the project design. It was, however, surprising to find that even those managers with a strong belief in the benefits that stakeholder participation generate are reluctant to relinquish control over how a project is conceptualised. Thus, when considering the similarities between the cases (e.g. same region, policy background and discretion provided to managers), it is clear that the managers' framing of stakeholder participation (whether positive or negative) ultimately determines how stakeholder input is utilised.

4.4. Case III. Caspian Sea and Kura–Aras basin

4.4.1. The project and institutional framework. The organisational and institutional background for this case is similar to that of Case I; however, it differs in that the expert consultants were given more freedom in designing the participatory processes. The first project concerned a stakeholder analysis for the CEP. The analysis aimed to identify any conflicts among stakeholders that could constrain effective interventions, and explore how stakeholders prioritised environmental and social problems that had been identified by experts (CEP, 2002, 2006). The second project was implemented in the Kura–Aras basin by the same manager and expert consultants. It had a more specific objective, namely, to find solutions for generating a safe supply of drinking water.

4.4.2. Rationale for stakeholder participation. The CEP was launched with a stakeholder analysis as part of a TDA and SAP, but the analysis moved away from being an investigative tool to becoming a participatory process. It was noted that, after the regional analysis of the Caspian Sea, 'the notion of stakeholders was expanded from the standard focus' (Matthews, 2004, p.10), as defined by the TDA and SAP. The participatory process that developed out of the stakeholder analysis resulted in the

CEP objectives being reprioritised. 'Stakeholder groups rated some concerns much higher than experts, whereas others that the experts believed to be the most prominent were ranked far lower than expected' (Matthews, 2004, p.10). This resulted in the manager changing the expert-based priorities in line with stakeholder input, which seems to have had a positive impact on project performance (e.g. in terms of acceptance by stakeholders). The participatory process was also conducted at the beginning of the project cycle, making it possible for the programme to accommodate new information.

Based on the frontline workers' success with the CEP stakeholder analysis, the manager allowed more latitude for stakeholder participation in the Kura–Aras project. This resulted in the consultation being held with invited representatives, hand-picked based on personal experiences to represent a wide range of stakeholders. The number was kept low to facilitate a more detailed discussion. The recommendations that were generated through this approach were perceived as innovative by the PM and were incorporated into the project design (UNDP/GEF, 2005). These recommendations were mainly due to the different perspectives of the problem area (given by the stakeholders, government and NGOs involved) and were incorporated owing to the manager's willingness to include new (and alternative) input. This reconfirms the assumption that it is only when the manager does not care about avoiding conflicts, or maintaining their position of power, that the participatory process can yield a truly positive outcome.

4.4.3. Shaping participation policy implementation. This case was included as a showcase for the positive impact that stakeholder participation can have on project performance. The results support the argument that involving stakeholders during project conceptualisation is beneficial for improving not only project design but also (as supported by previous research) the longevity of a project (Brody, 2003; Schusler *et al.*, 2003). It was noted that 'a great deal was won when the stakeholder analysis and consultation were done even before the project started, when there was flexibility to fully account for [stakeholders'] concerns' [F]. The Kura–Aras project also demonstrates that the selective inclusion of stakeholders can have a positive impact on project performance (e.g. reduced risk for conflicts), but also raises concerns as to how legitimate (and representative) the selection process actually is, and over its susceptibility to personal biases. The results do, however, reiterate that the willingness to change personal value orientations is essential to ensure that stakeholder input is integrated into the project design. Furthermore, results from both projects show that relying explicitly on expert-driven input only is not sufficient to come to a socially accepted definition of a problem area (Raymond *et al.*, 2010).

4.5. How did the managers control stakeholder participation?

One manager defined a prevailing practice for stakeholder participation, stating that 'it has become best practice to create an opportunity and something which the public can see us do, even if it is only data collection wrapped up as participation' [F]. This provides a straightforward example of how managers avoid active involvement by relabelling activities that are part of the traditional technocratic approach to project design. By relabelling activities, the PM and host organisation seemingly comply with operational requirements set out in policy, circumvent active stakeholder involvement and maintain the status quo. As demonstrated by Case I, this is linked to an inherent reluctance among PMs to incorporate input that goes against their own expert-based assessment of the problem area of a project. Most PMs did, however, fulfil policy and operational requirements by designing the project so that it involved stakeholders and responded to input, such as in Cases II and III.

The prevalent negative value orientations associated with stakeholder participation in Case I (e.g. participation primarily perceived as a source of conflicts) meant that more than half of the managers were taking steps to enforce their value orientations on the project design. Many of these managers conducted a consultative process rather than active involvement. This signifies that they committed only to a one-way communication process and decided what to do with stakeholder input, which allowed them to collect input while restricting the stakeholders' influence on the project design and/or activities. Another strategy was to selectively invite stakeholders in order to avoid conflicts. In fact, close to 70 per cent of the managers admitted to having identified important stakeholders that were not engaged in their project(s). Rather than involve a representative set of stakeholders, many managers invited stakeholders with a pre-existing relationship to the manager and/or the organisation. This strategy may be legitimised by its potential to reduce costs (as in Case III), but the selective inclusion was often carried out to minimise the risk of conflicts or to maintain control (as in Case I). The most common measure to control stakeholder influence was to place participatory elements at a late stage of the project cycle. Stakeholder participation was, as a matter of fact, most often carried out in Case I when the budget had already been earmarked (e.g. for expert recruitment) for projects. The end result was that, if any stakeholder came up with something new, it was nearly impossible to fit it into the project structure.

The principal motivational factors that influenced (or allowed) the above-noted decision behaviours were the organisational and policy framework, as well as the PMs' personal values, sense of control and power. It was, for instance, noted that projects are expected to be inclusive and to build consensus, but the managers in Case I rarely received the organisational support required to take stronger action. This contributed to maintaining the status quo – a technocratic approach to project management. Taking another perspective, the policy framework on stakeholder participation and the lack of stricter regulations and control mechanisms may improve decision quality as they allow for flexibility in project management (Appelstrand, 2002). However, for the managers this flexibility provided the motivation and discretion to introduce their own value orientations against stakeholder involvement during project conceptualisation. One interviewee stated that 'the laws fail to define the relationship and obligation between the users [the stakeholders] and the PM' [I12]. This kind of reasoning was often coupled with depicting stakeholder participation as a restriction on project performance, rather than as a process that promises positive implications. In these cases the managers' personal values can also be linked to a prevailing unwillingness to share control and power. Nearly 55 per cent of them stated that no direct beneficiaries were allowed to participate in project management. Several managers did in fact note that stakeholder participation implies a changing power structure, which was perceived as negative (or as a threat) to the managers' vision for the project.

To conclude, it should not be forgotten that stakeholders' participation faces other barriers too, such as limited resources and stakeholder unwillingness. The results do not allow any conclusions on the relative weight of these factors; however, in all projects where the managers seemed to think that stakeholder participation limited their work, value orientations were found to influence the project design. In effect, when polices on participation are imposed without internal adaptation by the implementing organisation, PMs marginalise stakeholder participation based on their personal value orientations.

5. Discussion and conclusion

This paper has relied on the inside views of PMs and expert consultants working for international organisations at the front line of policy implementation. The first objective was to analyse how managers

frame stakeholder participation. As demonstrated by the empirical analysis, this cannot be separated from questions concerned with if (and how) the PMs' value orientation affected the design of the participatory processes, and what role stakeholders were allowed to play in decision-making. Results from the case studies illustrate that, when PMs associate stakeholder participation with negative value orientations, they operationalise this by limiting the level of stakeholder involvement, such as only providing information or allowing consultation, or relegating the participatory process to a later stage in the project cycle. These types of measures allowed the PMs to comply with policy and operational requirements without having to change established practices. The impact of the managers' value orientations is in line with previous studies on leadership and personality traits (Bruno & Lay, 2008; Moxley *et al.*, 2012), which suggest a spectrum of management personalities, ranging from individualistic to cooperative and competitive. It is reasonable that the PMs' personality and aspirations cause them to frame stakeholder participation with either negative or positive value orientations. These value orientations are, however, more similar to world-views that incorporate a broader range of values, which is why the concept of frames was applied from the onset. For example, 'individualistic' PMs are assumed to frame stakeholder participation as a threat to their control and power, which makes them adopt measures that circumvent this perceived threat (Wierzbicki *et al.*, 2000). These personality traits and aspirations differ not only in their underlying values but also in their effect on how projects are managed, and how policies and problem areas are interpreted (Castelletti & Soncini-Sessa, 2007; Moxley *et al.*, 2012).

Previous research about values among street-level bureaucrats also supports the findings that value orientations have a significant impact on project management (Lipsky, 1980; Hall & Davis, 2007; Aggestam, 2013). The diversity of value orientations regarding stakeholder participation is further reflected in the range of definitions that were provided for a stakeholder analysis. They show that PMs and front-line workers have quite different preferences for the participatory process in terms of impacts and outcomes.

The final objective of this paper was to address the effects of the institutional framework on both the PMs' decision-making and stakeholder participation. The results demonstrate that the discretion provided by the host organisation charged with implementation and the lack of organisational support have an impact on how the managers' value orientations are expressed. Effectively, the discretion accorded to the PMs defined whether they acted in accordance with their personal value orientation, the organisations' values or policy rules. This corresponds to a fluid application of values that is dependent on contextual variables, such as institutional design and perspectives on stakeholder participation. This is particularly apparent when organisations adapt to new policy demands that are ambiguous and leave room for interpretation. As the results have shown, the content of policy on stakeholder participation (e.g. guidelines) influences the interpretation and implementation. It may prescribe very concrete but different forms and procedures, which allows for conceptual ambiguities in its implementation (May & Winter, 2007). Consequently, if stakeholder participation had negative associations for managers, neither the institutional framework nor policy prevented them from operationalising these negative value orientations. This was made possible by the fact that the PMs could choose not to act on input from stakeholders while still complying with the funding agent's operational requirements. Essentially, and be it for more or less stakeholder involvement, the PMs impose their value orientations on the participatory process, if they can. This is not to say that most PMs were opposed to the integration of stakeholder participation, but rather that the organisations' lack of control enabled them to operationalise personal value orientations during project implementation.

This lack of control and support from the host organisations stands out as a finding in a majority of the projects analysed in this paper. This lack created an environment in which the PMs had significant freedom

in designing their project, even when clear steps were prescribed by policies on stakeholder participation. In most cases, the PM utilised this freedom to introduce their own value orientations. Institutional theorists assume organisations adjust to new policy demands – an external adaptation to stakeholder participation – but the street-level practices and the system of project governance remain unchanged (Lipsky, 1980; Schein, 1985). This is demonstrated by the lack of support given to PMs when implementing stakeholder participation and the prevalent reluctance to move away from a technocratic approach to project management. As a result, the policy-driven shift from a technocratic to a more collaborative and participatory management approach often tends to remain symbolic at the institutional level, as long as active stakeholder involvement is not incorporated in the organisation's customs and/or corporate culture.

5.1. What are the implications for practice?

The most apparent way to improve the implementation of stakeholder participation policy is through more stringent regulations and guidelines, such as tighter control over budgets and implementation practice (control-and-command), not only by the organisation charged with implementation but also by EU and international policy. The problem could also be addressed through increased awareness-raising and education campaigns that confront the managers' negative value orientations associated with stakeholder participation through, for example, reframing (Dewulf *et al.*, 2004), value attunement (Hall & Davis, 2007), or alternative dispute resolution (Creighton *et al.*, 1998). This would require a more structured and transparent strategy that addresses ambiguities in policy and support for stakeholder participation (Hare & Pahl-Wostl, 2002; Raymond *et al.*, 2010). On the one hand, there are some dangers inherent in these suggestions, namely that strictly defined policies disengage decision-makers from responsibility, both in terms of project management and stakeholder participation. On the other hand, to be successful, stakeholder participation needs to be a two-way communication process that validates stakeholder input (Failing *et al.*, 2004), and which should not be dependent on the PMs' value orientation (Kaltenborn & Bjerke, 2002; Sadoff & Grey, 2002; Taut, 2008).

Practice could, furthermore, benefit from improved tools for assessing a project's contextual background, such as improved procedures for *ex ante* evaluations. If funding agents were to evaluate projects more concretely in terms of the influence and impact stakeholders have on projects, integration may be improved. Tools could also be developed to assess projects prior to conceptualisation, so as to determine if, how and when stakeholders should be engaged. This could also be applied to assess the need for improved organisational control. For example, if there are no informal institutional customs that encourage participation, funding agents could choose to enforce more stringent regulations. This type of approach would allow for more flexibility, help prevent costly participatory processes in cases where they are implemented only to fulfil operational requirements, as well as prevent stakeholder frustration, which tends to increase barriers for project implementation and prevent stakeholders from getting engaged in similar participatory processes in the future.

To conclude, the results from this study point to open questions as regards the effectiveness of international and European policies on stakeholder participation, and highlight the importance of finding a more stringent compromise on what stakeholder participation means. Up until now, the vague definitions that are provided in many policies provide room for variations in policy implementation, both for better and for worse. This has to be taken into account when introducing policies that rely on the discretion of the implementers. There is, however, no single solution to fix this problem. Rather, there is a need for smart and flexible policy approaches to stakeholder participation and for policy

approaches that proactively encourage projects to use stakeholder input, based on context-specific indicators, and which provide for flexible operational requirements at the project level.

