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Final report synthesising the analysis of argumentation in multi-level governance interactions in case studies

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Summary

This report provides a synthesis of argumentation analysis in real-world cases in "multi-level biodiversity governance", investigated within the BESAFE project. The following broad research questions guided the synthesis of argumentation analysis in the case studies:

- Which (different types of) arguments can be identified at different levels and units of biodiversity governance?
- How are these arguments exchanged and put to work in multi-level and networked interactions (i.e. within and across different levels and units of biodiversity governance)?
- How are these arguments rooted in and how do they feed into different perspectives, worldviews and functioning of social groups or institutions at the different levels and units of biodiversity governance?

The study's approach to answering these questions is guided by a three layer analytical framework. This framework comprises three different perspectives to argument-making practice. Together these enable a comprehensive understanding of the role of argumentation in multi-level biodiversity governance.

The first layer takes the perspective that arguments are "products" of communication. The analysis focuses on the verbal content of arguments, i.e. what these arguments "say". By comparing argument contents between global, European, national, regional and local governance levels, it was revealed that at both global and regional level, social arguments were most dominant, while at the European level economic arguments were more prominent. Comparison between European and national governance levels revealed little differences. Comparison between types of actors showed some differences of emphasis. Whereas most actors use the argument that biodiversity should be protected because of its inherent value, regional authorities more often referred to social wellbeing and national authorities to legal obligation. The analysis also considered variety of arguments. In general, variety was very limited. Politicians used the smallest variety of arguments, while the largest variety was found in the science actors. Furthermore, variety depended on communication channels (e.g. internet forums showed much variety). Lastly, arguments do change over time. Arguments on ecosystem services, for instance, became prominent at both global and European levels, but they often do not reach or persist at local levels of governance.

The second layer of the framework uses the perspective of arguments being transactions between arguers and audiences. The focus here is on what actors "do"

with arguments, that is, what they aim to achieve with the arguments and what strategies they use. Plenty of strategies were identified, such as particularisation (e.g. stressing the uniqueness of a natural area to increase policy attention), up-scaling (e.g. situating a biodiversity problem at a higher level of space or time to make it more important), dichotomisation (e.g. polarising between two alternatives to exclude the possibility of an intermediate solution) and aligning arguments to the goals and interests of others to affect policy outcomes in a way that suits own interests. Finally, actors used various channels to transmit argument. Main examples were local politicians, NGOs and mass media.

The third layer takes the perspective of arguments as being conditioned by the social-institutional networks in which they are transmitted. The analysis focuses on how the arguments and the reasoning they communicate "fit" into the different perspectives, worldviews and functioning of social groups and institutions. It was shown that argumentation was highly conditioned by law and regulations, institutional roles and established practices. International obligation, in particular, empowered member states to implement biodiversity policy and to finish disputes. But legislation (and uncertainty about it) also hampered conservation efforts. Furthermore, established criteria used in conservation practice (e.g. rarity, threat and species richness) supported justification of the need for implementing biodiversity conservation measures. Finally, what actors considered as their interests and what they valued as a legitimate policy process (democratic, science-based and sufficient societal support) conditioned the argumentation.

1 Introduction

It is broadly recognised that decision-making in biodiversity policy usually involves multiple actors, operating in various configurations within and across various levels and units of governance (legal orders, service sectors, organisations, etc.). Thus, it is mainly the network relations or interactions between these actors that determine policy effectiveness, in particular to the extent to which these actors collaborate. Arguments are an inherent part of these interactions and help shape the social and political conditions under which decisions and initiatives on biodiversity are developed in practice.

1.1 Aim of the research

This report provides a synthesis of argumentation analysis in real-world cases in "multi-level biodiversity governance", investigated within the BESAFE project. The aim of the research is:

- To understand the different argument perspectives of actors on biodiversity issues;
- To analyse the linkages and transmission of arguments on biodiversity in the context of multi-level governance;
- To explore the way arguments on biodiversity are embedded culturally, institutionally or politically.

The findings are meant to inform policy practice and are highly relevant to the whole of the BESAFE project, which aim is to contribute to effective biodiversity policy.

Before turning to the research questions examined in this report, we introduce the phenomenon and concept of multi-level governance.

1.2 The phenomenon and concept of multi-level governance

Biodiversity policy is shaped by multi-level and networked governance. This phenomenon of overlapping and interacting policy spheres has been extensively described in the literature (e.g. Hooghe and Marks, 2001, 2003; Bernard, 2002; Jordan and Schout, 2006). Within a multi-level and networked governance structure, the organisation of responsibility and stewardship for nature is dispersed across different levels and units (e.g. delegated to local authorities, nature conservation organisations, public-private partnerships, etc.). As a concept, multi-level governance draws particular attention to relevant vertical interactions between subnational, national, and supranational levels of administrative hierarchy, as well as horizontal (more flexible network-like) interactions between state and non-state actors (Hooghe and Marks, 2001; Jordan, 2001; Piattoni, 2009; Benz and Zimmer, 2010).

Recent studies indicate a general trend towards multi-level governance across the European member states (Bache, 2008, 2013), both in relation to environmental matters generally and biodiversity conservation specifically (Rauschmayer et al., 2009; Paavola et al., 2009; Newig and Fritsch, 2009). Multi-level governance includes important developments: the expansion of international rules, the increased involvement of subnational actors in the implementation of EU policies, the phenomenon of multi-stakeholder policy development, the emergence of public-private governance arrangements, the transfer of practice experiences, the rise of non-coercive or "soft" forms of policy instruments (i.e. non-binding regulation), the development of place-based approaches, and more (Van Tatenhove et al., 2000; Wessel and Wouters, 2007).

In the fields of environmental science and policy, the emergence of multi-level governance is considered to be a response to the acknowledged complexity and multi-layered nature of environmental problems that often cannot be addressed solely through state-centred approaches (Bulkeley, 2005; Görg, 2007; Newig and Fritsch, 2009; Young et al., 2014). An increasing weight of evidence suggests that mismatches between institutions and ecosystems are common and problems occur from a failure to properly take into account different world-views, as well as the dynamics in spatial and temporal scales (Young, 2002; Primmer et al., 2014; Cash et al., 2006; Cumming et al., 2006; Folke et al., 2007; Paavola et al., 2009). Examples include trans-boundary pollution and collapsing fisheries, as well as landscape fragmentation due to land-use change. Spatial scale mismatches often exist where administrative and ecological boundaries do not coincide (Paavola et al., 2009), which is common for ecosystems transgressing national borders. Temporal scale mismatch appears when decisions are taken for short-term benefits, ignoring potential adverse consequences in the long-term.

As these environmental problems manifest themselves at multiple spatial and temporal scales, institutional design should ideally adapt to the scale of these problems so as to effectively respond to them (Young, 2002; Newig and Fritsch, 2009). Examples of governance arrangements designed to address particular problems in a task-specific manner can be found across Europe in various forms, e.g. river basin management plans, the Natura 2000 network, agri-environment schemes, cross-boundary projects (e.g. Interreg), etc. In this research, the focus is on biodiversity policy. In addition to the fitness of scale, it is also the involvement of a wide variety of actors and stakeholders who collaborate and compete within such governance arrangements, that contributes to the positive environmental outcomes of governance (Newig and Fritsch, 2009; Young et al., 2013; Van Herzele et al., 2011; Young et al., 2014).

1.3 Research questions and report outline

Since biodiversity governance takes place within interacting levels and networks, involving a wide range of public and private actors, it is interesting to understand the dynamics of these networks with regard to policy success. Whereas the literature on multi-level governance has highlighted and critically analysed such interactions in policy processes (e.g. Young et al., 2014), the communicative and argumentative aspects of these interactions have so far received little attention.

In the BESAFE project we take the premise that policy decision-making is above all an interactive activity and arguments are an inherent part of these interactions. Arguments not only reflect but also shape the way and the extent to which actors collaborate or compete to develop and put into practice biodiversity policy. In this we join an emergent body of research following the so-called "argumentative turn" in policy analysis. Here the importance of language, meaning, rhetoric and values is emphasised (Stone, 1988; Majone, 1989; Fischer and Forester, 1993; Dryzek, 1994; Fischer and Gottweis, 2012). By taking an argumentative approach we aim to gain more insight into the actual working of biodiversity governance interactions in real-world cases and how these insights impact on various aspects.

In order to understand argumentation in multi-level biodiversity governance in a European context, the following research foci and questions guided the synthesis of argumentation analysis in the case studies:

- What arguments "say": Which (different types of) arguments can be identified at different levels and units of biodiversity governance?
- What parties "do" with arguments: How are these arguments exchanged and put to work in multi-level and networked interactions (i.e. within and across different levels and units of biodiversity governance)?
- How arguments "fit" into social-institutional networks: How are these arguments rooted in and how do they feed into different perspectives, worldviews and functioning of social groups or institutions at the different levels and units of biodiversity governance?

The study's approach to answering these questions is guided by an overarching analytical framework, which is presented in the next section (methodology). The remainder of this report consists of three parts, each synthesising the outcomes from the case studies in relation to the research questions. In conclusion, the main results from the research are summarised.

2 Methodology

2.1 Real-world cases and learning from practice

Case study research is an empirical method to investigate contemporary phenomena within a real-life context (Yin, 2009). It is often used within the argumentative and deliberative approach and is also at the core of the BESAFE research. Several approaches of case selection can be distinguished. They broadly range from selecting cases that were designed to be more or less "ideal" practices through the lens of the norms of deliberative democracy (e.g. Delli Carpini et al., 2004) to choosing those cases of mainstream practices that may be problematic from a deliberative point of view but nevertheless foster opinion formation based on arguments (e.g. Hillier, 2002; Buizer and Van Herzele, 2012). It is assumed here that empirical accounts of such practices have a useful role to play in informing and assisting practice (Watson, 2002). The case studies within the BESAFE project also reflect this line of thinking. They provide empirical evidence on what argumentation in biodiversity governance means in concrete, practical terms. By doing so, they aim to contribute to our understanding of argumentation in multi-level and networked governance contexts.

Two types of case studies (henceforth abbreviated as CS) contribute to this report. Firstly, we draw on ten "deep case studies". These case studies identified and analysed in depth biodiversity governance relevant topics from an argumentative perspective. Together these CSs represent a wide variety of ecological, socio-economic and political contexts, as well as a diversity of different governance levels and units. Secondly, a comparative study was purposefully designed to enable a comparison of national-level implementations of the EU Biodiversity Strategy 2020. The transfer of arguments between the EU and member state levels was a main focus.

2.2 Analytical framework: three layers of observing arguments

Although originating in a common point of departure, variation exists in research approaches to the analysis of policy argumentation, including argumentation in biodiversity governance. A variety of theoretical orientations and paradigms, methods and substantive foci were also evident in the case studies of the BESAFE project. Case study research, in particular, allows tailoring multiple methods to the specific objectives and questions posed for the study (Stake, 1995; Yin, 2009). Whereas variation in paradigms and methods contributes to the richness of the BESAFE project outcomes, this also involves challenges for synthesis of and comparison between separate cases.