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7.3. Article 3. Framing the ecosystem concept through a longitudinal study of developments in science and policy

Framing the ecosystem concept through a longitudinal study of developments in science and policy

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Abstract: *This paper examines how scientific literature and policy documents frame the ecosystem concept and how these frames have shaped scientific dialogue and policy making over time. This was achieved by developing a frame typology, as a basis for organizing relevant value expressions, to assess how different frames have altered perspectives of the ecosystem concept. The frame typology and analysis is based on a semi-grounded and longitudinal document analysis of scientific literature and policy documents using the ecosystem concept. Despite changing discourses and public priorities (e.g., cultural constructs of biodiversity) both science and policy documents are characterized by stable value systems that have not changed substantially since the 1930s. These value systems were defined based on ethical principles that delineate 6 core frames: humans first, dual systems, eco-science, eco-holism, animals first, and multicentrism. Specific crises (e.g., climate change) and cross-disciplinary uptake and re-uptake of, for example, the ecosystem services concept, have brought new perspectives to the forefront of public discourse. These developments triggered changes in the core frames that, rather than being value based, are based on how the ecosystem is conceptualized under fixed value systems and over time. Fourteen subframes were developed to reflect these longitudinal changes. There are as such clear framing effects in both scientific literature and in policy. Ecosystem research is for instance often characterized by unstated value judgments even though the scientific community does not make these explicit. In contrast, policy documents are characterized by clear value expressions but are principally management driven and human centered.*

Keywords: environmental ethics, environmental policy, scientific literature, value orientations

Encuadre del Concepto de Ecosistema por medio de un Estudio Longitudinal sobre el Desarrollo en la Ciencia y la Política

Resumen: *Examiné cómo la literatura científica y los documentos de política enmarcan al concepto de ecosistema y cómo estos marcos han formado al diálogo científico y a la creación de políticas a lo largo del tiempo. Esto se logró desarrollando una tipología de marco, como base para organizar las expresiones relevantes de valoración, para evaluar cómo los diferentes marcos han alterado las perspectivas del concepto de ecosistema. La tipología y el análisis de marco están basados en un análisis longitudinal y semi-fundamentado de literatura científica y documentos de política que tratan con ecosistemas. A pesar de los discursos y las políticas públicas cambiantes (p. ej.: la construcción cultural de la biodiversidad), tanto los documentos científicos como los políticos se caracterizan por sistemas estables de valoración que no han cambiado sustancialmente desde la década de 1930. Estos sistemas de valoración se definieron con base en principios éticos que delinean seis marcos nucleares: humanos primero, sistemas duales, eco-ciencia, eco-holística, animales primero y multicentrismo. Las crisis específicas (p. ej.: el cambio climático) y el entendimiento y re-entendimiento trans-disciplinario, por ejemplo, del concepto de servicios ambientales, han traído nuevas perspectivas a la vanguardia del discurso público. Este desarrollo impulsó cambios en los marcos nucleares que, en lugar de estar basados en la valoración, están basados en cómo se conceptualiza el ecosistema bajo sistemas fijos de valoración y a lo largo del tiempo. Se desarrollaron catorce sub-marcos*

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para reflejar estos cambios longitudinales. Tanto en la literatura científica como en la política existen efectos claros del enmarcado. Por ejemplo, la investigación de ecosistemas comúnmente se caracteriza por juicios de valoración sobreentendidos, aunque la comunidad científica no sea explícita con éstos. En contraste, los documentos de política se caracterizan por expresiones claras de valoración pero generalmente están centrados en los humanos y conducidos por el manejo.

Palabras Clave: ética ambiental, literatura científica, orientaciones de valoración, política ambiental

Introduction

If asked to define a landscape, I might reply that it is an ecosystem composed of biotic elements (such as plants and animals) and abiotic elements (such as soil and water). Whether one agrees with this definition or not, using the ecosystem concept to describe a landscape is not likely to raise any eyebrows. Today it is a concept that most people can relate to. However, what most of us do not realize is that the ecosystem concept is not old. It was in fact only introduced by Arthur Tansley in 1935 (Tansley 1935) and was not popularized in scientific literature until the late 1960s by Eugene Odum (1953). Its metaphorical birth is thus recent and its meaning is still evolving in several disciplines, ranging from ecology to economics (Gómez-Baggethun et al. 2010; Norgaard 2010). This makes the ecosystem concept a perfect vehicle through which to explore the human-nature relationship and to link the ecosystem concept to a growing body of research on motivational factors, social structures, and institutional frameworks affecting how we frame nature.

Framing is often referred to relative to one out of two main areas of research, namely, cognitive frame theory by Minsky (1975) and interactional framing research by Bateson (1954). These are however two fundamentally different approaches to framing. The cognitive approach proposes that framing is a matter of individual cognition, whereas the interactional (or constructivist) approach suggests that frames are constructed through social interactions. Here, my definition of frames falls between these two concepts. For instance, on the cognitivist side, Lakoff (2005) argues that a frame is a "conceptual structure used in thinking" that a person (individual frame) or groups or institutions (collective frame) use to understand reality, whereas on the interactional side, Schön and Rein (1994) argue that frames are used "to construct the problem of a specific policy situation." Frames consequently depend on human cognition as well as the interactions that define, shape, and justify actions (Benford & Snow 2000; Donahue et al. 2011). For that reason, frames are defined as the cognitive structures—or mental models—that facilitate and filter information (as a heuristic device) and thus affect how people interact and make decisions (Kaufman & Gray 2003; Spangler 2003; Dewulf & Bouwen 2012). A frame can be described as the gestalt a person or organization uses to make sense of experiences or problems (Gray 2003; Baumgartner & Mahoney 2008). From this it follows that frames have real social implications and could serve an important function in understanding how we manage our environment (Daviter 2007; Donahue et al. 2011).

My focus here is not so much on deconstructing individual frames as on reconstructing collective frames connected to the ecosystem concept, in particular, how it has been framed in scientific literature and policy documents and how these frames may have shaped ecosystems over time (Rein & Schön 1996; Daviter 2007). This effort is in part driven by the aim to assess how frames can be used by practitioners in environmental management, based on the presumption that changes in environmental discourse have changed how humans value and frame the ecosystem concept (Kaltenborn & Bjerke 2002; Fischer & Marshall 2010). It is also driven by the fact that the ecosystem concept is commonly applied in environmental management, both on a conceptual and practical level, which makes the ecosystem a useful boundary for a frame analysis (Lindahl 2008; Donahue et al. 2011).

To explore longitudinal framing effects, the frame analysis uses a frame typology to provide reference to the nature and content of generic value frames (Lewicki et al. 2002; Jerneck & Olsson 2011). The purpose of developing a typology is, first, to provide a framework within which to organize relevant value expressions in scientific (peer reviewed) literature and policy documents and, second, to characterize distinctive value frames affecting how we perceive ecosystems. A frame analysis offers a holistic approach to assess if (or how) value frames have changed over time. It moreover allows for some inferences as regards to framing in environmental management.

Why Framing Matters

Frames are fundamental to how humans act and think in everyday life as well as in policy making and in academia (Rein & Schön 1996; Daviter 2007). This is reflected in the number of disciplines in which frame research and theory can be found, including sociology, political science, and cognitive psychology. Frames have been extensively applied to understand social conflicts (Benford & Snow 2000; Dewulf et al. 2009) and the impact of issue framing on environmental conflicts (Shmueli et al. 2006; López-i-Gelats et al. 2009). One example of this application is a study by Lewicki et al. (2002) that identified 14 types of

frames used by people and organizations to make sense of contested issues during environmental disputes. Another example is provided by Dewulf and Bouwen (2012), who analyzed how people make sense of environmental problems and interact in natural resources management. They identified 5 interaction strategies (frame incorporation, frame disconnection, frame polarization, frame accommodation, and frame reconnection) that affect how individual and collective frames interact.

Collective frames principally refer to specific perspectives that have been propagated by several actors (e.g., stakeholder groups) to influence the interpretation of the ecosystem concept during policy making. These interpretations are propagated by assigning (or suppressing) specific perspectives that eventually result in a collectively negotiated frame (Rein & Schön 1996). Changes in collectively negotiated frames would in turn correspond to an increase in power (or representation) of actors with different perspectives or values (Baumgartner & Mahoney 2008). Individual frames represent those propagated by a single person or by small groups. These are not negotiated and have the potential to be more diverse and less tempered relative to collective frames. Given this distinction, it is expected that individual frames dominate scientific literature, whereas policy documents (as a negotiated text) are dominated by collective frames. Both scientific literature and policy documents are, however, seen as products of a social and dynamic process through which a dominant frame is expressed, irrespective of whether it is collective or individual (Schön & Rein 1994; Donahue et al. 2011). In environmental management this would mean a frame put forward by a community of actors to justify how nature is managed.

Another key element to understanding frames concerns values. Talking about values is, however, like opening Pandora's box, especially because values can be defined in many ways and ascribed various effects. For the purposes of this paper, values are understood as the building blocks of an individual's beliefs and the principles that dictate how one behaves (Meglino & Ravlin 1998). Taken together, values, beliefs, and principles correspond to a value orientation (individual or institutional) that affects how one interprets experiences, facts, and events (Stern et al. 1999; Kaltenborn & Bjerke 2002; Vugteveen et al. 2010) and what motivates people (e.g., preferences). Ultimately, value orientations and motivation provide the basis for how people make decisions (Bruno & Lay 2008). Conversely this suggests many similarities between value frames and value orientations. The perspective in this paper is that value orientations provide the basis for reconstructing frames, but the ways people frame things do not depend only on values. Framing is partly innate (i.e., cognitive), partly learned (i.e., education), and partly socially constructed (i.e., power relations). Each dimension is needed for a holistic understanding of framing.

Values provide the basis for the frame typology. More specifically, value expressions communicated through scientific literature and policy documents are used to develop the typology. This is achieved by using environmental ethics to categorize value expressions and to reconstruct the value frames in which the ecosystem concept is embedded (Vugteveen et al. 2010; Buijs et al. 2011). This approach is based on previous work (see Aggestam 2014) and on the assumption that most value expressions can be connected to ethical principles (Callicott 2006; Amérigo et al. 2007). For example, stating that biodiversity is good can be linked to different ethical principles and theories depending on how they are applied to the ecosystem concept (Gupta 1995). This link is achieved by using anthropocentrism, ecocentrism, and biocentrism as a descriptive framework for the frame typology (see Results) as these theories provide a wide spectrum of value perspectives concerning the environment.

Anthropocentrism is based on the assumption that only human beings are moral agents with intrinsic value. In practice this means nature has only an instrumental value, which in turn means the value of an ecosystem depends on human values or needs (Gupta 1995; Cohen & Regan 2001). Biocentrism argues that all animals and plants possess intrinsic value. In practice this means a biocentric value system requires equal moral consideration to all living things, from a single cell organism to a human being. Biocentrism does not, however, confer any value to nonliving objects or concepts such as an ecosystem (Attfield 2003). Ecocentrism is based on Aldo Leopold's concept of a land ethic and centers on the idea that the entire ecosystem is a super-organism. It acknowledges that all living organisms have an intrinsic value, including ecosystems. This theory shifts the focus from the individual to the landscape and the community of organisms (Kortenkamp 2001). More extensive reviews of these theories can be found in Kortenkamp (2001), Kaltenborn and Bjerke (2002), and Amérigo et al. (2007).

The above-noted approach is based on the idea that value systems evolve over time and that this will alter how one frames the ecosystem concept. Taking inspiration from what Peter Singer (1998) calls our "expanding circle of moral concern," refereeing to how we increasingly allocate intrinsic values not only to humans but also to other species and nature, the value expressions underlying individual and collective frames are expected to change. He argues that humankind has progressed, morally and consciously, over time to expand moral considerations from the family to humankind and that we are now beginning to recognize obligations to other species (see also Cohen & Regan 2001; Attfield 2003). This idea is applicable in framing research because the prevalence of certain value systems may shift due to changing environmental discourses (Pistorius et al. 2012). For instance,

Table 1. Scientific articles and policy documents in the database of publications on the ecosystem concept.

Scientific articles			*Policy documents*			
journal	*no. (%)*	*launched*	*type of policy*	*no. (%)*	*issuing organization*	*no. (%)*
Journal of Ecology	42 (8.4)	1913	Int. & EU conventions	73 (21.5)	European Commission	89 (26.2)
BioScience	23 (4.6)	1964	EU resolutions	38 (11.2)	European Council	68 (20.0)
Oecologia	20 (4)	1968	Int. & EU agreements	38 (11.2)	International	49 (14.4)
Water, Air, and Soil Pollution	20 (4)	1971	EU communications	32 (9.4)	United Nations	46 (13.5)
Ecosystems	18 (3.6)	1998	EU proposals	27 (7.9)	European Parliament	38 (11.2)
Ecological Monographs	17 (3.4)	1931	EU regulations	26 (7.6)	Economic and Social Committee	17 (5.0)
Helgolainder wiss. Meeresunters	16 (3.2)	1937	EU decisions	24 (7.1)	EU countries	16 (4.7)
Ecological Applications	15 (3)	1991	opinions	19 (5.6)	Committee of the Regions	5 (1.5)
The American Naturalist	14 (2.8)	1867	EU directives	18 (5.3)	ASEAN	2 (0.6)
Science	12 (2.4)	1880	protocols	9 (2.6)	Baltic Marine Envi. Prot. Com.	1 (0.3)

Table 2. Total number of scientific and policy documents on the ecosystem concept examined over time.

Type of document	*Pre 1970*	*1971-1980*	*1981-1990*	*1991-2000*	*2001-2010*	*Total*
Scientific articles	101	99	101	100	100	501
Policy documents	39	50	52	99	100	340
Total	140	149	153	199	200	

the biodiversity crisis may have set off a reduction in anthropocentric value expression. This would mean that the value frames we associate with the ecosystem concept would also change, depending on how these value frames are expressed in scientific literature and policy documents.

Methods

The initial objective was to take a grounded approach (Thomas & James 2006) to uncover value frames and avoid biases. Identifying value expressions does, however, require some fixed structures and assumptions. It was thus not possible to take a fully grounded approach. Instead, anthropocentrism, ecocentrism, and biocentrism were used as a descriptive framework. This approach allowed for the identification of values as they were uncovered by applying ethical principles to describe the findings. This was labeled a semigrounded approach. Similar applications of environmental ethics can be found in Kaltenborn and Bjerke (2002) and Aggestam (2014). Furthermore, because only one individual conducted the coding, colleagues reviewed the method prior to and after application. The semigrounded approach, in particular the descriptive framework, was developed to avoid biases and subjectivities in the interpretation of the data.

A longitudinal document analysis of the academic literature and policy documents was conducted, starting from when the ecosystem concept was first introduced in 1935. The first step was to create a suitable study sample. This was achieved by searching online databases. For policy documents, this was done through websites, such as EUR-LEX (http://eur-lex.europa.eu) and the United Nations Treaty Collection (https://treaties.un.org). For scientific literature, this was done through Scopus (http://www.scopus.com). The keywords *ecosystem*, *ecosystem management*, and *ecosystem services* were used in the first screening. This yielded 425,986 scientific articles and 956 policy documents published from 1935 to 2010. From this set, a random sample of 100 documents in each 10-year period for both scientific journals and policy documents were taken. This sampling protocol was based on the size of the samples (an error level of 5% and a confidence interval of 95%), which suggested that at least 384 scientific articles and 274 policy documents were needed to ensure representativeness.

The random sampling resulted in 841 documents (501 scientific articles and 340 policy documents). The science articles were taken from 146 different journals. Table 1 lists the 10 most frequent journals in the sample, corresponding to 39.4% of the total study sample. The 340 policy documents correspond to 28 different document types issued by 23 different organizations. Ten organizations issued 97.4% of the documents in the study sample (Table 1). For these organizations, the different document types were also noted, and these documents represented 89.4% of the study sample (Table 1).

The policy documents focused on EU policy. This generated some methodological problems. First, it is only

in the last 10–15 years that an abundance of EU policy documents that mention ecosystems is available. Consequently, the selected policy documents come from mixed sources to cover the full study period (e.g., international conventions). Second, despite the inclusion of non-EU policy documents, the policy database was largely Eurocentric (Table 1). This implies there are some limitations to the transferability of the frame typology to the global policy arena. Third, despite changing how policy documents were selected, the number of relevant documents prior to the 1970s remained low. All documents before 1970 were thus merged into 2 groups, one for science and one for policy. Table 2 shows the temporal distribution of the documents.

The second step of the document analysis consisted of reading and screening each document for 18 key terms deemed relevant to the ecosystem concept (e.g., *management*, *service*, *intrinsic*, *conservation* and *sustainable*). Each term was then marked using the redaction function in Adobe PDF reader. Subsequently, the text around each term was re-read, analyzed, and codified in Excel. Seven articles and 4 policy documents were excluded from the analysis at this stage because they made no useful reference to the ecosystem concept. The codification took a grounded approach in that codes were assigned progressively depending on the findings, including the list of key terms (only 5 terms from the onset). Iterations were made when necessary. The codification consisted of identifying the thematic focus covered by the document (e.g., nature conservation, fisheries, or development) and relevant value expressions (e.g., biodiversity is good).

The frame analysis focused on developing a frame typology based on the value expressions extrapolated during the document analysis. For instance, if the document discussed future generations and sustainable development these were part of the codified value expression. These were then used to find correlations and to determine where the document was located on the anthropocentrism-ecocentrism-biocentrism spectrum (see "Why Framing Matters"). This allowed the data to be grouped according to dominant value expressions and to develop these into value frames. Guided by the frame typology it was then possible to further conceptualize different trends or similarities across all the documents and to look for changes over time.

Results

Framing the Ecosystem Concept

One initial and notable finding was the plethora of contradictory value expressions articulated across all document types. For example, some documents articulated the intrinsic and utilitarian value of biodiversity at the same time (e.g., European Environment Action Programme). These value expressions are contradictory because they are derived from different ethical principles, respectively ecocentric and anthropocentric principles. In policy or management terms, highlighting both value categories may be seen as simply pragmatic. But despite this possible distinction, the blend of ethical principles meant that the typology had to be mixed, which means that most frames contained more than one value category from different ethical theories.

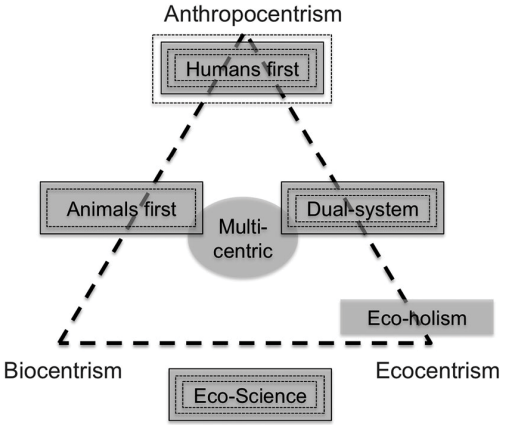

Figure 1. Prevalent value assertions expressed by the frames relative to ethical theories.

The frame analysis allowed for the reconstruction of 6 core frames that could be identified across both science and policy documents: humans first, dual systems, eco-science, eco-holism, animals first, and multicentrism. These value frames are described in detail in the frame typology outlined in Table 3.

Another important finding was that the abovementioned frames were not constant over time. A distinction had to be introduced between core and subframes, resulting in the inclusion of 14 subframes across the documents. This subdivision implies that the value expressions that make up a core frame remain the same (e.g., anthropocentric), whereas new concepts (e.g., future generations) change how the ecosystem concept is perceived. For example, with an anthropocentric perspective (e.g., humans first), the introduction of intergenerational equity changes how an ecosystem should be managed because people have to take future generations into account. The value basis for the perspective would nonetheless remain focused on humans as the only species with intrinsic value.

It is possible to visualize the core frames relative to the ethical theories, where each frame emphasizes one (or several) types of value systems (Fig. 1). The concentric

Table 3. A frame typology, including core and sub-frames in scientific literature and policy documents over time.

Core frame	*Subframe (normative and expressive aspects)*	*First temporal occurrence*	*Notes*
1. Humans first	*1.1. Anthropocentric framing*: Humans are explicitly seen as external to the ecosystem, and the environment (or landscape) is shaped for the benefit of humankind. Humans are the sole carrier of intrinsic value and the ecosystem, or any other living thing, only has an instrumental (or extrinsic) value. This subframe emphasizes the value of access to resources needed for further human development.	Policy: 1946 (Int. con. for the regulation of whaling). Science: 1946 (Ricker, W.E. [1946] Production and Utilization of Fish Pop., Ecol. Mono., 16, 373–391).	First policy document in the database that noted the ecosystem concept was the African Convention on the Conservation of Nature and Natural Resources in 1969. Policy documents prior to 1969 are principally anthropocentric and do not mention the ecosystem concept (Fig. 3). First citation of "ecosystem goods and services" was found in Some Principles of General Ecology and Human Society by Cain in 1960 (Ameri. Biol. Teac., 22, 160–164).
	1.2. Extended (or weakened) anthropocentrism: Humans are increasingly seen as part of (or dependent on) the ecosystem, but ecosystems are viewed from an exclusively human perspective. Considerations are given to new concepts such as multifunctionality, sustainability, and the monetary value of the ecosystem. This represents a modern view of the ecosystem, but it lacks contemporary terms (e.g., ecosystem services and future generations).	Policy: 1983 (EU action programme on the environment). Science: 1960 (Sears, P.B. [1960] The Place of Ecology in Science. The American Naturalist, 94, 193–200).	Anthropocentric scientific literature often highlights the value of technology, social systems, and institutions as regards to how ecosystems should be managed (e.g., Bromley, D.W. [1985] Res. and Econ. Dev.: An Institut. Pers., J. of Eco. Iss., 19, 779–796). Modern human-first frames (1.3 and 1.4) propose that utilitarian values should represent the basis for management, while intrinsic values of nature could impose some constraints (e.g., Farber et al. [2006] Linking Ecol. and Eco. for Ecosys. Man. BioScience, 56, 121–133).
	1.3. Environmental pragmatism: Adopting modern terms, often in connection with arguments for ecosystem conservation and protection from economic (e.g., benefits from ecosystem services), public health (e.g., recreation and food security), and environmental degradation perspectives (e.g., climate change). Conservation and protection continue to be interpreted from a human point of view.	Policy: 2002 (EU council decision on adopting a specific programme for research, tech. dev. and demonstration). Science: 1992 (Perrings, C. et al [1992] The Ecol. and Econ. of Biodiv. Loss: The Research Agenda. Ambio, 21, 201–211).	
	1.4. Framing the future: Continued development of the ecosystem service concept with an emphasis on the relationships between multiple ecosystem services. The focus is on the drivers and interactions between services and how these should be used and managed by humans—the service-based environment.	Science: 2009 (Bennett et al. [2009] Understanding rel. among multiple ecosys. Ser. Ecology Letters, 12, 1394–1404).	
2. Dual systems	*2.1. Ecocentric-anthropocentrism*: Validates contradictory value expressions within the same subframe. Both ecosystems and humans are valued for their own intrinsic self. Often calls (to a varying degree) for a balanced perspective (e.g., early call for sustainable development) in ecosystem management. Most often recognizes humans as the dominant and most valuable species.	Policy: 1940 (Convention on nature protection and wild life preservation in the western hemisphere). Science: 1935 (Tansley, A. 1935 The Use and Abuse of Vegetational Concepts and Terms. Ecology, 16, 284–307).	Tansley (1935)—when introducing the ecosystem concept—adopted a dual-system frame and placed humankind "outside" the ecosystem. Earliest account of a sustainable system (social, environmental and economic) was found in Plants and Vegetation as Exhaustible Resources by Cain in 1949 (The Scientific Monthly, 68, 321–328). Also presents arguments for nature conservation on both

(Continued)

Table 3. Continued.

Core frame	*Subframe (normative and expressive aspects)*	*First temporal occurrence*	*Notes*
	2.2. Balanced eco-anthropocentrism: Focus is on new approaches to managing society and its relationship to nature. The emphasis is on human-ecosystem interactions, using alternative terms rather than contemporary terms, such as *ecological* instead of *ecosystem services*. This is a period when new terms and concepts are taking shape but prior to mainstreaming.	Policy: 1973 (Con. on Int. Trade in Endan. Spec. of Wild Fauna and Flora). Science: 1949 (Elton, C. [1949] Population Interspersion: An Essay on Ani. Community Patterns. J. of Ecol., 37, 1–23).	scientific and aesthetic grounds (e.g., Odum, E.P. [1969] The Strat. of Ecosys. Dev., Science, 164, 262–270). One of the earliest policy documents recognizing both the intrinsic value of nature and the rights of future generations was the Convention on International Trade in Endangered Species of Wild Fauna and Flora in 1973.
	2.3. Integrated eco-anthropocentrism: Continued integration of different (sometimes paradoxical) value expressions. Humankind is increasingly seen as an integral part of the ecosystem. Even though humankind takes on the role of steward, both humans and the ecosystem have an intrinsic value. More weight is increasingly given in terms of co-existence and on balancing demands placed on the environment, such as through integrated natural resource management and multifunctionality, etc.	Policy: 2006 (Opinion of the European Economic and Social Committee on Halting the loss of biodiversity by 2010). Science: 1985 (Wiens, J.A. et al [1985] Boundary Dynamics: A Conceptual Framework for Studying Landscape Ecosystems, Oikos, 45, 421–427).	
3. Eco-science	*3.1. Scientific ecocentrism*: Prevalent in scientific literature, where the focus is often on basic ecosystem research. Real value statements are rare. Considers the entire community of organisms as equal, whether human or nonhuman. If humankind is noted, it is most often within an ecosystem perspective as an integral part of nature – a systemic perspective.	Science: 1946 (Pennak, R.W. [1946] The Dynamics of Fresh-water Plankton Pop. Ecol. Mono., 16, 339–355).	Ecosystem concept is primarily applied as a descriptive or scientific term, especially in modeling and theoretical development (e.g., Valerie T. et al. [2003] Functional Matrix: A Con. Frame. for Predicting Multiple Plant Effects on Ecosystem Processes. Ann. Rev. of Eco., Evo. and Sys., 34, 455–485.).
	3.2. Systemic eco-science: Gradually more system centered. Modeling is increasingly applied to understand ecosystems. Modernization of the terms used to study the ecosystem, such as *ecosystem function* and *health*. Increasing complexity introduced in how the ecosystem is perceived and described.	Science: 1967 (Holdgate, M.W. [1967] The Antarctic Ecosystem. Philosophical Transactions of the Royal Society of London, 252, 363–383).	Ecosystems are frequently linked to anthropocentric value systems and human–nature interactions (e.g., Leppäkoski, E. [1980] Man's Impact on the Baltic Ecosystem. Ambio, 9, 174–181). Uptake of the ecosystem services concept as a purely descriptive natural scientific term (e.g., Wang et al. [2009] Fine-scale environ. heterogeneities of tidal creeks affect distribution of crab burrows in a Chinese salt marsh. Ecol., Engi., 35, 1685–1692).
	3.3. Anthropogenic eco-science: The increase in anthropogenic factors having an impact on ecosystems coincides with an increase in the use of anthropocentric terms, such as climate change modeling and impact studies, methods used to explain how ecosystems will respond. This decreases the degree to which the eco-science frames can be ecocentric but also leads to previously value-charged terms being objectified. For instance, *ecosystem services* is taken up as a descriptive rather than an economic term.	Science: 1983 (W.A. et al. [1983] Complexity, Diversity, and Stability: A Reconciliation of Theoretical and Empirical Results. The American Naturalist, 122, 229–239).	

(Continued)

Table 3. Continued.