Drawing on the literature on argumentation – in particular Goodwin's (2005) three levels of argument and Luhmann's (1995) three orders of observation - an overarching analytical framework was developed that is closely tied to the three research questions outlined in the introduction and that enables comparing the case studies results.

In this analytical framework (Fig. 1) we distinguish between three layers or major components of o argument-making practices: products, transactions and networks.

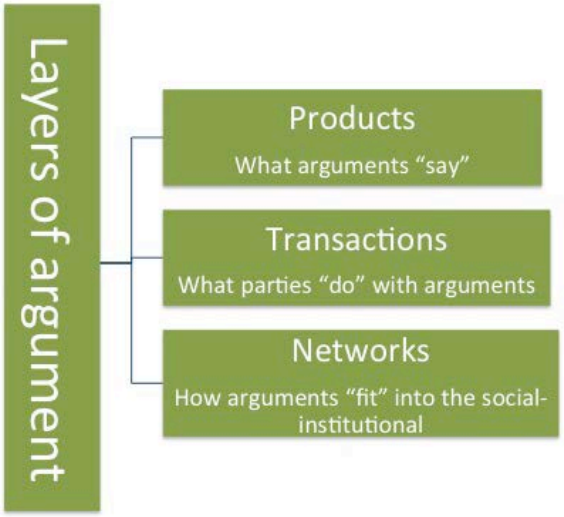

Figure 1: Three layers of observing argument-making practice

Layer 1: Products

The first layer observes arguments as being the products of communication. The observation focuses on the verbal content of the arguments, i.e. what arguments *"say"*, e.g. what is the claim, the type of grounds (or data appealed to), and other properties such as argument structure and form of expression. This layer of observing arguments contributes to analysing the different argument perspectives that are evident in biodiversity governance. It enables a comparison of the different (types of) arguments used at different levels/units of biodiversity governance and consequently increases understanding on the linkages and transmission of arguments in multi-level biodiversity governance.

Layer 2: Transactions

The second layer observes arguments as transaction. It aims to analyse what parties *"do"* with the arguments, that is, how arguments are transacted or exchanged and put to work in communicative interactions or transactions (i.e. within and across different levels and units of biodiversity governance) and what is the purpose of this way of transacting. Such argumentative functions may include attempting to

convince others, make policy-makers aware of issues, anticipate counter-arguments, deepen knowledge, allocate responsibilities, create opportunities for reconciliation, and so on. Analysing transactions is helpful to understand what strategies actors employ to build credibility and how the relations between actors evolve.

Layer 3: Networks

The third layer of observing arguments refers to how the arguments and the views and reasoning they communicate *"fit"* with the different perspectives, worldviews and functioning of social groups, institutions or what we call networks of communication. Arguments in use may be both embedded in and feed into established values and knowledge, cultural reference points, concepts and discourses, sets of rules and procedures. The purpose for the analysis here is to gain insight into the social, political, institutional and cultural embeddedness of arguments at the various levels and units of biodiversity governance.

2.3 Method for synthesis of case studies

Qualitative research is, as it is generally known, concerned with how people see and understand their social worlds. Primary qualitative research is thus supported by an interpretivist epistemology (Weed, 2005; Walsh and Downe, 2005). Yet, attempts to synthesise qualitative research have often been derived from positivist approaches. According to Atkins et al. (2008), synthesising qualitative studies with a systematic process is an important target since it can help to generate more comprehensive and generalizable theory. It can also add to existing systematic reviews of effectiveness of policy interventions and programmes. Much of the work developing systematic methods for synthesising the findings of qualitative studies has been conducted in the research areas of health studies, educational studies, and of social policy (e.g. Britten et al., 2002; Dixon-Woods et al., 2007; Atkins et al., 2008; Campbell et al., 2011). Some approaches have applied primary analysis methods, others have taken an integrative or interpretive position to synthesis.

Meta-ethnography belongs to the interpretive approaches. It was originally explicated by Noblit and Hare (1988) in order "to develop an inductive and interpretive form of knowledge synthesis" (p. 16). By using the findings of existing case studies, meta-ethnography aims to new interpretations for the cases selected. It is essential that meta-ethnography does not use the primary data (e.g. documentary and interview data) as the raw data for the synthesis. The approach thus aims to synthesise the substance of qualitative research, not the data. Some important major advantages of conducting meta-ethnography have been identified in literature (Atkins et al., 2008; Weed, 2005, 2008). Firstly, it is advantageous from a pragmatic perspective for the original interpretations from the case studies to have already been published (or presented in internal reports as done in BESAFE). Secondly, meta-ethnography runs a low risk of losing the meanings in context. This is

because it is not re-analysing the data apart from its collector but utilises the interpretations by original researchers.

As described above, meta-ethnography is best understood as a set of techniques for synthesising qualitative results. It aims to create new interpretations by selecting, comparing and analysing studies relevant to the initial research interest. Noblit and Hare (1988) originally outlined a seven-step process for conducting meta-ethnography, the key stages of which include (a) the reading and re-reading of studies (b) determining how the studies are related by listing key concepts and comparing and contrasting them and (c) translating the studies into one another and synthesising the translations to identify concepts which go beyond individual accounts and help in producing a new interpretation.

In BESAFE, the concrete steps taken in the synthesis work have been as follows:

1. Defining the focus of the synthesis. The aim of the synthesis is to build general interpretations from the findings of the separate CSs in ways that are useful to better understand argumentation in multi-level biodiversity governance.

2. Selection of the case studies included in the synthesis. The synthesis includes the BESAFE case studies previously selected for contributing to Work Package 3.

3. Reading and re-reading the case study reports in order to extract the themes, concepts, results and interpretations useful for the synthesis with regards to the analytical framework and the research questions posed.

4. Listing and comparing the themes and concepts and complementing them with CS results and interpretations. This is carried out in an iterative fashion and in collaboration with the CS researchers, who have the opportunity assess anew their CSs (i.e. assessing themes and concepts extracted from other CSs in the own CS).

5. Relating the CS findings to each other and building general interpretations.

6. Expressing the synthesis. The synthesis is communicated in the form of a report, specifically the Deliverable 3.1 of the BESAFE project.

7. The trustworthiness of the synthesis is increased by a “member check”, which aims to strengthen the internal validity of the synthesis (c.f. Doyle 2003). The authors of each case study read and comment on this report and thus check and correct the interpretation where necessary.

3 Overview of contributing case studies

As mentioned above, the synthesis is based on ten “deep case studies” and one “comparative study”. The CSs represent a rich array of examples of practice-oriented argumentation. The deep CSs have been selected by the BESAFE partners in an organised process and based on a set of overarching selection criteria. The details of the selection process and the list of criteria can be found in BESAFE Deliverable 2.1 “Report on the selection of case studies”. The comparative study on the implementation of the EU Biodiversity Strategy to 2020 was conducted in six Member States and regions: UK, Germany, Poland, Finland, the Netherlands and Flanders. A full report of the comparative study is provided as an Annex to this report. Furthermore, this comparative study was preceded by a background study on argumentation at the global and European levels of biodiversity governance.

Table 1 gives an overview of these CSs including the multi-level governance (MLG) interactions considered, the forums of interactions observed, the time-scale of the CS and its main contributions to the analysis of argumentation in MLG interactions. MLG interactions refer to vertical levels of authority - supranational (EU), national (Member States), regional (e.g. federal provinces) and local (e.g. municipalities) - as well as network-like arrangements and linkages of importance to biodiversity governance (e.g. non-governmental organisations, public-private partnerships, etc.). MLG forums refer to the settings of governance interactions. These can be formal (e.g. municipal council, the parliament, the court, public consultation, policy reports) or informal (e.g. internet forums, discussion groups, media coverage, scientific communications).

The individual CSs in the BESAFE project have concentrated on one or more layers of argument-making practice. However, this should not be interpreted as restrictive. While the research might focus on one layer, in most cases other layers serve as additional sources of information. For instance, the network layer can be used for contextualising the findings in the other layers. Furthermore, findings in the product and transaction layers may contribute to exploring the issue of institutional embeddedness. For a description of the deep CSs and the methods used, we refer to the BESAFE Deliverable 2.3 “Final report synthesizing the analysis on effectiveness in case studies”.

Table 1. Overview of the case studies (CS) contributing to the report

CS abbreviation	Summary of the CS	MLG interactions observed	MLG forums observed	Time scale of observation	Main research contributions to this report
Invasive species	Development and legal implementation of the European Strategy on Invasive Alien Species	Global (science)/ European (policy) and national (Germany), levels of court	On-going dispute in scientific articles; Key policy documents on European regulation IAS	2000-2013	Argumentation in scientific disputes; Arguments in the implementation of EU Strategy against the background of general discourse on IAS and biodiversity values
Danube Catchment	Biodiversity conservation in watershed management in Danube River Catchment (Romania)	Primary (farmers, fishermen), secondary (regional and local authorities, local NGO's) and tertiary stakeholders (central authorities, scientists and public institutions, private sector, national and international NGOs)	Management plans of conservation sites; Focus group discussions; Mass media; Scientific papers	1991-2012	Inclusion in plans of traditional knowledge and public views about biodiversity conservation; Role of biodiversity protection arguments in the planning process
Fox and wild boar	Intractable conflicts provoking debate following wildlife comebacks (red fox and wild boar) in Flanders	Politicians and public officials (Flanders and local), NGOs (nature conservation, hunting), farmer union, experts, the public, the media	Mass and social media; the Flemish parliament; Advisory reports and presentations; Organisations' magazines and websites	1990s- 2013	Contradictory opposites in arguments; Argumentative strategies and networks in the emergence and perpetuation of conflict; Prospects for resolution
Białowieża Forest	Controversy over whether this close to natural forest (Poland) should be strictly preserved or sustainably exploited	National (Ministry of Environment, NGOs), regional (foresters, NGOs) and local (local communities, foresters)	Formal documents and decisions; Management plans; NGOs appeals; Media coverage; Scientific studies; Protest campaigns (by NGOs and local people)	2000-2013	Types of arguments provided at both sides of the conflict and at different governance levels; Changes of arguments over time; Role of nature concepts and wider discourses in argumentation