Core frame	*Subframe (normative and expressive aspects)*	*First temporal occurrence*	*Notes*
4. Eco-holism	*4.1. Ecocentric framing*: Nature-centered system of values in which intrinsic values are allocated to the ecosystem. Humankind is seen as part of the ecosystem and associated values are often recognized. Entire ecological communities are seen as part of the moral equation in environmental management. The question of priorities is critical, ranging from prioritizing nature to promoting a balance between the value of the ecosystem and humankind, as such this subframe still conveys anthropocentric values.	Science: 1995 (Stanley, T.R. [1995] Ecosystem Management and the Arrogance of Humanism. Conservation Biology, 9, 255–262).	Regularly integrates scientific knowledge of ecological relationships within a complex values framework (e.g., Jamieson, D. [1995] Ecosystem Health: Some Preventive Medicine. Environmental Values, 4, 333–344).
5. Animal's first	*5.1. Biocentric framing*: This subframe articulates ethical concerns for all living things, which means that humans are not superior to other animals. Often applied in animal rights and medical research discussions. Biocentric thinking (and associated values) is rare in policy documents (e.g., Ecuadorian constitution recognizes the rights of nature). It is primarily applied in biomedicine but also for animal protection and conservation.	Policy: 1976 (European convention for the protection of animals kept for farming purposes). Science: 1977 (van Heijnsbergen, P. [1977] The rights of animal and plant life. Environmental Policy and Law, 3, 85–86).	Recognition that each species has an intrinsic value and is equally worthy of conservation (e.g., Stanley, R. [1995] Ecosys. Manag. and the Arrogance of Humanism. Conservation Biology, 9, 255–262). Often engage in ethical discussions on the impact of human value systems on ecosystem management and/or towards the protection of animal welfare (e.g., Minns, C.K. [1999] The ecos. pyramid and the means for attaining ecol. sust. Aquatic Ecosystem Health and Management, 2, 209–221).
	5.2. Evolving biocentrism: The argument is the same as for 5.1 but modern terms, such as *biodiversity*, are introduced. Increasingly influenced by deep ecology (e.g., promoting wilderness preservation and human population control). Used to argue for the ban of animal transportation. This subframe is upheld in rare cases and most often still includes anthropocentric value expressions.	Science: 1992 (Pimentel, D. [1992] Conserving Biological Diversity in Agricultural/Forestry Systems. BioScience, 42, 354–362).	
6. Multi-centrism	*6.1. Multi-value framing*: The subframe in which ecological, social, and economic values intersect in the ecosystem concept. Intrinsic values are expressed not only for humans, but also for the ecosystem and all living things within the system (of which humans beings form an integral part). Often applies a pragmatic approach to the allocation of values, recognizing the importance of human demands in the system. Similar to the dual systems frame but more pluralistic in its application of different value systems.	Science: 1989 (Worthington, M.K. [1989] Ecological, Ethological, and Ethically Sound Environments for Animals: Toward Symbiosis. Journal of Agricultural ethics, 2, 323–347).	"I (the hog or the human) am also concerned (consciously or not) with the welfare of my offspring: future generations. The quality of life for both present and future generations of hogs and humans is threatened if ecological considerations are not taken into account" (p. 328)—Worthington (1989).

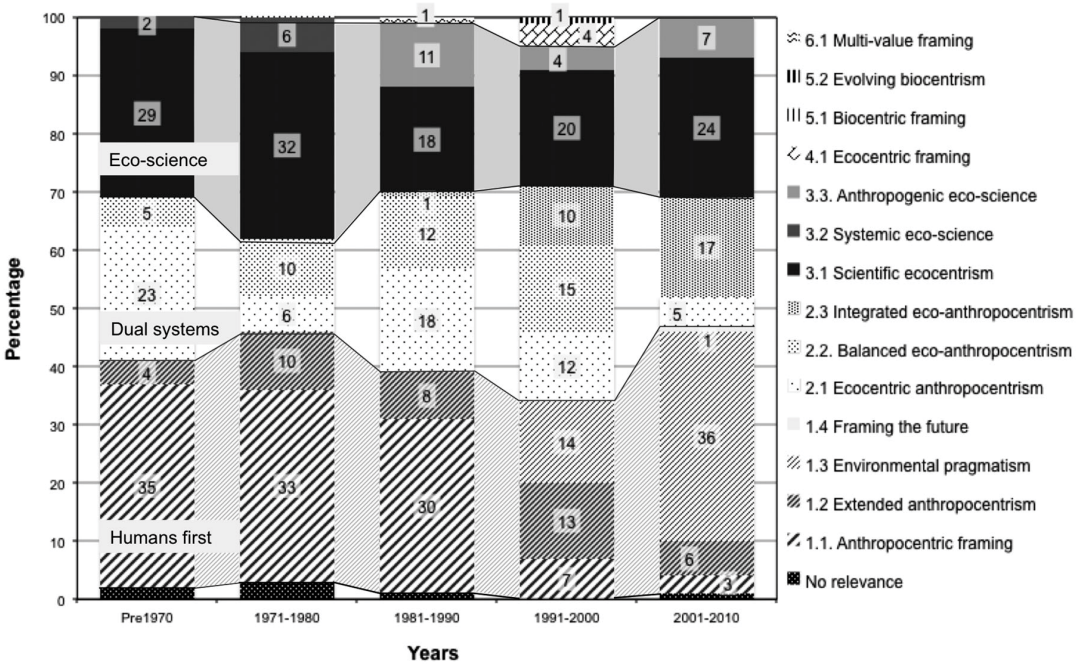

Figure 2. Percentage of scientific articles according to frames and subframes relative to the ecosystem concept over time. See Table 3 for references to the frames and subframes.

circles around some core frames correspond to subframes and the changes taking place over time, with some changing more than others. This means the frames are changing (or evolving) and integrating new concepts while maintaining the core value system. Figure 1 also demonstrates that a majority of frames convey anthropocentric values. It is only the eco-holism frame that attempts to break away from this, whereas the eco-science frame attempts to avoid value expressions altogether.

Scientific Literature

All core and subframes were present in the scientific literature, but the most prevalent were the humans first, dual-system, and eco-science frames, as represented by the hatched area between the columns in Fig. 2. There was a decrease in the humans first perspective linked to the onset of the environmental movement in the 1970s and the launch of ecosystem research journals throughout the 1990s (e.g., *Ecosystems* started in 1998). This trend stops around 2000, principally due to the manifestation of the ecosystem service concept. In the current data set, this concept first occurred in 1960 (Table 3) but was not popularized until the early 1990s, through publication of, for example, Ehrlich and Wilson's (1991) study on biodiversity loss and Costanza and Daly's (1992) article on economic valuation of ecosystems. The ecosystem service concept is most commonly argued from an economic perspective (or a perspective concerned with monetizing ecological processes) and it is principally anthropocentric (Gómez-Baggethun et al. 2010; Norgaard 2010; Pistorius et al. 2012). This essentially means that the ecosystem concept has been taken up by other scientific disciplines, which is reflected in the increase of anthropocentric value expressions (≈10%) between 2001 and 2010 (Fig. 2) and the diversification of the types of journals in which the concept is used. In the same period, values associated with ecosystem services changed. For instance, the dual system and eco-holism frames increasingly used the term to argue for nature conservation. The ecosystem services concept essentially became a tool for ecocentric arguments and is now used in discussions on biodiversity conservation in natural science journals. This illustrates how the ecosystem concept has crossed disciplinary (and theoretical) boundaries, after which the natural sciences took up the ecosystem services concept (uptake and re-uptake) and re-valorized it in practice.

Scientific articles were expected to be more frame diverse due to (often) individual authorship and the absence of negotiations during writing. Although this is certainly true in comparison with policy documents (Fig. 3), it was surprising that the scientific literature largely remained anthropocentric or made attempts to be objective (avoiding value judgments altogether). In terms of value expressions, this remains true even with more pluralistic concepts such as integrated resources management—which can be traced back to the birth of the ecosystem concept and early calls for conservation

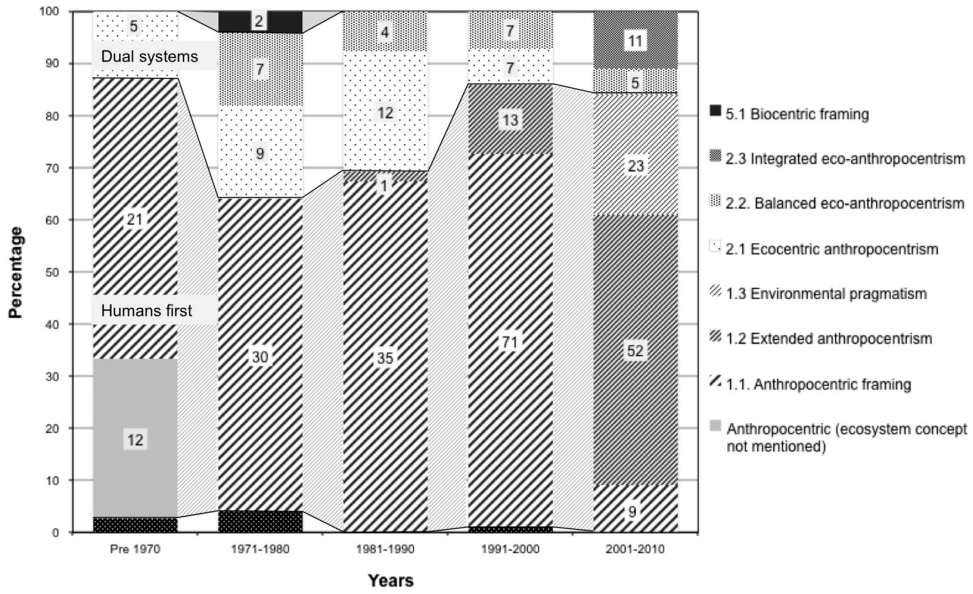

Figure 3. Percentage of policy documents according to frames and subframes relative to the ecosystem concept over time. See Table 3 for references to frames and subframes.

(Table 3). There is moreover no shift in the value assertions put forward in connection with more recent terms, such as *multifunctionality*. This is also the case for the introduction of intergenerational equity and sustainability, which can be traced back farther than the Brundtland report. For example Haynes et al. (1980) noted that "[. . .] present and future generations of all organisms and the rights of those humans currently involved with today's society must be incorporated into the decision-making process" (p. 695). Recognition of the intrinsic value of nature and the rights of future generations can also be found in policy as early as 1973 (e.g., Convention on International Trade in Endangered Species of Wild Fauna and Flora)—nearly 2 decades before the Brundtland Commission. This suggests that, rather than being new, concepts and associated values (such as sustainability) are pre-existing concepts that have been modernized and re-labeled. This furthermore suggests that value systems are stable over time and that they, in part, only change linguistically when global challenges (e.g., biodiversity crisis) and new discourses arise (e.g., climate change).

Policy Documents

Environmental policy documents represent the regulations applied to physical ecosystems and society. Policy documents were thus nearly always anthropocentric (Fig. 3). They were dominated by the humans first frame for more than 60 years. The only shift occurred in the early 1970s, during the inception of modern-day environmental policy (e.g., the National Environmental Policy Act of 1969 in the United States and the European Environmental Action Programme in 1973). Both these policy documents arose as a reaction to environmental crises in the 1960s and 1970s. Coinciding with this development there was an increase in the dual systems frame between 1970 and 1990 (Fig. 3). The dual systems frame often argued for the benefits of preserving the environment for both humans and the ecosystem. Even though a majority of these documents were management driven, meaning they were largely anthropocentric, they introduced new value expressions that attributed intrinsic values to ecosystems, such as the Convention on the Conservation of European Wildlife and Natural Habitats of 1979.

The recognition that an ecosystem can have an intrinsic value was often more explicit in policy documents than in scientific literature—particularly by opinion-giving committees. For example, the European Economic and Social Committee stated in its opinion on halting the loss of biodiversity by 2010: "Society . . . is not sufficiently aware of both the intrinsic and practical value of biodiversity. If both reasons for maintaining biodiversity are not really taken on board and understood, no policy in this field can be effective" (p. 5). This statement supports not only the intrinsic value of biodiversity, which implies that similar or equal moral consideration must be given to biodiversity as that given to humankind, but also the utilitarian value of biodiversity. These are two opposing value expressions. This represents a shift in how the environment is framed and provides room for ecocentric value expressions. Yet, despite this development, policy making has moved back to becoming more anthropocentric in the past two decades (1990 to 2010). For example, policies (1980s and onwards) often focused on either protecting key ecosystem services (e.g., clean water and

air) or on imposing management regimes or restrictions (e.g., preservation of fish stocks). These policy types are anthropocentric and operate from the assumption that protection and management is carried out for the benefit of humankind (e.g., resource conservation).

It took substantially longer for changes in the prevailing value systems to be reflected in policy documents than in the scientific literature. Both scientific literature and policy documents underwent a similar shift, but environmental policy largely applied the subframe anthropocentric framing (≈70%) until rather recently (Fig. 3). It is only in the last 10 years that subframes have transformed rapidly. This is in part due to the rapid increase in regulations including the ecosystem concept and to an increase in the dialogue between scientists and policy makers. For example, the *Millennium Ecosystem Assessment* (MEA), published in 2005 and driven in large part by social and natural scientists, facilitated the uptake of the ecosystem service concept both in science and policy (Gómez-Baggethun et al. 2010; Pistorius et al. 2012). This exchange between science and policy has arguably contributed to an increase in the environmental pragmatism subframe in policy documents and a transformation and re-uptake of the concept by the eco-holism core frame in the scientific literature. This argument is linked to a significant increase in the use of the ecosystem services concept in policy and changes in how it was articulated (e.g., arguments for conservation) in science, coupled with increased referencing to the MEA publication.

Finally, and in contrast to expectations, core frames expressed in scientific literature and policy documents were quite stable over time. For example, the prevalence of the humans first frame ranged from 60% to 80% in policy documents and from 35% to 45% in scientific literature over time. These changes did not represent a major shift in value systems (e.g., anthropocentrism to ecocentrism). They show, rather, the development of the respective subframes (Table 3). This development can be illustrated by the future-generations concept frequently noted in policy documents (e.g., World Charter for Nature from 1982), but less so in the scientific literature. Development of the subframes corresponded to an evolution of anthropocentrism in that moral consideration was given to the unborn segment of humankind. This evolution also opened the way for increased nature conservation based on anthropocentric value expressions.