Peatlands Strategy	Controversy over peat mining the Viurusuo wetland (Finland) and local resistance	Ministries of Trade & Industry and Forestry & Environment, peat mining company, levels of court, municipal officers, NGOs, local residents	Applications for permit to extract peat; EIA report; Court appeals by local people; Court rulings	1995-2012	Types (and variety) of arguments (pro protection) across levels and units of governance; Discordances between public and private stakeholders and institutions; Legal argumentation; Evolvement/ functioning of arguments over time
UK local Biodiversity Action Plan	The implementation of actions to conserve biodiversity from the perspective of an urban Local Biodiversity Action Plan (LBAP) area in the UK	Local biodiversity practitioners interacting with state actors (local government officers) and non-state actors (NGO managers, private companies and the public)	Planning applications; Funding bids; Policy proposals; Municipal council (local authority council); Court appeals; Partnership projects.	2009-2013	Types of arguments used to develop the LBAP; Types of argument and the framing used in the LBAP document; Types of arguments, the framing used and their functioning during interactions to implement biodiversity conservation actions
Urban green areas	Biodiversity and ecosystem services as offsets in Sibbesborg local master plan process (Finland)	Experts of the three themes of uniqueness for Sibbesborg planning and the Jury of the planning competition interacting with the land use planning team of the Municipality of Sipoo and the municipal policy-makers and officials.	Guidelines for planning competition participants; Evaluation of submitted competition entries; First official planning documents of Sibbesborg (Development policy; Sustainability criteria; Participation and assessment scheme)	2011-2013	Types of arguments related to biodiversity and ecosystem services in setting the goals for a sustainable community development; Persistence of different types of arguments related to biodiversity and ecosystem services through a local master planning process; Evolvement, accumulation and replacement of the types of arguments used in different stages of the planning process
Natura 2000 -JRC	Arguments for biodiversity conservation in Natura 2000 sites across Europe	Project managers working for a public authority (national, regional, local), NGO or park reserve authority	Presentations of 365 LIFE projects across the Natura 2000 network; In-depth interviews about 14 projects	1995-2012	Types (and variety) of arguments used in public communication to conserve or restore habitats and species in Natura 2000 sites (LIFE); comparison of arguments according to types of project managers and project focus (species/habitats)

Natura 2000 - NL	Arguments for biodiversity conservation in Natura 2000 sites in the Netherlands	European Commission, national government, provinces, national and local NGO's, local stakeholders	National implementation process; National policy documents; Media publications	1994-2014	Types of arguments for site designation across types of stakeholders; Types of arguments used to manage and shape designated sites in relation to interests of local stakeholders
Natura 2000 - HU	The introduction and implementation of Natura 2000 in Hungary	Ministry of Environment and scientists (national), Park Directorates (regional) and farmers, forest managers, hunters, local communities (local)	Stakeholder forums for presenting draft implementation plans	2009-2014	Types of arguments provided by the promoters of Natura 2000 and the stakeholders; Change of arguments over time
Background study global/EU	Arguments for biodiversity conservation in global/EU policy documents	Global and European	Two global and two EU level policy documents: The Convention on Biological Biodiversity (1992); The New Strategic Plan for Biodiversity 2011-2020 of the CBD (2010); The European Community Biodiversity Strategy (COM, 1998); The EU Biodiversity Strategy to 2020 (EU, 2011).	1990s - 2012	Comparison of arguments for biodiversity at the global and EU levels; Evolution of arguments over time
Comparative study BDS 2020	Arguments for implementation of EU Biodiversity Strategy to 2020 at national/regional level	European and national/regional levels (UK, Poland, Flanders, Finland, Germany, Netherlands)	The EU Biodiversity Strategy to 2020 and related EU, national and regional strategic documents	2000s - 2014	Comparison of argument categories; Transmission of messages and arguments between the EU and national level; Comparison of argument categories in relation to the realms of rationality to which they subscribe

4 Results

4.1 Part I. Synthesis of product layer: what arguments "say"

This part of the synthesis elaborates on the question of what arguments can be identified at different levels and structural units of biodiversity governance and what arguments are identified as being linked and transmitted. Case studies focussed on the content of arguments and patterns of similarities and differences between levels of governance and among different types of actors or stakeholders. In addition, several CSs also investigated the evolution (and persistence) of argument contents across a particular time scale. Finally, we report findings with respect to structural properties of arguments and forms of expression.

4.1.1 Comparisons of arguments used

To analyse the content of arguments, all CS identified arguments and classified them into predefined or self-generated content-related categories. The predefined categories were mainly based on the classification framework described in BESAFE Deliverable 1.1. (Howard et al., 2013, p.21), listing 31 possible arguments for communicating the value of biodiversity. The BESAFE classification distinguishes between instrumental arguments, non-instrumental arguments and those where the goal is not expressed. Instrumental arguments were divided in those referring to economic benefits and those referring to social benefits. Non-instrumental arguments were divided in the subcategories of those referring to an inherent value and those referring to human welfare or happiness. Other categories were self-generated and tailored to the specific objectives and theoretical perspective of the CS in question. In this respect, specific aggregations of arguments were made, including thematically based argument categories (Comparative study BDS 2020, Invasive species CS, Peatlands Strategy CS and Natura 2000-Hu CS), positively and negatively framed arguments (UK local Biodiversity Action Plan CS) and contradictory opposites (Fox and wild boar CS).

Following the classification of arguments comparative analyses were undertaken of arguments used at particular levels of governance, across the EU member states and in different institutional settings.

Comparison of arguments between global and EU levels

The Background study global/EU made a comparison of arguments for biodiversity at the global and EU levels. It was found that in global level policy documents - the Convention on Biological Biodiversity (CBD) and its New Strategic Plan for

Biodiversity 2011-2020 - unequal access to, or dependency on, biodiversity resources of different social groups was a clear issue, while at the European level this problem was not highlighted. At the global level, biodiversity and ecosystem services were considered to be an important element for human livelihoods as they support basic needs, especially for indigenous people. Moreover, it is highlighted that many aspects of biodiversity decline were highlighted as having a disproportionate impact on poor communities and therefore biodiversity conservation was strongly interrelated with poverty reduction. Arguments for enhancing the role of women in biodiversity protection and in sustainable use were also used at the global level. These arguments were not used at the European level. It appears therefore that social arguments for biodiversity protection play a much more important role at the global governance level than at the European level.

At the European level, it is the increased importance of economic arguments that is especially noted (EU Biodiversity Strategy to 2020), such as the contribution of biodiversity conservation to green economy and sustainable growth, clearly linking biodiversity protection with the new economic policy of the EU. Cooperation with the private sector is envisaged to achieve these goals. Social arguments that are used at the EU level were especially in relation to sectoral economic policies with regard to the livelihood of communities such as fishing communities as well as rural communities dealing with forestry (as stated in the European Community Biodiversity Strategy 1998) and employment opportunities related to biodiversity conservation.

Comparison of arguments between EU and member state levels

The comparative study BDS 2020 (see full report in Annex) compared the arguments in the EU-level Biodiversity Strategy 2020 with those in national-level documents designed for the (obligatory) implementation of the Strategy in six member states or regions (UK, Poland, Flanders, Finland, Germany, Netherlands). The study's objective was to assess which messages and arguments were transmitted from the BDS 2020 to national-level policies, and therefore had a potential to generate effects on those policies. In addition, the study assessed which messages and arguments lost importance at the national level. Attention was also paid to what argumentation was specific for particular countries. We first focus on the transmission of the three major claims in the EU BDS 2020 before drawing overall conclusions.

Claim 1: Biodiversity is essential in order to progress towards a green and resource efficient economy.

The major observations were (see also Table 2):

- Overall, the EU and member state argumentation lines were relatively uniform, with perhaps a slightly stronger focus of the EU documents on threats for biodiversity.
- Germany and England had the highest numbers of argumentation lines for this claim.
- Jobs/ Innovation and Technology was the most dominant category of argumentation lines, with Germany having the largest share of argumentation lines in that category.
- England also had a strong focus on the valuation for decision making category.

Table 2: Percentage of argumentation lines per argument category and per region; and average[1] of member states

CATEGORY /REGION	Dependency	Jobs Innovation Technology	Cost of no action	Valuation (for decision)	Future prospectives/ generations	International (image)	Conservation doens't have to be negative for the economy	BD under threat, so action needed	Non Categorized (particular)	# argument lines
Germany	4,0%	32,0%	8,0%	12,0%	0,0%	0,0%	0,0%	12,0%	32,0%	*25*
Poland	20,0%	60,0%	0,0%	0,0%	20,0%	0,0%	0,0%	0,0%	0,0%	*5*
England	16,7%	8,3%	0,0%	37,5%	8,3%	4,2%	4,2%	4,2%	16,7%	*24*
Finland	28,6%	14,3%	14,3%	14,3%	28,6%	0,0%	0,0%	0,0%	0,0%	*7*
Flanders	7,1%	35,7%	7,1%	0,0%	7,1%	14,3%	7,1%	14,3%	7,1%	*14*
Netherlands	12,5%	31,3%	12,5%	0,0%	6,3%	6,3%	0,0%	12,5%	18,8%	*16*
EU	10,0%	20,0%	0,0%	10,0%	10,0%	0,0%	0,0%	30,0%	20,0%	*10*
Average Member States	13,5%	28,3%	6,8%	12,5%	9,7%	4,3%	2,0%	8,0%	15,0%	

Claim 2: Building a green infrastructure is important to maintain biodiversity, but also beneficial to land users and society at large.

The major observations were (see Table 3):

- The focus of member states and the EU was slightly different, although for both the “ecological” and “benefit and costs for society (ES)” categories were

[1] Average was calculated based on: 1) The weighted average of member states depending on the total amount of argumentations lines they have and, 2) The average of absolute values (see methodology section).

important. Member states emphasized more the former and the EU the latter.

- England had (by far) the largest amount of argumentation in this claim. Other member states had less argumentation lines, but similar amounts to each other.
- The category "Jobs/Innovation/Technology" was important at EU level and much less so at member state level. However some different interpretations of the benefits from green infrastructure within documents increased this difference.
- The "Space optimization" category is particularly important in Flanders and the Netherlands, two densely populated areas.
- Poland referred relatively much to the "ecological" category, while England emphasized relatively much on "pressures" and "benefits & cost for society (ES)"
- New concepts ("urban" and "green vs gray") were picked up at each level (EU and member states). The "green vs gray" argument category was however poorly represented compared to member state documents.

Table 3: Percentage of argumentation lines per argument category and per region; and average of member states

CATEGORY /REGION	Ecological/BD	Climate change	International (convention/ regulation)	Pressure	Space optimization	Current efforts insufficient	Benefits & Costs for society (ES)	Jobs Innovation Technology	Green vs grey	Urban	Synergies with other policies	Non Categorized (particular)	# argument lines
Germany	14,3%	14,3%	0,0%	57,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	14,3%	*7*
Poland	60,0%	10,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	30,0%	*10*
England	7,5%	5,0%	7,5%	15,0%	7,5%	5,0%	17,5%	0,0%	2,5%	5,0%	10,0%	17,5%	*40*
Finland	12,5%	12,5%	0,0%	0,0%	0,0%	0,0%	25,0%	12,5%	0,0%	37,5%	0,0%	0,0%	*8*
Flanders	18,2%	9,1%	0,0%	27,3%	9,1%	9,1%	9,1%	0,0%	0,0%	0,0%	0,0%	18,2%	*11*
Netherlands	50,0%	10,0%	0,0%	0,0%	20,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	20,0%	*10*
EU	**13,6%**	**4,5%**	**9,1%**	**4,5%**	**4,5%**	**0,0%**	**22,7%**	**22,7%**	**9,1%**	**4,5%**	**4,5%**	**0,0%**	*22*
Average Member States	**24,0%**	**9,1%**	**2,4%**	**15,8%**	**6,5%**	**2,9%**	**10,1%**	**1,6%**	**0,8%**	**6,4%**	**3,2%**	**17,1%**	

Claim 3: The EU needs to mainstream biodiversity into major forestry, agriculture and aquatic/fisheries policies.

The major observations were (Table 4):

- Overall, the EU and member states had a rather uniform spread of argumentation lines within categories. Some slight differences could be found as the EU emphasized more past mistakes in the biodiversity strategy 2010, and less pressures on biodiversity.
- England had the most argumentation lines in this category, while other member states had a relatively even number of argumentation lines.

- England had a relatively strong focus on the "pressures" and "decision making" categories. Germany and Poland referred more on the "Potential contribution to biodiversity" category.

Table 4: Percentage of argumentation lines per argument category and per region; and average of member states

CATEGORY /REGION	Coordination /Synergy	Pressure/Negative Impact	Importance/ Potential contribution to BD	Experience from 2010	Funding	Climate change/ Resilience	Decision making	Benefit/importance BD for other sectors	Current effort insufficient	Appropriate for ecosystem scale	Non Categorized	# argument lines
Germany	0,0%	8,3%	50,0%	0,0%	0,0%	8,3%	0,0%	8,3%	0,0%	0,0%	25,0%	*12*
Poland	9,1%	18,2%	36,4%	0,0%	0,0%	9,1%	9,1%	18,2%	0,0%	0,0%	0,0%	*11*
England	6,9%	20,7%	3,4%	0,0%	6,9%	6,9%	20,7%	6,9%	3,4%	10,3%	13,8%	*29*
Finland	0,0%	33,3%	8,3%	0,0%	8,3%	8,3%	0,0%	25,0%	16,7%	0,0%	0,0%	*12*
Flanders	25,0%	12,5%	25,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	37,5%	*8*
Netherlands	33,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	16,7%	0,0%	33,3%	16,7%	*6*
EU	10,0%	5,0%	15,0%	10,0%	5,0%	0,0%	10,0%	10,0%	5,0%	10,0%	20,0%	*20*
Average Member States	10,7%	16,7%	19,2%	0,0%	3,2%	5,9%	7,0%	12,0%	3,6%	6,8%	14,8%	

Based on the above, we can draw the following general conclusions from the comparative study:

- All three EU claims were represented in all member states, albeit with sometimes important differences between member states.
- Overall, there were no big differences between the average occurrence of argumentation lines in member states and the EU. The focus of certain member states on specific argumentation lines compared to other member states could be partly explained by contextual factors (e.g. population density, political ideology, etc.).
- Some argument categories were strongly related to the claim contents, but some could be found across all claims. For example threats for biodiversity and climate change were recurrent in argumentation lines.
- The type of document played an important role. Overall there seemed to be a trend that binding documents contained much less argumentation than less binding documents. For example a policy plan contained usually more argumentation categories than a political brief. Advisory reports, scientific assessments (e.g. UK NEA) and Government White papers contained the broadest range of argument categories.

Comparison of arguments across the European Natura 2000 network

To enable understanding of the arguments used across member states, we rely on the Natura 2000-JRC CS. This CS screened 388 LIFE projects across the European Natura 2000 network for their argumentation on biodiversity. LIFE is the European Commission's financial instrument to support environmental and nature conservation projects. The focus was on conservation projects where one of the

objectives was to raise awareness among public and stakeholders about the values of biodiversity. Projects of all countries of the EU-27 were considered in the analysis. The projects were analysed with respect to their presentation in the LIFE database, on the project's website and in other public communication materials, more specifically the arguments to conserve or restore habitats and species in Natura 2000 sites.

The LIFE projects were managed by project managers, located at different levels and units of biodiversity governance. Most often they were working for a public authority (at the local (11%), regional (27%) or national (9%) level), a non-governmental organization (28%) or a Park-Reserve authority (12%).

The analysis yielded information on the relative frequency of particular types of arguments (i.e. premise statements) that were used by the project managers when presenting their project on the Life website (see Tables 5 and 6).

Table 5: Relative frequency of premise statements according to type of managing authority.

Premise statements	Local authority	Regional authority	National authority	NGO-Foundation	Park-Reserve authority
Recognising rights / values of nature itself, for itself	**41%**	**27%**	**36%**	**28%**	**32%**
Ethical, moral and religious views providing obligations to nature		1%	7%	2%	1%
Evolutionary processes should not be disrupted / gene pool pollution			2%	2%	1%
Ecosystem function / resilience - purpose unclear	5%	4%	9%	3%	4%
Ecosystem function / resilience – anthropocentric				1%	
Ecosystem services (flows leading to benefits)	2%	3%		3%	1%
Specific regulating and supporting services other than climate regulation		1%		3%	1%
Climate regulation service and/or carbon sequestration		1%		1%	
Social / cultural / heritage / collective well-being and welfare	3%	**10%**	7%	7%	**11%**
Recreation / tourism	5%	4%	7%	3%	5%
Human health / reduction in disease risk				2%	
Aesthetic value	7%	2%	2%	3%	3%
Intellectual stimulus, education beyond protection of biodiversity	7%	4%	2%	5%	5%
Productivity in forestry / agriculture / fisheries / food security	7%	4%	2%	5%	5%
Water security				2%	
Energy security					1%
Economic	3%	5%	2%	**5%**	**8%**
Bio-prospecting		1%			
Precaution (future generations) and option value	2%	4%		2%	
Employment and livelihoods	2%	1%	2%	4%	3%
Sustainable development / poverty alleviation / future generations	7%	7%	5%	9%	3%
Legal compliance / political necessity	2%	4%	**9%**	2%	3%
Reputational benefits					
Species conservation matters (underlying reason not mentioned)	8%	16%	7%	12%	13%

Table 6: Relative frequency of premise statements according to the project's focus.

Premise statements	Habitats	Species	Habitats and species
Recognising rights / values of nature itself, for itself	**35%**	**28%**	**32%**
Ethical, moral and religious views providing obligations to nature	2%	3%	2%
Evolutionary processes should not be disrupted / gene pool pollution	1%	1%	2%
Ecosystem function / resilience - purpose unclear	6%	5%	7%
Ecosystem function / resilience – anthropocentric			1%
Ecosystem services (flows leading to benefits)	1%	2%	1%
Specific regulating and supporting services other than climate regulation	1%	2%	1%
Climate regulation service and/or carbon sequestration	1%	1%	1%
Protection against invasive species / diseases in non-human life forms			
Social / cultural / heritage / collective well-being and welfare	8%	8%	1
Psychological / spiritual / individual well being			
Recreation / tourism	7%	4%	6%
Human health / reduction in disease risk			
Aesthetic value	3%	3%	4%
Intellectual stimulus, education beyond protection of biodiversity	4%	6%	4%
Productivity in forestry / agriculture / fisheries / food security	5%	4%	4%
Other industrial dependence			
Business risk			
Water security	1%	1%	1%
Energy security			
Economic	5%	5%	5%
Bio-prospecting			
Precaution / risk management (current generation / Century)			
Precaution (future generations) and option value	3%	1%	1%
Precaution (future generations) and option value	3%	1%	1%
Employment and livelihoods	3%	1%	1%
Sustainable development / poverty alleviation / future generations	6%	6%	7%
Moral, ethical or religious belief related to obligations to other people			
Legal compliance / political necessity	1%	2%	1%
Reputational benefits			
Species conservation matters (underlying reason not mentioned)	**5%**	**15%**	**5%**

The major observations can be summarized as follows:

- The two most common arguments were the inherent value of nature (recognising rights / values of nature itself, for itself) and the argument that species conservation matters in itself.
- Social arguments were more frequently used than economic arguments. Ecosystem services and more in general, economic arguments were rarely used in the context of conservation and restoration in Natura 2000 sites.

- The limited set of arguments used hides to some extent differences between the use of arguments depending on stakeholders, beneficiaries or conservation types.
- In general, projects which were managed by an NGO used a larger number of arguments but differences between projects managed by public authorities or park services were small.
- Differences in the use of arguments between projects which focussed on habitat restoration and species restoration, respectively, were also relatively small. Projects focussing on species used more frequently the argument that species protection is important without providing a rationale.

Comparison of arguments between different institutional settings

Two case studies have explored and compared the arguments that were used in different institutional settings. The first was the Peatlands Strategy CS, which examined how different actors used arguments in the controversy over peat mining the Viurusuo mire area (Eastern Finland) in local and regional institutional settings (primarily the administrative and juridical systems).

At the local level, both residents and landowners used arguments that were targeted against peat extraction in the Viurusuo wetland. All of the themes identified also existed in the nature conservation groups' arguments. However, differences were found between local and regional nature conservation groups. Specifically, the regional group put more emphasis on the water areas from the ecological viewpoint than from the recreational one. They also raised the concern for climate change, but only during the latter part of the process.

The difference in the use of arguments between the local and regional groups was attributed to the fact that regional group members were often experts/scientists while the local group realised that they lacked scientific expertise. This was reflected in the data: the arguments made by the regional group were very scientific compared to those of the local group. The latter resembled the local people's concerns. The regional group was also able to evaluate the quality of the scientific arguments presented. Typical arguments raised were:
"The decision is based on flawed information";
"The decision-making is based on insufficient evaluation and justification";
"The Viurusuo area holds special values for research".

The second case was the Danube Catchment CS. Much of the debate was on conservation measures to be taken in Small Islands of Braila. Arguments used by

policymakers (i.e. governmental agencies) differed depending on whether they were in a national, regional or local institutional setting. In a national institutional setting, the main formulated arguments (often backed by science) were “Rights/values of nature itself” and “social/cultural/heritage/collective well-being and welfare” types. At the regional level they brought in more utility arguments such as “Recreation, tourism, aesthetic experience”, “Productivity, resources, industrial use of nature, market products, economic growth” and “Options for future use”. At the local level, policymakers issued mainly arguments of the “Legal obligation” type, but also arguments related to traditions and knowledge transmitted from father to son.

4.1.2 Variety of argument contents

Variety of arguments was assessed according the categorisations developed in the CSs. While several CSs noticed a relatively high variety of arguments used by some particular stakeholders (i.e. many types of arguments were used), argument variety was usually limited for most of the stakeholders.

A main conclusion from the Natura 2000-JRC CS (see also above: “Comparison of arguments across the European Natura 2000 network”) was that in two thirds of the 388 LIFE projects argumentation was limited to one single argument (Figure 2). Projects managed by an NGO used a richer variety of arguments: nearly all of the 24 argument types were presented, with exception of energy security and reputational benefits (Table 6).