Discussion

The purpose of the longitudinal document analysis was to characterize value frames in scientific literature and policy documents and to explore how these have changed over time. This was achieved by using the ecosystem concept as a vessel to demonstrate how a concept can change from being a scientific term to being a normative concept applied in both academia and policy. However, it is as such important to note that the ecosystem concept is not merely a scientific construct. Science and policy definitions involving the ecosystem concept (e.g., ecosystem services) are normative in that they reflect values and preferences. This is in line with Kapustka and Landis (1998) who claim that scientists arguing for a "healthy" ecosystem cannot do this without introducing values as aspects of the definition, making ethics an integrated property of the ecosystem concept. This further illustrates that science is a product of societal values, with the implications for policy being that scientists may arrive at different positions based on societal and personal values. For instance, Ripley and Buechner stated in 1967 that "man's conceptual environment, not science, will determine the future of humanity" (p. 1196). This signifies how important it is to understand framing effects because frames not only influence how we conceptualize ecosystems but also how we manage nature. In addition, many of the popularized concepts (e.g., sustainability) credited with changing how ecosystems are managed are frequently not as new as one may presume. Rather, it appears that often only the language (e.g., labels) attached to these concepts changes. Effectively, we are renewing and re-labeling old ideas as they become mainstream.

The distinction between values and how we conceptualize an ecosystem is exemplified by the 6 core frames and 14 subframes introduced in this paper (Table 3). The core frames are similar to Snow and Benford's (2000) "master frames," namely, stable configurations that underlie more specific collective action framing in social movements. The distinction here is that a core frame is linked to specific value systems that remain stable, whereas the subframes correspond to differences in how the ecosystem is conceptualized under these fixed value systems. It is argued that specific crises (e.g., climate change) or cross-disciplinary uptake and re-uptake (e.g., ecosystem services) have brought new perspectives to the forefront of public discourse and have triggered an evolution of the subframes.

In effect, the results demonstrate that the population of academic authors and policy makers represented by this study have had stable value systems over the past 80 years. This is in line with previous findings confirming that individual frames (or value structures) are stable over time and difficult to change (Meglino & Ravlin 1998; Bruno & Lay 2008). It was, however, expected that collective frames would change more simply because they are collectively negotiated and would reflect changes in environmental discourse (e.g., biodiversity crisis). This was seemingly a faulty assumption because the drivers (e.g., biodiversity loss) affecting the core frames did not alter the representation of collective frames significantly. Instead the formation of subframes was an adaptation to new concepts (e.g., future generations and multifunctionality) that allowed core frames to adjust

to changing demands. This confirms two findings. First, we have not changed how ecosystems are valued, only how they are conceptualized, and, second, subframes are more likely to change if core values are not affected. In practice this suggests that if we want to gain support for environmental conservation from an anthropocentric individual, success is more likely if natural processes are framed in terms of goods and services rather than arguing for intrinsic values in nature. The point here is simply that reframing may be easier if core values are not engaged (Kaltenborn & Bjerke 2002; Donahue et al. 2011).

Taking this on board would mean that reframing implies changing subframes under a given core frame. Applying this in practice implies shifting an individual's (or group's) thinking to a different system (or cognition) that allows them to reconfigure a problem (Jerneck & Olsson 2011) based on concepts that fit their core frame. Consequently, if one used prevalent core frames to contextualize new (or old) environmental concepts, this would have a greater persuasive impact and would increase the likelihood that one would reframe (Spangler 2003). Thus, if the aim is to facilitate the uptake of an alternative subframe, it would help to think about what is being framed, what core values are affected, and what type of framing effect is desired. This process should be backed by a frame typology that shapes how information is framed. It should nonetheless be noted that reframing as understood in this case is more likely to elicit a behavioral change and not a value-based change. Having said that, one central question that cannot be answered through this study is whether it is more important to change behaviors or values.

My second objective was to draw conclusions from the findings as regards to environmental management. It is clear that scientists and policy makers can arrive at different positions based on social or personal values inherent in the frame they use to conceptualize ecosystems. Frames (whether individual or collective) would therefore have a physical impact on the environment, which cannot be quantified in this case, but the impact would depend on those aspects of the ecosystem that are prioritized (Kortenkamp 2001; Aggestam 2014). For instance, biodiversity is not inherently more important than carbon storage, but scientific literature and policy documents are often characterized by these types of unstated value judgments (Lackey 2001). The danger here is that the ecosystem concept is misused. To illustrate, the humans first frame implies that a person pays attention to the issue that is the focus of the frame, namely, humankind. In contrast, the eco-holism frame implies that a person takes a systems-perspective in which humans are only one factor out of many that are equally valuable. These would generate radically different management approaches, such as how ecosystem services are utilized. Another example would be how the ecosystem services concept is nowadays embraced as a scientifically operational concept in environmental management. At a policy level—principally referring to the EU—this can be found in efforts to map and assess the economic value of ecosystem services (European Commission 2014). This clearly entails the application of normative concepts that are fuelled by specific value assertions that we in turn operationalize in management (de Groot et al. 2010; Fischer & Marshall 2010).

To conclude, most policy documents and scientific publications in this study centralized humankind to different extents. It was only in very rare cases that ecocentric or biocentric frames were applied and these were not found in binding regulations. The system properties for environmental management (dominated by the humans first frame) would therefore change only if there is a shift in the representation of core frames or if subframes evolved. Thus, if the policy-making process is reframed, we may see a change in land-use planning and management. For example, multifunctionality is commonly put forward, both in scientific literature and policy documents, as economically and socio-culturally preferable—often based on dual system framing. However, in reality, highly productive multifunctional landscapes are presently being converted at unprecedented levels into single function land use types across Europe (de Groot et al. 2010). Reframing, or allowing, alternative frames in policy could provide one approach to reverse this trend. Similar arguments have been presented before. For instance, Norgaard (2010) argues that we need to address individual virtue ethics and, more specifically, that we need to help individuals move away from mainstream opinion. This would be similar to reframing. He also argues for the importance of contextualizing environmental projects, which is something a frame typology could do. The argument here is that framing research offers us the knowledge and framework to be part of a larger solution to change detrimental perspectives of the environment.

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7.4. Article 4. Integrated Framing: A micro to macro case in the landscape

Integrated Framing: A micro to macro case for the landscape

Abstract

This paper takes an integrated approach to framing, utilising the landscape concept to explore vertical and horizontal relationships between frames. It is based on three previously published articles as case studies. The first reviews wetland restoration and how we frame landscapes, the second explores how institutions have operationalized stakeholder participation in the landscape, and the third investigates how science and policy has framed the ecosystem concept in relation to the landscape. The innovative aspect has been to link the macro level (e.g. value frames in policy) to framing effects at the meso level (e.g. institutions affecting policy implementation) and micro level (e.g. individual frames affecting wetland restoration). The main argument put forward is that a multi-level synthesis of framing requires that we integrate different theoretical perspectives on frame theory.

Key words: Frame theory, Framing, Landscape management, Integrated research

1. INTRODUCTION

Our landscape, whether natural or managed, is an interface through which society interacts with nature. Examples of this are economic activities, such agriculture and forestry, and societal priorities, such as public health and conservation. The concept of a landscape consequently connects people (directly or indirectly) with nature and vice versa (Norton, 2005). The landscape can be seen as a product of nature that is intertwined with human value-systems that are inherently bound up with the landscape, the priorities we set as a society, and policy making (Harrison and Davis, 2002; Eder, 1996). These relationships presents a physical manifestation of historical and present day human values (Fischer and Marshall, 2010). One illustrative example of human-landscape interactions comes from the conservation movement and questions about the best way to manage nature. For instance, contrasting interests from different groups (e.g. climate change activists and industrial lobbyists) present arguments that are consistent with different socio-economic, cultural and professional perspectives (Soini and Aakkula, 2007). These differences generate conflicts in (or about) the landscape that are ultimately based on how nature should be framed and utilised.

Frames are in this case the conceptual structures that individuals (or institutions) use to perceive and organise how to think and communicate about the landscape (Fischer and Marshall, 2010; Howley et al., 2011), a process that has been addressed by many disciplines. One of these views frames as an interpretive lens, a cognitive device, which filters how people perceive and give meaning to items, events and experiences. This research stream originates from Minsky's cognitive frame theory (1975), and often refers to unconscious structures called "schemas" (Lakoff,

2010). Another discipline subscribes to the view of frames as a socially constructed communication device used to conceptualise and convey a specific narrative (e.g. to promote a certain interpretation). This strand of research originates from Bateson's interactional framing research (1954), and is often found in media communication research (e.g. Entman, 2007; Goodman, 2006). The key distinction here is that cognitive frames are rooted in the individual mind, either biologically or through learning, while interactional frames are located in the interaction and social construction of meaning (Donahue et al., 2011; Rein and Schön, 1996).

In both instances, the idea behind frame theory is basically that one issue can be viewed from multiple perspectives. This means that framing implies how a person conceptualises said issue, which is dependent on factors such as values, attitudes and how the issue is conveyed. When applied to the landscape, this implies that people's attitudes towards a landscape vary along with their framing. For instance, findings by Chong and Druckman (2007) indicate that individuals with strong values are affected less by frames that contradict those values. Another author, Nelson et al. (1997), argue that frames represent the bridge between elite discourse about an issue and how the public understands that issue, which is connected to how information is communicated – essentially seeing frames as devices that communicate human intent. Taken together this means that people with opposing values would be less successful in persuading each other. This basic argument is mentioned to show the explanatory utility of framing as an analytical approach and to argue that framing provides a holistic approach to investigate the human-landscape interface (Fischer and Marshall, 2010; Howley et al., 2011).

The background for this article resides in three previously published case study articles. These cases are not geographically related but they explore framing effects at different levels of implementation, from communication (involving single individuals) to policy-making (involving institutional actors). The first case reviews wetland restoration and how it is influenced by landscape frames (see Aggestam (2014b)). The second case looks at how individuals and institutions have operationalized stakeholder participation and how framing has influenced participatory processes in the landscape (see Aggestam (2014a)), and the third case explores how scientific literature and policy documents have framed the ecosystem concept over time (see Aggestam (2015)). Case studies like these are usually analysed separately from each other (which has already been done) but the novel approach taken here is to examine framing effects not only at an individual (*micro*) level but also at an institutional and policy (*meso* and *macro*) level. This vertical multi-level approach characterizes one key reason as to why the landscape concept has been chosen as a "frame within the frame". More specifically, the landscape concept allows this paper to contextualise the case study articles and to link these back to a wider body of research on framing.

The multitude of conceptual approaches to framing research further highlights that there are many definitions and applications of frames (Cornelissen and Werner, 2014). It is for this reason that the main challenge taken up by this paper is to use the landscape concept to present an analytical approach that allows for an

integrated take on framing. By exploring vertical and horizontal relationships between frames, the intent is to investigate how frames are linked to the real world and our impact therein. The challenge, therefore, is to disentangle how frames are embedded at different levels, and to integrate these perspectives, taking different disciplinary approaches into account.

1.1. Bridging the Theoretical Divide

Numerous research strands on framing can be found in the literature, ranging from media and communication (e.g. Druckman, 2001a; Hanggli and Kriesi, 2012), policy (e.g. Daviter, 2007; Van Buuren et al., 2014) and psychology (e.g. Kahneman and Tversky, 1984). While it is beyond the scope of this article to provide a detailed review of all relevant research areas, an integrated approach also requires that distinctive areas of research are considered, and that the connection between frames at different levels of analysis – from the micro to the macro level – are taken into account (Cornelissen and Werner, 2014). The purpose of this section is thus to provide an introduction into framing at the proposed levels of operationalization.

Framing research, at the *micro level,* most often focus on cognitive theories where frames, or "schemas", correspond to cognitive structures (e.g. preferences and values) that are shaped by mental functions (Kahneman and Tversky, 1984) and personal experiences (Shen and Edwards, 2005). Focusing on the individual, this can be everything from how a person interprets a landscape, makes social judgements and is able to be reflective. The main idea is that cognitive frames are not static but stable "meaning-making systems" based on cognitive structures that affect how we learn and retain knowledge as well as how we interpret new information in a cumulative manner (Nelson et al., 1997). The application of a cognitive frame is comparable to evaluation processes found in simple heuristics (Gigerenzer and Todd, 1999). This process is subject to how our brain reacts to external stimuli, which dictates how we behave, with, for example, emotionally charged words affecting how we make decisions (Lakoff, 2010; Devignemont and Singer, 2006). The main distinction between the *micro*, *meso* and *macro* level is found in the emphasis on individual cognition.

The *meso* (or organisational) level is often characterised as collectively constructed sets of assumptions, knowledge and/or value systems (e.g. in communities or social groups). In the literature, this is frequently found in social movement or political action research, such as frames that are strategically used to persuade or gain support from the public (Hanggli and Kriesi, 2012). This equates to what Snow et al. (1986) call a frame alignment process, namely, when a specific frame prompts individuals to undergo a frame transformation (or re-framing). For example, at this level, strategic messages (e.g. socially constructed realities) make people look at things differently, and, if successful, change their opinion or behaviour (Jerneck and Olsson, 2011). This can also refer to organisational frame constellations, such as technological or strategic frames, that dictate how an organisation projects its perspectives (e.g. value frames) onto its staff or to a wider audience using, for example, rhetorical devices (Schmidt, 2008). Framing is on this level most often

seen as an interactional (or socially constructed) meaning-making process.
The *macro* (or institutional) level is most often portrayed through neo-institutional theory, in terms of the creation of new markets, shared conceptions, or the diffusion of new ideas and practices (e.g. cultural framing). This process influence social meaning-making, stabilises power arrangements and affect interactional patterns (Goffman, 1974; Bateson, 1954). The strength of the framing concept at the institutional level is that it refers to, on the one hand, a macro framework that allows individual frames to interact under one umbrella (e.g. shared values), and, on the other hand, as a temporally stable frame that allows researchers to infer how institutions (as well as individuals) perceive or value a landscape (Benford and Snow, 2000). It may also provide insights into how organisations will behave. For example, the process of conventionalising a new approach to landscape management may go from being perceived as something negative to becoming cognitively embedded and accepted by the wider public. This process would entail that it first emerges as a new topic, becoming established as an institutional frame, and then generates a shift in understanding. This is, of course, a generalisation, but it illustrates that the macro perspective provides us with a final link in the framing process, allowing us to define structures of meaning that shape how we collectively interact and understand reality.