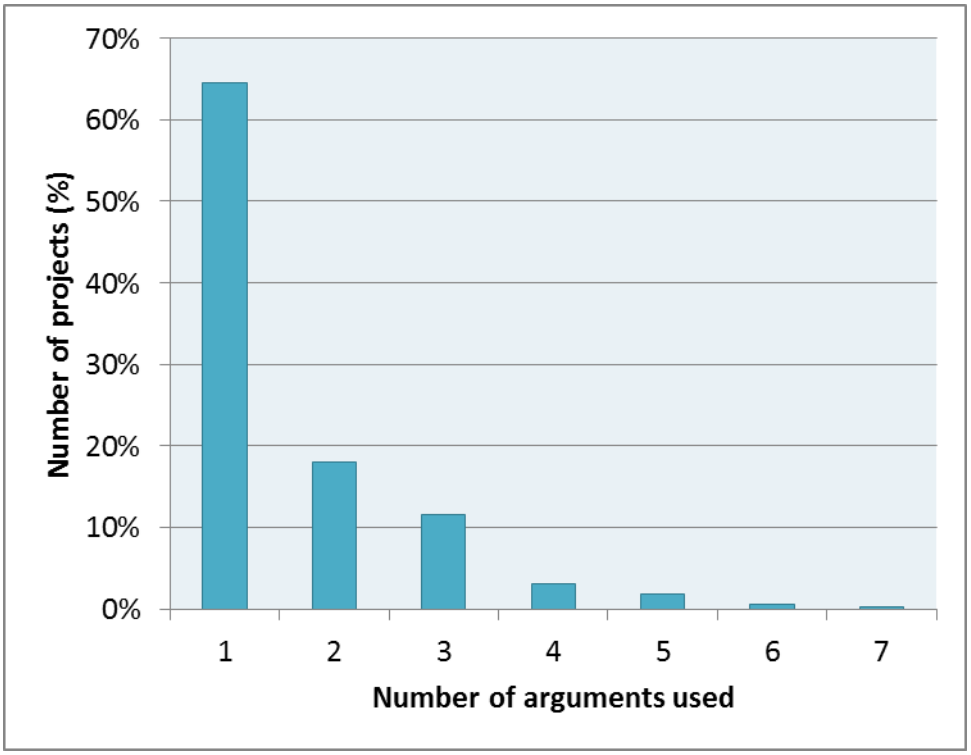

Figure 2: Number of arguments used in 388 LIFE projects across the European Natura 2000 network.

In addition, the CSs helped identify whether specific types of actors or stakeholders used a broader variety of arguments than others in the same process. In the Danube Catchment CS, academic stakeholders formulated the highest variety of arguments, corresponding to the following categories:

- Rights/ values of nature itself (e.g. habitats for species, remnant wetlands, species diversity);
- Achieving balance of nature, healthy systems, natural functions (e.g. dynamic network or river arms and channels);
- Meeting ethical, moral or religious obligations to nature (e.g. “birds belong to the whole world”);
- Sustainable development, obligations or values for future generations (e.g. resources and services for local communities);
- Social/cultural/heritage/collective well-being and welfare;
- Psychological/spiritual/individual well-being (e.g. education);
- Recreation, tourism, aesthetic experience (e.g. touristic area);
- Provisioning services, emphasis on quality, naturalness, impacts on human well-being (e.g. support for life);
- Productivity, resources, industrial use of nature, market products, economic growth;
- Regulation services, carbon, nutrients, water-functions leading to indirect benefits (e.g. water purification, natural filtering function);
- Reputation, winning customers/staff/voters;
- Legal obligation (e.g. natural reserve, Ramsar site).

Such variety was in contrast with the variety of arguments used by policy makers at the national, regional and local government levels, as well as local media actors, who used a much lower variety of argument types.

A systematic comparison of argument variety was also made in the Peatlands Strategy CS. The greatest variety was found at the local level. Local people (residents, land owners, local nature conservation groups, local authority) presented the richest variety in arguments. By contrast, other stakeholders presented fewer arguments. For example, the arguments from the peat industry were mainly counter-arguments to the ones presented by local actors.

The Natura 2000-NL CS revealed that variety can differ among different government levels. In general, a limited variety of arguments for Natura 2000 site designation was observed in the Netherlands. But the variety was slightly greater at regional and at local level, compared to the variety at the national level. At national level, mostly anthropogenic arguments were used such as, for instance, conserving biodiversity for future generations and for inspiration (e.g. for art and multi-media), but also for R&D such as bio-mimicry and bio-based products. While at the regional level, arguments referring to maintaining the uniqueness of the local area were more prevalent. Especially when bringing the designation of sites into (local) public consultation, more and more new arguments did show up, mainly utilitarian arguments. For example:
"The Netherlands can be proud of this international and European, unique nature, because of the intrinsic and biological values. But not only because of that. Also recreational and economic values are of great importance and contribute to human well-being."
The main explanation was that variety related to the stage in which the Natura 2000 process was. For example, in the Natura 2000-HU CS the implementation stage saw participants in the debate (especially at local level) articulate more diverse arguments than in the planning and development stage. This may be due to the fact that attention to the topic increased, with the press publishing more articles relating to Natura 2000. Local level discussions started to interpret the link between ecosystem services and Natura 2000 sites but the dialogues did not reach the point where the link between individual welfare and ecosystem services was recognized.

Variety of arguments also differs among different types of transmission channels, as was the case in the Fox and wild boar CS. This CS was designed to cover a wide variety of forums of discussion, stakeholders involved and issues discussed. Nevertheless, the overall variety of arguments in the debate was rather narrow. A

notable exception was public reactions (mostly on news events) posted on Internet forums.

And lastly, the Comparative study BDS 2020 revealed that variety depended on the status of the document used. There was a tendency for binding documents to contain a much smaller amount of argument categories than less binding documents. For instance, a policy plan contained usually more argumentation categories than a political brief, while advisory reports (e.g. UK National Ecosystem Assessment) contained the broadest range of argument categories.

4.1.3 Evolution (and persistence) of argument contents over time

All CSs considered a time scale of at least several years, taking into account the fact that policy and law making processes, including implementation, typically occur over a long time span. Additionally, these processes can continue when new issues arise (sometimes with new governance actors) or latent issues are re-opened for discussion. The changes in argument contents must also be seen in the context of wider developments such as the adoption of new legislation and the introduction of new practices and concepts (see also Part III). In this section, comparisons are made about changes over time at all levels of the multi-level governance context.

Changes in argumentation over time at global and EU levels of biodiversity policies

In the background study Comparison global/EU compared the argumentation during the 1990s (the Convention on Biological Biodiversity 1992 and the European Community Biodiversity Strategy 1998) with the argumentation in recent times (the New Strategic Plan for Biodiversity 2011-2020 of the CBD and the EU Biodiversity Strategy to 2020). A summary of results from this comparative analysis is presented in Figure 3.

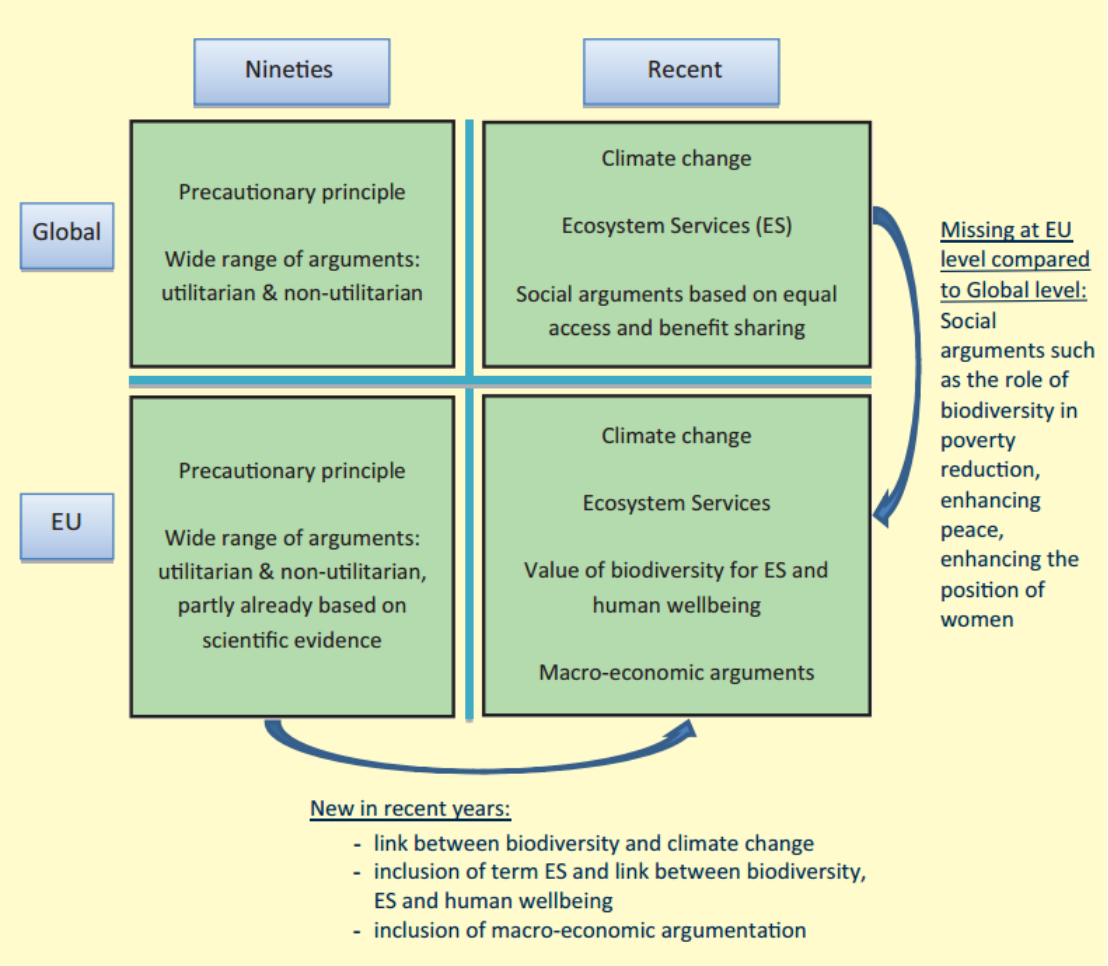

Figure 3. Comparison of arguments at different governance levels and timescales

During the 1990s, the precautionary principle was widely accepted as a general environmental policy principle both at the global and the EU level. The 1998 European Community Biodiversity Strategy was prepared a few years later than the CBD and some scientific data had been gathered within this intervening period to show the loss in biological diversity and draw attention to the urgent need for actions. Hence, argumentation at the EU level in the 1990s was based on scientific evidence as well as the precautionary principle. Also a wide range of biodiversity values was used as justification for biodiversity protection. Non-utilitarian values (e.g. species have a value of their own), social values (e.g. indigenous people need biodiversity for their subsistence) and utilitarian (economic) values all played important roles.

The mixture of arguments used currently is, however, very different. The concept of Ecosystem Services (ES) has become the central element of the argumentation, emphasising the benefits of ecosystems to people and the contribution of ES to human wellbeing. The relationship between biodiversity, ES and human wellbeing

begins to play a strong role, particularly in the new EU biodiversity strategy document, where biodiversity is mentioned as a natural capital, delivering ES, and being an element of an economic stock-flow model.
In present-day argumentation, the precautionary principle and non-utilitarian values are mentioned less. They still appear in the argumentation, but with the introduction of the concept of ES there is a clear shift towards values for society. Considerable attention is paid to the importance of including the economic value of biodiversity and ES in national accounting and reporting systems, as prerequisites for effective biodiversity conservation. Both the cost-effectiveness of biodiversity conservation (e.g. resource efficiency) and the investment opportunities provided by conservation measures are highlighted. Furthermore, climate change issues have become an important part of the argumentation at the global as well as the EU level recently (see also Figure 3.). This concerns the inter-linkage of biodiversity loss and climate change, as well as the benefits of biodiversity conservation for climate change mitigation. The concept and practice of ecosystem-based climate change adaptation is promoted, underlining that biodiversity conservation can contribute to both climate change mitigation and adaptation in a cost-effective way. The general argument is that higher levels of biodiversity strengthen the adaptive capacity of ecosystems.

Another CS that compared changes of arguments over time at the EU level was the invasive species CS. The arguments on detrimental effects of invasive species mainly referred to biodiversity. However, the recent proposal on Regulation on the prevention and management of the introduction and spread of invasive alien species (EU, 2013) has a strong focus on arguments about economic (agriculture and forestry) and human health effects. On the one hand, the discourse on ecosystem services has shifted the focus from biodiversity as an intrinsic conservation goal to provisioning and cultural services. On the other hand, management of invasive alien species only seems feasible if other sectors (on European level Directorate-General for Health and Consumers - DG SANCO - and DG Agriculture and Rural Development) are involved in the process. A regulation's acceptance by these sectors is important indeed to put it into law. In addition, these sectors already have a set of instruments to manage IAS, so that measures can be taken effectively in a joint effort. Thus, we could see a shift in the focus of argumentation from biodiversity to economic and human health effects. However, theses "new" arguments did not replace the biodiversity argument, but added to it. And, although the discussion on economic and human health effects has been going for a very long time, it was reflected in European legislation only recently.

Changes of argumentation over time at national, regional or local level

Other CSs addressing national, regional or local levels also identified changes in arguments over time .The Białowieża Forest CS investigated the long-lasting debate about whether the natural forest should be strictly preserved or sustainably exploited. In this CS arguments provided by different actors changed with time. For example, arguments relating to local livelihoods were initially used only by the local people but were gradually transmitted to the environmentalists and scientists acting at higher governance levels, and even up to the ministerial level. The Ministry of Environment - from the beginning interested in the increased protection of the Białowieża Forest - focused initially on the intrinsic value of the forest. Later on, after years of impasse in the conflict, the Ministry included considerations for local people's livelihoods in their advocacy towards increased protection. The minister then claimed that "local development should be based on Białowieża Forest's fame and its brand recognition" and that "smart and ecological tourism is an opportunity for locals for growth and profit". On their part, the local people initially focused almost entirely on their livelihoods. At the same time, however, each actor group maintained their "original" arguments. For example, the environmentalists did not abandon notion of the intrinsic value of nature throughout the whole conflict, even if they increasingly used economic/livelihoods argumentation. In the same manner local people (and foresters) maintained their livelihoods-related arguments, although they increasingly used other types of arguments as well.

The Urban green areas CS examined the arguments about biodiversity and ecosystem services in the course of a local master plan development process (Sibbesborg, Finland). The focus was on whether and how the arguments persist along three subsequent phases of the process: 1) Target setting stage of an international planning competition; 2) Evaluation of competition submissions; 3) the first development phases of the local master plan development process. Prioritization of biodiversity and ecosystem services related arguments was quite clearly formulated and justified in the target setting stage of the planning competition. However, when analysing the following next two phases of development, biodiversity related arguments tended to be weaker than the ones for urban development and, therefore, did not always persist in the process. There were also signs of partly moving from preservation of biodiversity to utilisation of biodiversity. Individual ecosystem services persisted in the planning process, although not labelled as ecosystem services. The CS showed that the concept of ecosystem services became gradually more and more indistinct during the planning process and was not understood as a comprehensive, over-arching theme including all kinds of services that can be achieved through multi-functional green and blue infrastructure both under and over the land and water surfaces.

Also in the Local Biodiversity Action Plan CS, the development of argumentation was examined across different examples of activities important for the conservation of biodiversity. This revealed a remarkable shift in arguments from an emphasis on cost efficiency, which was superseded by the argument to save resources (moving from cost neutral to cost saving). This occurred alongside a reduction in local authority budgets as a result of the continuing economic crisis.

The Danube Catchment CS illustrated that formal decision-making could affect the use in arguments. Prior to receiving the national and international natural protected area statute - 2000: designation as natural park; 2001: designation as Ramsar site; 2007: designation as Natura 2000 SCI and SPA sites - the most used arguments were targeted at meeting ethical, moral or religious obligations to nature. After receiving this statute, the legal obligation argument type was commonly used in the implementation process of the received statute.

Changes in argument contents also occurred during the implementation process of Natura 2000 in the Natura 2000-Hu CS. In the earlier stage of the process, European community interests were emphasized rather than national aspects and, typically, moral arguments were mentioned in the policy documents (We have our responsibility toward nature in Europe since “we offer an important contribution of natural heritage to the community”). In later stages of the implementation process, the argumentation targeted the local level and was more active. It was emphasized that the Natura 2000 system did not involve tough restrictions and the old practices of management could generally be continued while individual farmers could acquire subsidies under the new system. Besides subsidies, however, there were no other benefits specified and the link between the Natura 2000 system and ecosystem service approach was not clarified.

It is notable, moreover, that in the Peatlands strategy CS no changes were detected in arguments used by local people, nor by the peat industry. The arguments of the latter remained largely the same during the process.

4.1.4 Structural properties of arguments

Structural analysis is concerned with the layout or “architecture” of arguments. Well-known is Toulmin’s model of argument (Toulmin, 1958; Toulmin et al., 1984), which visually represents the informal logic of the structure of arguments. Different components of arguments and their interrelationships - claim (or conclusion), data and warrant (or premises), backing, qualifier, rebuttal - are used to systematically map and evaluate arguments offered by scientists, politicians and other parties

(Dunn, 1993). A few CS have paid special attention to structural properties, such as consistency (including corroboration of expressed viewpoints), logical oppositions and implicit claims, because of their importance in the conduct of debates.

Consistency of arguments

We focus here mainly on consistency in a broad sense, i.e. by analysing which interpretations of premises would turn given conclusions true and which would turn them false. According to Brun and Hirsch Hadorn (2009), a set of propositions is inconsistent if conclusions can be drawn from them which are contradictory.

In the Invasive species CS, it was checked in the scientific debate on IAS whether the premises supported the validity of the conclusion. From the discussions between those who advocate science-based evidence on harms caused by IAS (in the following "evidentialists") and those who call for precautionary action towards IAS (in the following "precautionists") the following results were obtained.

Overall, the debate on IAS is highly polarized, which becomes visible in the violation of the principle of charity. Charitable interpretation means that one should interpret an argument so as to render it as plausible and reasonable as possible when the argument allows for different interpretations (Govier, 2005). For example, when evidentialists claim that species should not be judged on their origins (Davis et al., 2011), precautionists counter that they are neither xenophobes nor nativists. By this, they commit a straw man fallacy as there was no accusation of xenophobic or nativist attitudes. In fact, evidentialists and precautionists share much common ground, which is not reflected adequately in the debate. Argumentation between evidentialists and precautionist simply fails because one party does not refer to the arguments of the other party.

Further, both parties in the Invasive species CS only presented cursory information where quantitative data was needed to corroborate their viewpoints. For example, there was no evidence on the role of invasive species in extinction or of positive effects of alien species. In the Fox and wild boar CS, opponents of foxes enriched much of their argumentation with numerical information to support the claim that foxes were harmful, even vermin. However, these figures showed important gaps in terms of harm to biodiversity (e.g. ground nesting birds). Fox defenders also failed to corroborate their viewpoint with quantitative data.

Logical oppositions

When arguing and thinking, people make use of logical oppositions all the time. These can be either contradictions or contraries (Govier, 2009; Macagno and Walton, 2010). For example, “urban” and “not urban” are contradictory terms and therefore mutually exclusive (only one will be true); “urban” and “rural” are contraries but not exclusive (at most one can be true, they can both be false), as they allow middle terms such as “suburban” and “semirural”. In everyday argumentation terms that should be understood in a kind of spectrum way (e.g. involving degrees) are frequently treated as contradictory opposites or dichotomies. Dichotomies are relevant to the conduct of debate because they may force a choice between two alternatives (the negation of one of the two leads to the conclusion that the other is the case). In this manner, they can help in driving the discussion forward and finding a solution (Macagno and Walton, 2010), but they may also lead to sharp disagreement and paradox (Dascal, 2008). Excluding middles where middles exist may limit the choices of action and policy, and eventually lead to polarisation between groups (Govier, 2009).

The Fox and wild boar CS looked in particular at contrasts in arguments. Contradictory opposites (or dichotomies) were omnipresent in the debates and they played a determinant role in the conduct of these debates (see also the section on “dichotomization” in part II). Most of the arguments were constructed around a limited number of dichotomies, such as belong/not belong, harmful/beneficial, controlled /uncontrolled. Such evaluative dichotomies were built upon previous distinctions between facts (present/absent, before/after) and definitions (most evidently the distinction between natural/unnatural or artificial). For instance, the evaluations that foxes and wild boars belong in Flanders were both explained with defining their presence as a natural phenomenon and their absence as an unnatural situation caused by past human intervention.

Dichotomy, or the use of contradicting terms, was also much evident in several other CS, for instance, alien versus native species (Invasive species CS) and unmanaged (natural) versus managed forest (Białowieża Forest CS). Dichotomies were often expressed in value-laden language, e.g. friend/enemy (see further in this Part: “value laden language”).

Implicitness or what arguments do not say

The Comparative BDS 2020 looked at the structure of argument categories, that is what type of argumentative statements compose them. Making implicit reasoning explicit, by using “controlled” inferences was an important part of this study. In the policy documents, value considerations were often not made explicit but rather emerged through value-laden language.

That value dimensions are either implicit or taken for granted in argumentation was also apparent in the scientific debate on IAS analysed in the Invasive species CS. For example, Alyokhin (2011) deplores that IAS negatively effect evenness. Evenness is often regarded together with species richness as one constituent of diversity (Heip et al., 1998). However, being useful for the description of diversity does not allow inferences on the adequacy as an evaluation criterion. The normative foundations of why evenness is valuable are thus unclear. But also species richness is probably a contestable evaluation criterion in many contexts. For example, raised bogs harbour much less plant species than urban brownfields, but they are in general regarded as more valuable. Therefore, a discussion on the severity of impacts of alien species cannot be reduced to the description of ecological effects but has to take into account value dimensions to a much greater extent.