The next section will review how these levels connect with the landscape concept. More extensive reviews of frame theory can be found in Coninx et al. (2015), Cornelissen and Werner (2014), van Hulst and Yanow (2014) and Chong and Druckman (2007), among others. It should further be noted that an integrated approach to framing research is not a novel suggestion (Dewulf et al., 2009; Donahue et al., 2011). In a recent special issue on framing politics it was argued that framing is in need of an integrated research approach (Matthes, 2012b). The notion of integrated framing research presented in the special issue is different from the one taken here. Matthes argues that framing research needs to move beyond single case studies to link findings across cases in larger integrated projects. It is suggested that we should pursue integrated models of framing (Matthes, 2012a; Matthes, 2012b) and to look at the entire framing process (micro to macro), not only segments (de Vreese, 2012). This work follows the same argumentation but argues that linking levels of frames (or steps in the framing process) to larger models on framing is only part of an integrated approach. Another aspect that needs to be addressed is theoretical limitations (or tunnel vision). This implies that research on frames is often blinded by divergent theoretical approaches behind the framing concept, which must be addressed as part of an integrated approach. Integrated framing research can for the purposes of this paper be described as a blend between Dewulf at al's (2009) "meta-paradigmatic perspective" that delineate and mix approaches to framing with varied ontological and epistemological backgrounds to Matthes (2012a) call for an integrated model.

1.2. Framing the landscape: a micro to macro perspective.

Landscapes, as a canvas for individual, collective and institutional frames, provide an appropriate functional boundary for exploring framing effects from a micro to macro level. More

specifically, the landscape is a physical environment in which people, institutions and policy interact, both horizontally and vertically. The landscape can be seen as a human product – framed within a constructed set of values – that provides an opportunity to investigate how frames are operationalized in practice (Kaltenborn and Bjerke, 2002). This is especially important since different individuals live in, interact with, and ascribe meaning to the same landscape, assigning multiple interpretations (Howley et al., 2011; Soini and Aakkula, 2007). These varying perspectives provide the contextual background for this paper. The landscape is however only applied as a conceptual framework and other concepts (e.g. water and climate change) could also be applied.

On a micro (or individual) level, our attitudes towards the landscape would be dependent on a subset of issues (e.g. motivation and knowledge) that make an individual assign different importance to various attributes of the landscape (Fischer and Marshall, 2010). For example, on evaluating the pros and cons of landscape conservation, one may believe that it will favour biodiversity but harm the economy. These attributes would be valued differently depending on whether the landscape is seen as a place for recreation, as a source of income or whether it is an area in which one grew up or is merely visiting (Buijs et al., 2009). The framing process would consequently be dependent on the individual's cognitive representation of the landscape and the application of cognitive structures (or mental models) to facilitate and filter information (Kaufman and Gray, 2003; Gigerenzer and Todd, 1999). These factors would determine what attributes of a landscape a person favours

Meso and *macro* level frames influence how an individual interprets experiences, facts and events within a landscape (Stern, 2011). For example, a moderator (e.g. a negotiator or organisation) may attempt to elicit certain frames that favour a specific outcome, such as the mobilisation of people to support landscape conservation (Snow et al., 1986; Dewulf et al., 2009). Some practical examples would be framing during stakeholder participation (Fuller, 2009), how landscape preferences are articulated (Buijs, 2009) and affiliations to social movements (Benford and Snow, 2000). These social and contextual aspects of framing would interact with cognitive frames and affect how we make sense of and interact with people. Ultimately, these frames affect how we (as individual or groups) make decisions about the landscape.

It should finally be noted that the link between a frame and effects on the landscape is not always easy to discern. *Meso* and *macro* level frames propagated through media (Goodman, 2006), policy (Schön and Rein, 1994) and cultural factors (Buijs et al., 2009) have been characterised in their respective research areas, but it is nearly impossible to quantify their impact on a landscape. That being said, understanding the link between the macro (e.g. policy making) and the micro level (e.g. individual actors) is more important in the current socio-economic and political climate. For example, in recent years we have seen a decentralisation of power in Europe (van der Windt et al., 2007), including a shift from traditional top-down to participatory decision-making processes, where individual and collective actors are invited to express their views during landscape planning (Fuller, 2009). These developments

highlight the need for a vertical (multi-level) approach that can investigate framing effects at the *micro*, *meso* and *macro* level as well as how they interact with the landscape.

2. ANALYTICAL APPROACH

The review demonstrates that frame theory could fall into two large formative strands, namely, stable meaning-making systems (e.g. cognitive and institutional frames) and socially generated meaning-making (e.g. temporally constructed frames), including a range of interactions and variations at different levels (Cornelissen and Werner, 2014). However, to allow for an integrated approach, it is suggested that the framing process and associated research areas be distinguished into three functional categories – cognitive, contextual and purpose-driven framing. These categories are seen as meta-frames that integrate different theoretical strands to depict the framing process.

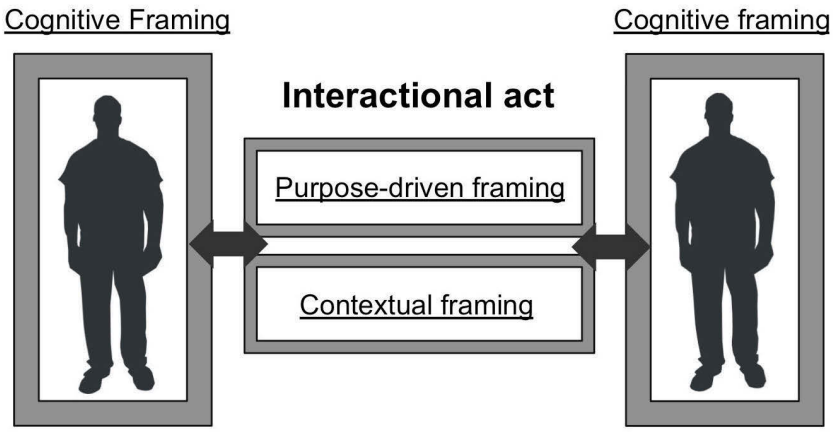

Figure 1. Framing in action – contextually and temporally defined.

There are two main steps associated with the analytical approach:

Characterising the framing event: The first step requires that the comparable elements between (and across) the case studies are described. This will be achieved by defining each case as a separate interaction and applying the same conceptual structure (see Figure 1). In this case, an interaction simply refers to the analysis, transfer or exchange of information, whether intentional or unintentional, through body language, verbal and written communication. The *background* for each case (what and where), the *interactional act* (the how) and *framing effects* (impacts) will be presented and consideration will be given to effects on the landscape (whether direct or indirect) at each level. It should be emphasised that purpose here is to demonstrate the analytical approach and that the level of detail for each case (principally due to space limitations) is restricted. The reader is referred to the publication associated with each case for more information on the results and methodologies applied.

Breaking down the framing process: The second step relates to how framing is defined and how it is applied across the cases. This means breaking down

the framing process into functional categories. The first of these concerns our *cognition* (how individuals or groups evaluate information), the second is the *context* in which people find themselves (e.g. at a political rally or reading an advertisement), and the third is the underlying *purpose* (e.g. the specific intent of the framing process). These are described in more detail below:

- **Cognitive framing**: Human cognition, at a micro-level, help individuals make sense of a physical and social environment during an interactional act (see Figure 1). In practical terms, this means that our brain evaluates external information (e.g. media content), which, depending on the content, activates certain parts of our brain (e.g. generating an emotional response) that subsequently influence how we behave (Hanggli and Kriesi, 2012; Gross and D'Ambrosio, 2004). At the *meso* to *macro* level, cognitive framing would, in these terms, consist of collective (or institutional) frames affecting this process (George et al., 2006). The emphasis is on our brain as an information processor and its effect on behaviour. For instance, we often search, interpret and recollect information in a way that confirms our own beliefs (Nickerson, 1998). Biases that make it difficult to consider the framing process without reflecting on some inherent cognitive structures that affect interactions at any level.

- **Contextual framing**: The framing process is also part of a temporally defined interaction. Contextual framing is, for this reason, significantly interlinked with cognitive framing, as together they set the stage for how people communicate. The distinction here is that the *interactional act* is defined entirely by temporal and contextual factors e.g. social cues, power relations and the setting that shape the framing process (Entman, 2007). Both contextual and cognitive framing is part of the same complex social process that makes up an interaction and how we chose to communicate and portray ourselves to our external environment in line with constructivist arguments. It is argued that social constructivists are correct to a certain extent, however, cognitive framing (whether innate or acquired) interacts with how a dialogue is collaboratively generated (Eder, 1996). Contextual framing is as such specific to each interactional act, time-specific, and characterised by the physical and social setting in which the interaction takes place.

- **Purpose-driven framing**: The framing process is also characterised by the underlying intent. This means that each framing process is subject to a specific *purpose*. Examples of this would be media attempting to shape opinion (Goodman, 2006), negotiators attempting to resolve conflicts (Dewulf et al., 2009) and policy documents attempting to promote the uptake of a collectively negotiated frame (Jacoby, 2000). These activities employ cognitive and contextual framing to various degrees and purposes; they are distinguished by the intentional manipulation of the frame creation process that they also require, such as the seeking of a specific framing effect. Purpose-driven framing is thus the intent (whether conscious or not) that underlies the framing process and feeds into and shapes the interactional act – such as manipulating the type of information provided (Gross, 2008) or influencing power dynamics (Entman, 2007) – during issue framing.

These functional categories demonstrate how different theoretical approaches (with varying ontological and epistemological backgrounds) can provide a more comprehensive picture of the framing process. More importantly, dividing the framing process into three functional categories allows for an integrated approach. To demonstrate how this can work in practice, Table 1 breaks down a fictional example of power relationships

Table 1. Functional categories applied to break down a framing process.

Case Example	Cognitive Framing	Contextual Framing	Purpose-driven Framing
Imagine an external consultant attempting to facilitate the uptake of a new management approach in a company…	Current power hierarchy suggests that… • Subordinate individuals are less expressive when their superiors are present. • Institutional norms are not conducive to new perspectives.	To reduce impact from power dynamics… • Superiors are not included in the training workshop. • Participatory format (e.g., roundtable) is chosen for a more inclusive approach.	Informational content (or frame-building) is designed to… • Reflect the values of the organisation and its employees. • Evoke dialogue and support the use of positively framed statements.

3. CASE STUDIES

3.1. Micro case – Restoring Wetlands in an Agricultural Landscape

This article focus on two wetland restoration programmes covering two catchment areas, Kävlinge River and Höje River, in southern Sweden. The Kävlinge programme was launched in 1995 and the Höje programme in 1991, with the aim of reducing nutrient runoff into the Baltic Sea. Restoring, rehabilitating or constructing new wetlands, ponds or riparian zones to reduce the inflow of nutrients into rivers and lakes in the respective catchment areas helped to achieve this objective. The meta-objective of the programmes was to reduce nutrient runoff from the agricultural landscape (see Aggestam (2014b) for more details).

(1) Background: The focus in this case is on the interaction between individual frames. Participation in the wetland restoration process was voluntary; this makes the programmes dependent on the willingness of individuals to provide land and a context in which the landowners were more powerful in comparison with other stakeholder groups (e.g. researchers and NGOs). This generated a power imbalance between stakeholder groups that made it possible to make inferences about the impact individual frames had on the restoration process, demonstrating a direct and quantifiable framing effect on the landscape.

(2) Interactional Act: The programmes relied on a single negotiator to persuade landowners to participate. This was identified as the single most important interaction, corresponding to an interactional act between individual frames at the micro-level. The impact from negotiations between landowners and the programmes was frames associated with wetland framing became a key determinant for how wetlands were restored. For instance,

most landowners were influenced by prevailingly negative views on wetlands in the landscape (e.g. raising the water table), professional interests (e.g. effects on income), negative experiences with the municipality and the public (e.g. property damage) as well as a lack of knowledge.

(3) Framing Effects: The landowners' position of power allowed them to impose individual (purpose-driven) frames that restricted the operational space for the programmes. This allowed the landowners to have a direct impact on the appearance of the wetlands and, by extension, the landscape. The purpose-driven framing generated framing effects in the form of structural adjustments (e.g. reduced inflow of water), which lowered the wetlands ability to retain nutrients and consequently lowered its environmental impact. This framing process was in turn significantly interlinked with cognitive value-based differences. In this case, three types of principal value orientations affected the framing process. These were anthropocentric frames (ranging from weak anthropocentrism to environmental pragmatism), "nature-centred" ecocentric frames and multi-value frames (corresponding to a mix between ecological, social and economic values) interacting with the landscape. On an individual level, this is more easily understood as a spectrum of anthropocentric to ecocentric perspectives. Across this spectrum, individuals differ in how they perceive the landscape and in the importance and functions associated with both wetlands and the agricultural landscape. It basically became a question of how values affect land use. For example, the landowners' negative perspective toward the wetlands was often linked to agricultural productivity, making it an anthropocentric perspective that influenced the restoration process. This demonstrates how individual frames provided different motives for decision-making and how they were forced on the landscape due to the operational conditions of the programmes.

3.2. Meso case – Engaging Stakeholders in Environmental Projects

This article reviewed nine projects implemented by the United Nations Development Programme (UNDP), the International Commission for the Protection of the Danube River (ICPDR), and the International Institute for Applied Systems Analysis (IIASA). These projects were grouped into three case studies depending on the organization implementing the project. All cases were at the forefront of stakeholder participation, taking a leading position on stakeholder participation. The main objective of this study was to analyse how project managers frame stakeholder participation; however, the emphasis in this paper is on the effects of institutional frames (see Aggestam (2014b) for more details).