Although the nine examples examined in the BD Action Plan CS involved biodiversity practitioners arguing for biodiversity, in only five of the nine was the benefit to biodiversity of the action explicitly stated. This reflects the understanding of the interaction and its context by the arguer, which involves two opposing dimensions. The first being that the arguer knows the receiver also shares a concern for the conservation of biodiversity but for this to occur in practice other concerns are relevant, for example legal duties. The second dimension involves the arguer perceiving a lack of concern by the receiver for the conservation of biodiversity and thus the arguer decides to emphasize more relevant concerns for the receiver.

4.1.5 Forms of expression

Value-laden language

Value-laden language, i.e. including terms that are not merely descriptive but evaluative too, is common in political speech and in cases of conflict. Such terms import into the debate certain interpretations or connotations, as they were facts beyond discussion. The reasoning is grounded on a judgement, which becomes a reason to carry out a specific action (Macagno, 2013).

In the CSs all types of actors made use of value-laden language. A clear example is *crime language.* In the Danube Catchment CS, academics at national level claimed that the loss of Small Islands of Brăila would be “a crime” and that would represent “an offence” for the future generation. In the Fox and wild boar CS, the fox was often portrayed in newspapers as a bloodthirsty murderer. In addition, personal testimonies provided detailed information about “bloody scenes” or “traumatised chickens. In reaction, those in favour of foxes (conservationists, Nature Help Centre, and more) tried to explain away the foxes’ criminal behaviour - using *culinary*

language - and shift responsibility onto the chicken owners, who were offering the fox: “a tasty snack”, “a set table”, “a free buffet” and even “a fast food restaurant”.

Another type of language referred to insiders (positive) and outsiders (negative). For example, in the Białowieża Forest CS, the two groups of actors were seen by locals as “local people” and “people from outside”. Pejorative language was also used in the Invasive species CS. The term “alien” was one example of *migration language*. It origins from migration discourse: “alien” is connoted with persons not being well integrated and who do not belong to a certain place. Further associations with aliens from mars were quite obvious (“The aliens have landed”, Subramaniam, 2001) Because of this normative loading Warren (2007) recommends to shun “alien” in favour of the less pejorative “introduced”.

In the Invasive species CS, which investigated the scientific dispute on IAS, pejorative attributes for introduced species were found at different stages of the invasion process (Eser, 1999; Körner, 2000). These stages are the introduction to a new region with subsequent emergence of non-established populations, the establishment of self-replacing populations, and finally the growth of populations and range extension. The first stage of invasion is referred to as “nature out of place” (van Driesche and van Driesche, 2000). Introduced species here are regarded as trespassers, which cross-geographical but also cultural borders (Eser, 1999) and enter a terrain for which they are supposed not to have access rights. In the next stage it becomes clear that they are here to stay. The crossing of cultural borders becomes even more distinct when species are characterized as competitive, persistent and intolerant. This competitive ability is expressed by designations like “gap grabbers” and “swampers” (Newsome and Noble, 1986). By this, alien species were framed as behaving in an “uncultivated” way. At the final stage these species get out of control (Larson et al., 2005). Attributes of unlimited fertility, prolific reproduction and dominance are ascribed to them. Now as the “invaders sweep in” (Enserink, 1999) the question arises if they “are taking over” (Hulme et al., 2010).

Military or combative language was also observed in some CS. For instance, in the case of wild boar (Fox and wild boar CS), one could read in the newspapers: “The boars are marching north” and “The battle against the wild pig is opened on several fronts”. Military language was also evident in the Invasive species CS: alien species were often considered as enemies and threats to the native ecosystem. The discourse on alien invasive species is replete with militaristic terminology, as Larson et al. (2005) have shown for media coverage on invasive alien species (e.g. “war” or “battle” against invasives). The use of military metaphors is further discussed in the next section on metaphors. Further, invasive species have been often characterized

by *personifications* (e.g. “aggressive”, “killers”). The same terms were also used in the Fox and wild boar CS. Militaristic terms were also expressed in dichotomies emphasising opposing sides. Furthermore, contrasts between derogatory (e.g. bloodthirsty, aggressive, those pigs) and admiratory attributes (e.g. beautiful creature, intelligent, the primal power of Nature) could be found. Derogatory attributes and associations were also assigned to groups of people, in particular hunters (e.g. “frustrated”, “big money makers”, “killing for pleasure”) and nature conservationists (e.g. “profit-seeking”, “green mafia”). Such terms may indicate deep divides between groups but can also reactivate latent conflicts

Metaphors

The essence of a metaphor is description of one object through comparison with an unrelated object. In this way, metaphors are linguistic devices that convey understanding through comparison (Hajer, 2003). For example, metaphors such as “network” of nature protection areas and ecosystem “services” allow people to communicate over complex policy issues and those issues to transgress sectoral boundaries.

We find many uses of metaphor across the CSs. For example, in the Białowieża Forest CS, a forest where there is dying and dead wood – not managed forest, where fallen trees are not removed – some local people called the forest “a graveyard” (“Białowieża Forest looks like a graveyard”). They also commonly said that the forest was “dying” (comparing to a death of a person). Even clearer was the expression in the Danube Catchment CS: "When a man dies, it's a pain, when a species disappear, is irretrievably gone and the world is smaller".

In the scientific analysed in the Invasive species CS, both the terms “invasion” and “alien” are metaphors. “Invasion” is a military metaphor, which was already used in Charles Elton´s classic book on invasion biology. The importance of invasion metaphor for the Briton Elton was linked to “his country´s psyche” after World War II (Davis et al., 2001: 99). Larson (2005) emphasizes two properties of militaristic metaphors. First, in a war there are always two opposing sides. Likewise invasive species were framed as our opponents. Second, one side is the good one and the other is evil. And certainly, it is not us who are on the evil side. Militaristic, migration and mass reproduction metaphors serve to downgrade alien species and even returning native species. However, this does not need necessarily be the case, as language also provides metaphors for coexistence by which the discourse might be framed (see Larson, 2005).

4.2 Part II. Synthesis of transaction layer: what parties "do" with arguments

This part of the synthesis addresses the question of what parties do with arguments. This includes how and with what purpose arguments are transacted, exchanged and transmitted within and across different levels and units of biodiversity governance. We consider the arguers and audiences, as well as their forums and interfaces.

We are particularly interested in argumentative function or strategy and how this may differ among stakeholders in the debate. In this respect, a number of strategies were identified in the CSs. These include argumentative moves, such as particularisation, positive and negative framing, up-scaling, transforming interests, dichotomisation, stereotyping and claiming authority. Further, several forms of appealing – to common-sense, science, naturalness - were identified. This kind of analysis also implies paying attention to the interactive settings or forums in which various claims are acknowledged, challenged or contested. Many kinds of forums have been observed in the CSs, ranging from lively discussions (e.g. in internet forums) to formal reasoning in written policy documents.

4.2.1 Strategy 1: Particularisation

Particularisation refers to the process by which something is considered in its particularity, it is treated as special and not as being equivalent to something else (Billig, 1996). Particularisation or making a unique case is actually the opposite of putting it in a category, e.g. "Viurusuo area holds unique values" versus "there are many similar mires in Finland". In the CSs stressing the uniqueness (particularisation) of an area or landscape was a widespread strategy.

The arguments used in the Danube Catchment CS refer to a large variety of ecosystems that provide "uniqueness and fragility of the area" and "unique and complex landscape diversity", and that such uniqueness should warrant action to preserve it:

- *"Part of the lost paradise that was once Braila Islands area";*
- *"The only unembanked area"*
- *"The last representative area of that once Braila Islands after the conversion into agricultural areas".*

The arguments about uniqueness in this CS were issued mainly by academic stakeholders, and were taken up and retransmitted by other stakeholders (NGO representatives, local public land managers and government agencies).

In the Białowieża Forest CS, the advocates of increased protection (i.e. the enlargement of the national park) stressed the uniqueness of the forest by calling it "a unique treasure", "a special place" and talking about the "extremely rich biodiversity" of this area. They also underlined that this area was a unique reference area for biodiversity related research. Even the opponents of park enlargement maintained that the forest was special. However, the reasons given for this uniqueness by opponents of park enlargement were different: forest management maintained the special values of the forest. This claim led to a different conclusion: that no more protection was needed, as it is foresters that maintained the important values through forest management.

In the Peatlands Strategy CS, the Viurusuo mire area was represented as important and unique both by the energy company VAPO Ltd (for peat extraction purposes) and local people defending the area. The latter referred to uniqueness in several types of arguments (see also Part I, on the issue of argument classification).

- Landscape, soundscape and scentscape: "*Viurusuo offers a special kind of landscape, almost like in Lapland*"; "The sense of spaciousness offers a unique landscape"; "*Hearing the black grouse having their displays there every spring has been a strong experience, you can't hear this in Lapland*"; "*Mires have a special scent (a very Finnish scent)*".
- Biodiversity: "*Viurusuo holds a very special combination of plant and animal species*".
- Spatial scale and location: "*Viurusuo is the only swamp area in the municipality of Outokumpu*".

By contrast, VAPO Ltd claimed that Viurusuo did not hold any unique values. This claim was supported with another argumentative strategy, which we call "up-scaling", namely that there were similar mires in Finland and the values that Viurusuo area holds could be protected somewhere else.

In the Natura 2000-Hu CS, the conservation experts and scientists often highlighted the uniqueness of the pannonian biogeoraphical region (Hungary is covering 80 % of the region) in Europe to support the designation of the Natura 2000 sites in Hungary, claiming it differed from other regions in its habitats and species and had many indigenous species.

In the Natura 2000-NL CS, uniqueness was referred to more generally to underline the importance of landscape and nature, e.g. "*The Netherlands is a beautiful country with nature and landscapes which you cannot find over the borders*", "*Many rare*

animal species and plant species decrease in number. Unique landscapes are threatened to disappear".

Furthermore, uniqueness was also stressed in relation to specific species. This usually occurred in a positive way as, for example, in the Fox and wild boar CS, to defend foxes and boars (mostly by nature conservationists). Red fox was often referred to as "Flanders' greatest predator" and as such, its unique role in the ecosystem was stressed. Frequent references were also made to the (unspecified) beauty of the animal. By contrast, in the case of wild boar uniqueness was hardly used. One creative attempt was to call them "an encounter with the primal power of Nature".

Finally, uniqueness was used to stress the importance of a phenomenon (and hence a problem). In the Invasive species CS, various phenomena were called unique: e.g. the dispersal by human agency and in particular the unique impact of IAS (as biological invasions are said to pose the second most pressing threat to biodiversity after direct habitat transformation).