(1) Background: The focus in this case is on institutional (meso level) framing as it allows for inferences on how stakeholder participation was framed in practice. The article investigated how individual frames (project managers) and institutional frames (international organisations) affect the operationalization of stakeholder participation and the incorporation of collective frames (as represented by stakeholder groups) in projects that are implemented in the landscape. The link to the landscape is indirect, as the impact of institutional frames cannot

be quantified, however, all projects had environmental targets that affected the landscape.

(2) Interactional Act: This case is characterised by two forms of interactions. One between project managers and the organisation they worked for (making up the institutional frame) and one between the organisation (project managers and consultants) and stakeholder groups (representing collective frames). These internal and external interactions (from an organisational perspective) demonstrate how institutional frames can shape how project implementation. It also demonstrates the difficulties in incorporating new value orientations, both at an institutional level (e.g. participation as a new management tool) and in terms of collective frames (e.g. stakeholders' alternative value orientations).

(3) Framing Effects: Costs or benefits (actual or perceived) linked to control or resource issues affected how institutional and individual frames shaped stakeholder participation. One key finding was that managers were often forced to incorporate stakeholder participation in order to obtain funding, but the organisation did not strictly control how participation was implemented. This is in line with an isomorphic response as defined by George et al. (2006). More specifically, institutions choose an action consistent with other actors in order to achieve legitimacy. Nonetheless, the discrepancy between the actions of the organisation and the manager highlights a core framing effect, namely, that the institution conformed to normative expectations by engaging stakeholders but did not enforce the new practice. This meant that project implementation did not depart from the institutional frames conformed by its employees. In most cases, this resulted in that stakeholder participation was relegated to the sidelines. This implies that organisations facing legitimacy-related changes to their operating environment are forced to adapt so that they do not lose funding, although it does not mean that institutions change the established way of doing things, particularly, if the risk of doing so (e.g. loss of power) outweighs the benefits of sticking to business-as-usual. Institutional frames were consequently more important than the policy instrument and should be separated from the organisation in term of its impact on policy implementation. It demonstrates the balance between the importance attached to a policy and the values attached to it by the organisation. Only if sufficient priority is given to a policy can a change in organisational behaviour be seen. The implication for the landscape is two-fold. At a *meso* level, institutional frames affect how policies are implemented in the landscape and, at the *micro* level, individual frames imposed by managers affect operational conditions (e.g. setting targets for the landscape).

3.3. Macro case – Defining the Ecosystem Concept in Science and Policy

This article consist of a longitudinal analysis of scientific literature and policy documents, starting from when Arthur Tansley introduced the ecosystem concept in 1935 (Tansley, 1935). Scientific literature and policy documents were analysed to develop a frame typology and to characterize value frames that determine how ecosystems are perceived. The documents analysed are seen as products of a social and dynamic process through which negotiated and/or dominant frames are expressed at a macro level, over time. This case

has only indirect implications for how the landscape is managed, such as reflecting how, as groups or organisations, we value landscapes (see Aggestam (2015) for more details).

(1) Background: The focus in this case is on value frames that drive science and policy-making. The ecosystem concept is used to define how the concept itself is being framed and illustrates its transformation from a scientific term to a normative concept in both science and policy. Given the type of content analysed (501 scientific articles and 340 policy documents), this case does not tell us much about interactions between individuals or institutions, only how value frames have been communicated at the macro level. More specifically, it describes the types of values that are associated with the ecosystem concept in connection to individual, collective and policy frames as well as how these have changed over time. The link to the landscape is indirect and related to the ecosystem concept being commonly applied in landscape planning and management. On a conceptual and practical level, this allows for inferences about the impact on landscapes from science and policy frames.

(2) Interactional Act: The interactions are indirect and linked to how value frames change over time. Several interactions are assumed in this article, more precisely, policy frames are seen as collectively negotiated and influenced by both institutional frames (e.g. lobbying organisations) and individual frames (e.g. influential politicians) during the policymaking process. It is moreover assumed that academic literature characterise individual frames that have migrated into policy over time as the ecosystem concept is established (as a new scientific term) and vice versa (value frames moving from policy into science).

(3) Framing Effects: Scientific literature and policy documents are characterized by stable value frames that have not changed significantly over time, despite evolving challenges and public priorities (e.g. biodiversity crisis and climate change). Findings indicate that ecosystem research is often characterized by unstated value judgments and preferences, even though attempts are made by the scientific community to be objective. Clear value statements, on the other hand, characterize policy that is principally management-driven and human-centred. Six collective frames, with some internal frame variations, were defined: Humans first, Dual systems, Eco-science, Eco-holism, Animals first, Multicentric (see Aggestam (2015) for more details). Specific crises (e.g. climate change) and cross-disciplinary uptake (e.g. ecosystem services) have brought new value perspectives to the forefront of public discourse and triggered the modernisation of collective frames, representing a typology of 14 sub-frames. These frames have an impact on the landscape that depends on what aspect of the ecosystem concept scientists and policymakers prioritize, although this is an effect that can only be presumed. For instance, most policy documents and scientific publications centralise humankind. It is only in very rare cases that ecocentric or biocentric frames are applied, and certainly not in binding regulations that would have an actual impact on the landscape. In effect, system properties for land-use and management, as dominated by the anthropocentric "humans first" frame, would only change if there is an actual shift in how environmental policy frames landscapes.

3.4. Crossing the Theoretical Divide

The three case study articles deal with different topics (wetland restoration, stakeholder participation and the ecosystem concept) at different levels (ranging from micro to macro) and demonstrate the power of framing and its effects on the landscape, be it directly or indirectly. Interestingly, the cases reveal both horizontal and vertical framing effects. This can be illustrated using the implementation of new practices, such as the valuation of ecosystem services. This process would be subject to macro-level value frames in scientific literature and policy documents (e.g. guidelines and legislation). These would in turn be taken up at a *meso* level by institutions and individuals that impose their own frames on the implementation process, where, for example, project managers may perceive the new practice as a threat and try to minimise its impact. Subsequently, at a micro-level, individuals affected by the new practice would try to influence how things should be implemented within the contextual means provided, i.e. through participatory processes or negotiations. All of this corresponds to a chain of events where each level is influenced by new frames that are passed on to the next level. Ultimately, at the end of the chain, the entire framing process would affect how the landscape is managed, e.g. in terms of what ecosystem services are valued. The cases in this study illustrate the link between more abstract framing effects (value frames in science and policy) and how these are translated into actual impacts (individual frames in wetland restoration). Some of these effects will now be characterised according to the different functional categories introduced earlier (see Table 2).

Table 2 supports the assumption that a single theoretical strand cannot cover the entire framing process and that frames need to be recognised as being both socially constructed and manifested through cognitive predispositions (the ontological and epistemological differences can in fact be seen as complimentary). The results also highlight that different aspects of the framing process are prioritised and interpreted differently depending on the theoretical approach taken. For example, the micro case is subject to cognitive factors that affect how wetlands are framed (e.g. values, beliefs and knowledge), while framing during the negotiation process was subject to social construction (e.g. power relations) and purpose-driven frames from the political administration (e.g. targets for a cleaner and more diverse agricultural landscape). All interact to generate an impact on the landscape that cannot be fully understood without an integrated multi-level approach. It is, of course, not possible for one study to explore all the distinct areas where frames have an impact (ranging from individual actors to policy-making); however, the aim has simply been to contextualise the case studies and to argue that an integrated approach improves our understanding of the framing process. This would preferably be coupled with a grounded approach to avoid theoretical tunnel vision (Thomas and James, 2006; Van Gorp, 2010).

Table 2. Functional categories and framing affects across the case study articles.

	Cognitive frames*	Contextual frames	Purpose-driven frames
Micro case: Wetland restoration	➢ Educational and occupational factors (knowledge-based) affect how individuals frame wetlands (e.g., biodiversity was valued differently based on educational background). ➢ Historical factors (experience and emotion-based) influenced the environmental conditions imposed on the restoration process (e.g. wanting to restore landscape diversity or use the wetlands as a water reservoir).	➢ Strategic one-on-one interactions conducted by the negotiator were key to convincing landowners (e.g., engaging people in their home environments facilitated stakeholder "buy-in" into the programmes). ➢ Power-relationships affected the negotiation process (e.g., landowner participation and interests from fishing associations were prioritised over environmental performance).	➢ Specific narratives were employed by the negotiator to persuade landowners (e.g. case examples from a locally engaged landowner and politician). ➢ Motivational factors introduced during negotiations were based on stakeholder interests (e.g. economic compensations and/or landscape restoration).
Meso case: Stakeholder participation	➢ Value-based predisposition towards participation (related to perceived benefits) was a key determinant for (or against) stakeholder interactions (e.g., input from stakeholders was only used when there was a positive belief in the participatory process). ➢ Perception of power was a key determinant for how stakeholders were engaged (e.g., managers who thought that stakeholder participation reduced their power would sometimes limit stakeholder involvement).	➢ Institutional lack of control and support allowed managers to design the participatory process in accordance with their individual framing (e.g. stakeholders were involved at the end of the project cycle, which made it impossible to integrate other perspectives). ➢ Participatory approaches (reflecting both the *context* and *purpose*) were based on underlying managerial intent (e.g. neither the institutional framework nor policy on stakeholder participation prevented managers from operationalizing individual value frames within their projects).	➢ Institutional framing of stakeholder participation was principally geared towards ensuring that project funding was secured or maintained (e.g., most organisations did not care *how* participation was conducted, their only interest being that it took place).
Macro case: The Ecosystem Concept	➢ Science and policy definitions of the ecosystem concept are normative in that they reflect individual and collective values and preferences (e.g. specific value assertions affect how ecosystem services are conceptualised). ➢ Core frames associated with the ecosystem concept are linked to specific value-systems and are stable over time (e.g. anthropocentric value frames dominate both scientific and policy documents).	➢ Collaborative and/or negotiation processes during policy making and the scientific write-up process are presumed to be influenced by contextual factors (e.g. power-relationships); however, the macro case does not allow for any inferences on this.	➢ Scientific literature and policy documents convey stable value structures (whether intentional or unintentional) associated with definitions of the ecosystem, which affect how the concept is operationalized in practice. ➢ However, purpose-driven re-framing implies changing sub-frames under a given core frame (e.g. shifting an individual's thinking to a different system or cognition) that allows them to reconfigure a concept using values that fit their core frame.

* *Cognitive factors* were not the focus of the case studies, and, as such, only indirect effects underlying framing can be noted (e.g., knowledge-based factors affect the type of value assertions that were associated with landscapes).

4. DISCUSSION

This paper has endeavoured to link framing processes to impacts in the real world, using the landscape concept to emphasize different framing effects. To achieve this objective, three case studies were presented (see Section 4) to demonstrate framing effects at different levels of operationalization. The purpose of this was, in part, to show quantifiable impacts of framing at a micro level (on wetland restoration) as well as more intangible framing effects at a meso and macro level (relating to stakeholder participation and the ecosystem concept) as well as their relationship with direct or indirect impacts on the landscape. The innovative idea behind this multi-level approach was to distinguish, if not quantify, the cumulative impact of framing, and discuss an integrated approach to framing research. The intent was also to link the more abstract macro level (e.g. value frames in science and policy) to intermediate framing at a meso level (e.g. institutions affecting how policy is implemented) and framing effects on the ground (e.g. individual frames affecting wetland restoration). Aside to argue for an integrated approach, the principal motivation has been to facilitate a better understanding of the framing process.

There are, of course, some limitations to the method applied in this paper, and a certain degree of caution needs to be taken in drawing broader conclusions. For one, there is no link between the case studies, meaning that the framing effects demonstrated at the macro level cannot be linked with effects at the micro level. It would be nearly impossible to definitively argue that policy frames influence individual frames in specific ways. The range of factors that affect our heuristics (either as groups or individuals) is simply too complex and framing research is by its very nature qualitative and subject to subjectivities (Van Gorp, 2010; Donahue et al., 2011). The case study analysis has also been somewhat superficial, principally, as the point of this investigation has not been to provide irrefutable evidence but to demonstrate how frames can be linked and operationalized in complex natural and social environments, and to argue that a multi-level synthesis of the framing process cannot be achieved without integrating different theoretical perspectives and levels. The breakdown of the framing process into three functional categories (cognitive, contextual and purpose-driven framing) was designed to allow integration and to disentangle it from theory (see Table 2).

The proposition made here is basically that we should take a more inductive approach to framing, to avoid focusing on only some theoretical explanations. Taking a Foucauldian approach to framing research, for example, the issue of power (e.g. operation, enactment and resistance to power) dominates many analytical approaches. This can be found in the literature on management and organisation, such as Entman (2007; 2008), who focuses on the power of media in political systems, or, more recently Van Buren et al. (2014), who focus on power relationships in the climate change debate. Power is naturally an important explanatory factor in this study as well. For instance, in the micro case, the negotiator successfully played with power dynamics by setting individuals at ease and making them feel in control during the negotiation process (see Aggestam (2014b). This purpose-driven manipulation of power dynamics affected the environmental

performance of the programmes negatively, while at the same time facilitating stakeholder "buy-in". This illustrates how power can affect the landscape directly and how it can be used as a tool. However, focusing on only power-relations would be to neglect how different value orientations and historical perspectives (e.g. some landowners remembered a more diverse landscape) dominated heuristics as well as the impact from the negotiators' communication skills and credibility when manipulating the framing process (Buijs, 2009; Brewer and Gross, 2005; Druckman, 2001b). The same arguments can be made for the meso case (see Aggestam (2014b). In this instance, the project manager's position of power was a clear determinant in how participatory processes were designed. For instance, if a manager perceived that stakeholder participation threatened their sense of control (or power) they took steps to limit its influence, and managerial actions that were in accordance with the institutional frames were put in place. However, to focus only on power is to neglect different cultural perspectives (e.g. most projects were implemented in a multicultural setting) and perspectives on project management itself (e.g. most project managers came from a technocratic background) (George et al., 2006; Buijs et al., 2009).

For both case studies it is clear that power regimes is a strong explanatory variable at any level of analysis, whether individual or institutional, but it also obscures other explanations. As such, the inherent degree of complexity and dynamism in each case study lends support to two assumptions. First, that each framing process should be considered as temporally unique and context dependent (Gillan, 2008) and, secondly, that framing research would benefit from being grounded and theory neutral (Thomas and James, 2006; Glaser and Strauss, 1967; Strauss and Corbin, 1990). It also demonstrates the benefits of having separate case studies that can (empirically speaking) stand on their own, allowing for a balanced multi-level perspective and more realistic inferences to be made on framing effects at each distinct level. Results should essentially be considered equally valid even with differing philosophical assumptions as long as the methodological approach can be considered robust and valid.

To highlight the limitations imposed by theoretical tunnel vision, another example can be made from neo-institutional theory and the role of framing in an institutional setting. More specifically, how individuals (or agents) behave according to prevailing rules and norms (George et al., 2006) and the institution's role in stabilising power arrangements (Schmidt, 2008) or establishing interactional patterns (Fligstein and McAdam, 2011). On a basic level, institutional research allows for a link between macro-level structures (e.g. new organisational practices) and individual micro-level actions. The macro case portrays one aspect of this link, namely, the interactions between individuals and institutions in creating negotiated definitions of the ecosystem concept (see Aggestam (2015)). This case study does not look into the interactions directly (e.g. real-time negotiations between actors) but rather the shared definitions put forward in scientific literature and policy documents as interpretive frames that extend beyond the documents themselves. Previous studies have shown that recurrent macro-level framing affects how individuals perceive and value ecosystems

(Norgaard, 2010; Barnaud and Antona, 2014), with these frames affecting how people make decisions about the landscape once they are cognitively embedded. The uptake of the ecosystem services concept in natural sciences literature is an example of this, particularly in terms of the arguments made for the conservation of natural resources (e.g. biodiversity). Changes in meaning-making and framing are effectively changing how we value landscapes (e.g. becoming increasingly anthropocentric). To focus on the institutional setting is, however, to risk taking a top-down perspective that neglects the substantive actions taken by individuals (e.g. as illustrated by the behaviour of the project managers in the meso case). It may also cause the neglect of contextual elements that make each framing process unique (e.g. contextual factors that affected negotiations in the micro case).

The analytical approach was also adopted to stress the practical utility of integrated framing research. There are as such several findings that could be applied in practical terms. For example, results from the micro case could be used to develop the deliberative scope of environmental projects; findings from the meso case could be applied to improve the institutional uptake of new practices; and the macro case could be used to advance reframing techniques. In line with these suggestions, Lakoff (2010) argues that there is an absence of specific frames in public (or popular) discourse, frames that would allow us to relate to landscapes in certain ways. We (as humans) most often separate ourselves from the landscape, a process that is deeply entrenched in most individual cognitive systems and very hard to change (Jerneck and Olsson, 2011; Spangler, 2003; Buijs, 2009). This human-landscape perspective is consistent with early forms of anthropocentric framing that still dominates landscape (and project) management, scientific writing and policy-making (Aggestam, 2015; 2014b; 2014a). Taking inspiration from research on climate change framing (e.g., Stern, 2011; Dewulf and Bouwen, 2012; Van Buuren et al., 2014), it is clear that we need to move away from this self-reinforcing system in which prevailing anthropocentric frames prevent us from alternative approaches to landscape management (Norgaard, 2010).

Finally, the balance between discipline-based and integrated approaches to framing research cannot be resolved by this study. One problem is the difficulties associated with taking an integrated multi-level approach in contrast to the strengths and contributions of monodisciplinary research. Another practical problem is that, most often, academic research priorities (or funding agencies) remain focused on single-level approaches. This means that an integrated approach, despite its benefits, will require not only deep-level interdisciplinarity, but also that different structures and procedures are promoted for these types of collaborative research efforts (Holm et al., 2013). This would require that we acknowledge that a multi-level viewpoint could help framing research advance beyond its current path-dependent way of thinking, to mix complimentary perspectives of the same process that can improve our understanding.

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1.3. Organisation of the Thesis

The text is organised into seven chapters. The first six chapters constitute the framework writing for this thesis, followed by four peer-reviewed articles that make up the seventh and final chapter. The four articles correspond to the four levels noted in the preceding section on guiding research questions (see Section 1.2 and Figure 1). It should be noted that the purpose of the fourth article, aside from introducing the novel analytical approach, also served to link the three case study articles (micro to macro level) more explicitly and to connect them to a wider body of research on framing. Significant integration and references is as such made to the final article throughout the following chapters.

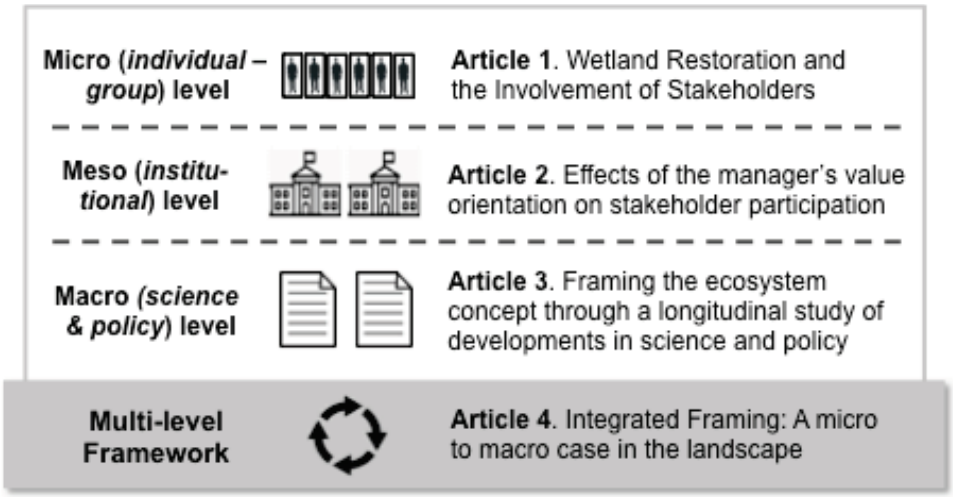

Figure 1. Structure and relationship between the case study articles.

Introduction

The first chapter, representing the preceding text, aimed to present the purpose and topics that will be addressed by this thesis, including the scientific theme, objectives and guiding research questions.

Theoretical framework

The second chapter focus on introducing the different strands of research and ideas behind frame theory. It will expand on some of the key concepts that are introduced in the case study articles and is partly meant to address some of the restricted coverage of frame theory in the case study articles and to go beyond current theoretical frames, essentially, to move beyond current theoretical considerations. The chapter begins by presenting what frames are in accordance with some of the main literature on framing, followed by further elaborations on landscape framing.

Presenting the case studies

The third chapter provides a short overview of the peer-reviewed articles ahead of having a discussion on the methods, results and associated theoretical considerations.

Reflections on the research approach and design

The fourth chapter address the inherent benefits and drawbacks of doing a cumulative dissertation. It introduces the methods of analysis that were used throughout the peer-reviewed articles as well as addresses strengths and

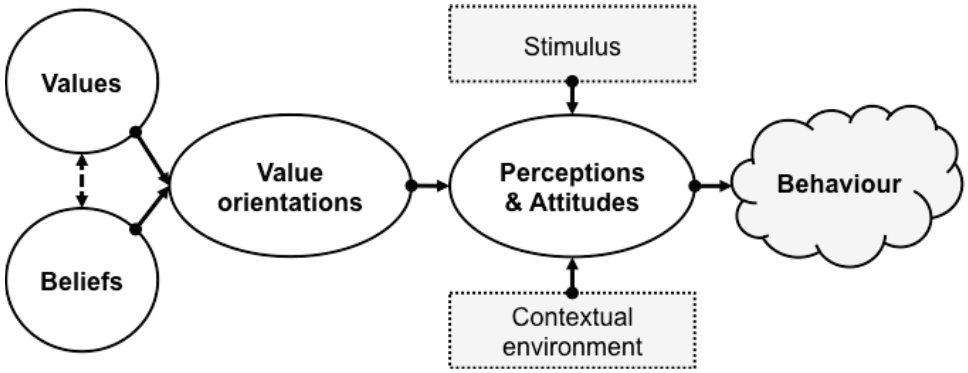

Figure 2. Conceptual structure of values, beliefs and value orientations and their relation to behaviour (based on a figure in Buijs (2009a)).

Another central component of this work has been the use of environmental ethics to define and analyse value orientations. This formed an essential part of the frame analysis rather than testing predefined value types or typologies (e.g. Dunlap's New Ecological Paradigm Scale (2000, 2008) or Mayer and Frantz's Connectedness to Nature Scale (2005)) within case studies. The idea was to utilise ethical principles (e.g. "biodiversity is good") to reflect the types of values that people have about landscape components, such as wetlands and ecosystems (Frankel, 1996, Nordlund and Garvill, 2002, Ehrlich, 2003, Chae et al., 2005, Amérigo et al., 2007). In turn, these ethical principles reflect different ethical theories, such as anthropocentrism, ecocentrism and biocentrism (e.g. Taylor, 1986, Singer, 1993, Elliot, 1995, Callicott, 1997, Proctor, 1998, Attfield, 2003, Callanan, 2010, Miller et al., 2011, Sarkar and Montoya, 2011, de Groot, 2012) that can be used to identify prevalent types of value orientations (or typologies) in groups of people. The main point of using environmental ethics is that ethical principles can be utilised as part of a frame analysis to identify value orientations, without forming pre-conceived frameworks for how people value a landscape.

This essentially means that ethical principles are used as building blocks, rather than a framework or typology, to group values that are unique for each individual (see Figure 3). These would make up individual patterns that can be utilised to define and categorise different value orientations without pre-judging what people actually value. It also makes it easier to identify unique value orientations.

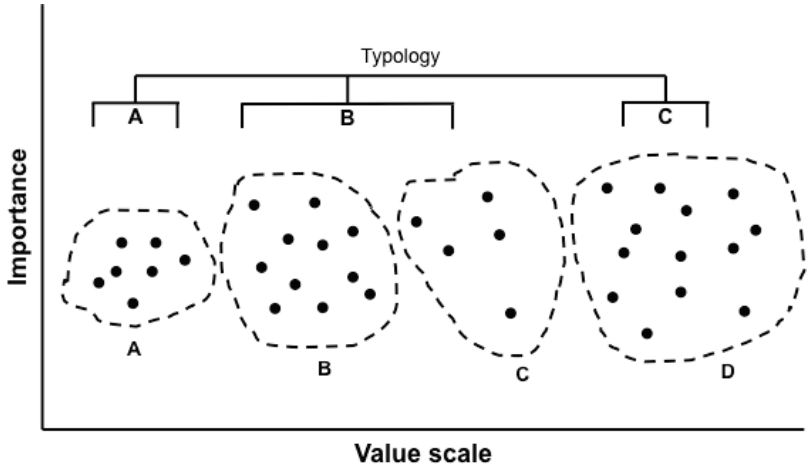

Figure 3. Categorising grouping values versus applying a typology.

highlight the need for a vertical (multi-level) approach that can investigate framing effects at the *micro*, *meso* and *macro* level as well as how they interact with the landscape.

2. ANALYTICAL APPROACH

The review demonstrates that frame theory could fall into two large formative strands, namely, stable meaning-making systems (e.g. cognitive and institutional frames) and socially generated meaning-making (e.g. temporally constructed frames), including a range of interactions and variations at different levels (Cornelissen and Werner, 2014). However, to allow for an integrated approach, it is suggested that the framing process and associated research areas be distinguished into three functional categories – cognitive, contextual and purpose-driven framing. These categories are seen as meta-frames that integrate different theoretical strands to depict the framing process.

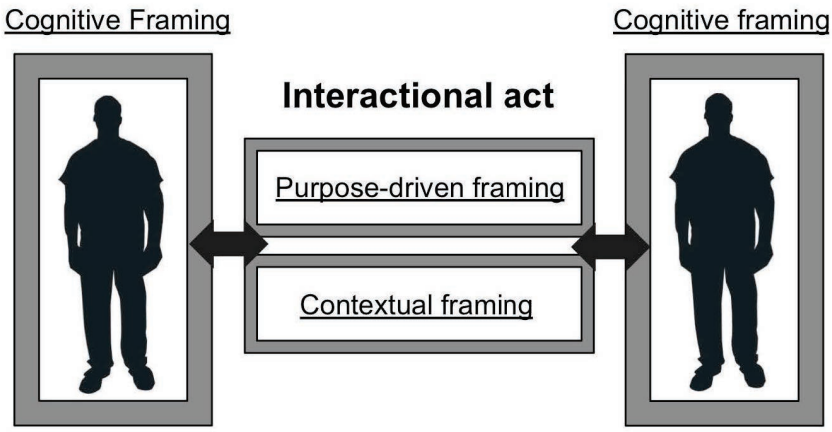

Figure 1. Framing in action – contextually and temporally defined.

There are two main steps associated with the analytical approach:

Characterising the framing event: The first step requires that the comparable elements between (and across) the case studies are described. This will be achieved by defining each case as a separate interaction and applying the same conceptual structure (see Figure 1). In this case, an interaction simply refers to the analysis, transfer or exchange of information, whether intentional or unintentional, through body language, verbal and written communication. The *background* for each case (what and where), the *interactional act* (the how) and *framing effects* (impacts) will be presented and consideration will be given to effects on the landscape (whether direct or indirect) at each level. It should be emphasised that purpose here is to demonstrate the analytical approach and that the level of detail for each case (principally due to space limitations) is restricted. The reader is referred to the publication associated with each case for more information on the results and methodologies applied.

Breaking down the framing process: The second step relates to how framing is defined and how it is applied across the cases. This means breaking down