4.2.2 Strategy 2: Up- and down-scaling

Actors can strategically scale an issue to make it more important, to situate themselves at the centre of power (Termeer and Kessener, 2007) and to legitimise inclusion and exclusion of actors and arguments in the policy process (Kurtz, 2003; Van Lieshout et al., 2011). The use of scale – in terms of space, time and competences - may have important implications for (or may be based on) the level of decision power or the level of responsibility in relation to an issue (see also Part III: "scale of perspective").

Spatial scale

In the CSs, up-scaling to the national or international spatial scale was frequently used as a means of raising awareness on the necessity of protecting a particular area. Examples include the Białowieża Forest in Poland (Białowieża Forest CS), the Small Islands of Brăila in Romania (Danube Catchment CS) and the Viurusuo wetland area in Finland (Peatlands Strategy CS). Such up-scaling was often combined with stressing the uniqueness of the area in question (see strategy 1: "Particularisation"). In this CS, also up-scaling of values occurred, e.g.:
"We see visitors walking and hiking here, not only locals use the Viurusuo area".

In the Peatlands Strategy CS, some up-scaling was also employed to make the area seem less important. The argument that the Viurusuo area should be preserved

because of its nature values was counteracted by the energy company, VAPO Ltd, with the argument that there are other similar mires in Finland and species typical to mires have already been protected at the national level. Here we also find an example of down-scaling: "there are benefits to Finland but negative to the local region".

Mass media and local politicians can play a critical role in scaling up the importance of a problem. In the Fox and wild boar CS, the foxes attracted political attention only after an accumulation of localised events of chicken attacks reported in the media and lists of complaints transferred to the Flemish government. As such, local incidents multiplied and aggregated into a "societal problem" on the Flanders scale. Furthermore, attention was shifted from the animal and the species to its population (also called the "fox plague"), which was said to be unnaturally high.

Time scale

Up-scaling in time (i.e. shifting to a longer time scale) was also used in debates. For instance, in the Invasive species CS, proponents of IAS contested the view that invasion is unique by maintaining human agency as a long-standing phenomenon. Likewise, in the Fox and wild boar CS, proponents of foxes and boars in Flanders, attempted to "naturalise" their presence and growth by referring to history. Also in the Białowieża Forest CS local people talked about the role of locals and foresters in maintenance of the forest by referring to the long-term (centuries-long) care of the forest by the locals.

Furthermore, we find several examples of up-scaling in time in the Peatlands Strategy CS, in particular referring to future generations.

- *"People in the future might be more interested in nature than they are now"*
- *"Good places for berry picking have been taught to the younger generation"*
- *"We need to reserve these pristine places and memories related to them to the future generations"*
- *"Black grouse have their displays here; they must have used this location for hundreds of years"*
- *"World changes so quickly, mires offer a place for keeping our feet on the ground, it is unchangeable"*

Up-scaling in the government level

Finally, in some CSs up-scaling in the level of decision-making was referred to or actually requested. For example, in the Natura 2000-Hu CS, a main argument made was that the decision about designation of Natura 2000 sites in Hungary had been made according to EU legislation. In the Fox and wild boar CS, negative

consequences for conservation policies, including Natura 2000 goals, were emphasised by opponents of foxes – more specifically, the Hubertus hunting association – when they problematized fox predation on game animals as a "threat to biodiversity".

In the Natura 2000-NL CS, the scaling up of the debate on the pond bat (*Myotis dasycneme*) in Polder Zeevang towards the national level led to important policy consequences. Being a site designated under the EU Birds Directive, conservation guidelines were implemented, together with a complementary conservation objective for the pond bat. Local actors resisted this additional objective due to increased restrictions to the use of agricultural and industrial sites. These local actors succeeded in bringing the discussion into the national parliament through an escalation of debates in regional and national newspapers as well as initiating a trial against the state. In the end, the secretary of state decided to eliminate the complementary conservation objective for the pond bat from the policy plan. By scaling up the debate towards the national level local actors and the municipality scrapped the additional conservation objective and made development of the industrial area possible.

4.2.3 Strategy 3: Positive and negative framing

Framing refers to the process through which people express how they make sense of the world around them (Gray, 2003). Through the process of framing, actors highlight different aspects of a situation as relevant, problematic, or urgent, and by doing so situate issues on different levels and scales (van Lieshout et al., 2011). The same issue can be framed differently in arguments. This can include positive aspects of actions and choices emphasizing a gain or negative aspects of actions and choices emphasizing a loss or constraint (Hallahan, 1999, De Wulf et al., 2009, Corner and Hahn, 2010).

In the BD Action Plan CS, both negative and positive framing were identified in argumentation. Negative framing was used to highlight problems and restrictions from legal duties and policy obligations, while positive framing highlighted benefits (especially for people) and opportunities. This type of framing was identified in arguments focusing at the level of species and habitats and where the existing biodiversity value was perceived as high or had the potential for a high biodiversity value (for example through restoration of degraded habitats). However, this framing used to argue for an existing high value of biodiversity was more effective than its use to argue for action to restore damage and realize the potential value for biodiversity of an area. A second type of negative framing present threats to biodiversity and identifies problems to be overcome. More prominent within

implementation interactions particularly in urban areas was positive framing which presents opportunities and highlight benefits of actions. This positive framing highlighted the salience of the argument to other goals of the receiver and as such increased the arguments effectiveness. This framing presented a win-win strategy and was prevalent where the existing value of biodiversity was perceived as low and at the landscape scale perspective. Similar facets were presented as both threats and opportunities, for example recreational activities damaging biodiversity and recreation activities increasing support for and awareness of biodiversity. It was suggested that positive framing is basically the way forward as it emphasizes centrality with other goals of the receiver (see also this Part: "aligning interests to stakeholder interests").

4.2.4 Strategy 4: (De-)dichotomisation

Contradictory opposition or dichotomy is a common feature of arguments related to biodiversity issues (see Part I: "structural properties of argument"). As a strategy, "dichotomisation" refers to how arguers construe and invoke certain distinctions and oppositions as dichotomies and use them for their argumentative purposes. Dascal (2008) distinguishes between the strategies of dichotomisation (radicalising a polarity by emphasising the incompatibility of the poles) and de-dichotomisation (showing that the opposition between the poles is not a contradiction, thus allowing for intermediate alternatives). Whereas dichotomisation is likely to radicalise a debate through polarisation, thus rendering it difficult or even impossible to resolve, de-dichotomisation may open possibilities of reconciling the contenders' positions (Dascal, 2008).

In the Fox and wild boar CS, parties at different levels/units of governance used the same dichotomies in argumentation and the dichotomies themselves were mostly beyond discussion. The dichotomies in use clearly appeared to force a choice, e.g. the foxes or boars either belong or do not belong in Flanders. In this respect the use of oppositional language was sometimes misleading. For example, the dichotomy of harmful – beneficial (referring to the properties of the animal) was supported with facts about costs and benefits (suggesting economic thinking), but it did not allow making a balance between them. This was because proponents emphasised the benefits, while opponents only referred to costs. There were similar findings in the Bialowieza Forest CS and the Invasive species CS. In the latter CS, while IAS opponents frequently pointed to the costs IAS cause, proponents emphasised the benefits from IAS. The proponents frequently admonished that costs and benefits of IAS have to be weighed against each other, while the former mainly refer to costs, implying that the property of "harmful" would lead to intervention. The argument of weighing costs and benefits could be seen an attempt of de-dichotomisation.

Furthermore, a clear attempt of de-dichotomisation in this CS was the criticism about arbitrariness and subjectivity of classifying species, in particular, the alien/native distinction. Scientists who embrace alien species frequently argued that the native-alien dichotomy and hence the distinction between species which entered an area with human help and those which have done so by natural means does not make any sense (e.g. Warren, 2007). For them, alien species were naturalized in the truest sense of the word. Whereas such distinctions were frequently discussed in scientific articles, they were never at issue in policy documents.

We could find a few attempts of de-dichotomisation in the CS. In the Białowieża Forest CS, the foresters claimed that the Białowieża forest was not natural (as environmentalists claimed) but rather merely "close-to-natural" and thus needed to be managed for its survival (instead of strictly conserved and left for free development). However, in this CS de-dichotomisation of definitions (turning the distinction natural/unnatural into close-to-natural) did not result in depolarisation with regard to action, i.e. the distinction between unmanaged/managed remained intact. In the Danube Catchment CS, a depolarisation of action was evident in the argument issued by a local academic stakeholder (National Research Institute of Soils and Agro-chemistry), which revealed that "some hydro-improving arrangements are needed for agriculture, but not without considering the high importance of wetland restoration in Lower Danube Floodplain". Thus, this stakeholder's argument was positioned in between two contrasting initiatives promoted regarding the future of the large polders in the Lower Danube floodplain system: maintenance and reconstruction of the current drained surface versus extensive wetland reconstruction.

4.2.5 Strategy 5: Aligning arguments to stakeholder interests

Arguers can align their arguments to the goals and interests of others, in order to attract more attention or to affect outcomes in a manner beneficial to them.

One strategy was to transform one's interest into non-selfish terms, or to speak for others. For example, in the Fox and wild boar CS, hunters, farmers and their organisations claimed attention to the problem of wild boar by referring to car drivers and forest visitors being in danger from wild boars rather than their own interests. Similarly, opponents of foxes (Hubertus hunting association, some political parties) frequently referred to people with poultry as victims of the fox. By contrast, conservationists argued that foxes were a "farmer's ally" in keeping down rodents.

Another example is the Natura 2000-Hu CS where the conservation experts emphasized that certain conservation measures were favourable for some

stakeholder groups ((for example: eliminating invasive species and retaining water are good for farmers) and that famers could benefit from conservation subsidies. Other stakeholder groups (hunters) referred to the interests of conservation experts claiming that some game management measures could be favourable for conservation. Also in the Białowieża Forest CS environmentalists claimed that increased protection would be beneficial for local people, for example through more income from tourism.

But such alignment to others' interests was not always easy to detect. In Białowieża Forest CS, for instance, when foresters advocated using the forest resources they emphasised rights and livelihoods of local people, but foresters had also close links with the local people and they were themselves considered "locals". Another example was in the Fox and wild boar CS, where hunters presented their practices (e.g. improving habitats, hunting as a way to keep the "natural balance", etc.) as favoring biodiversity interests. Although their intention might be good, they were often blamed (by conservationists) for pragmatically referring to biodiversity protection.

Aligning arguments and evidence occurs frequently in the mass media to appeal to the local audience. In the Fox and wild boar CS, the newspapers played a major role in framing "the problem". Most of the news was negatively focused on overpopulation and damage done by foxes and boars to people. Also in the Danube Catchment CS, local media stakeholders issued argument types with high impact on the general public.

Presenting arguments, which were central to the concerns of the receiver, thus making the argument more relevant (or salient) to the receiver, was a purposeful strategy used in BD Action Plan CS. Bundles of arguments were used, involving a range of different concerns presented alongside one another. The public were often not the target of the argument but their support was central to the arguer's goals nonetheless, thus arguments that were central to the concerns of the public indirectly increased the centrality and therefore relevance of the argument for political decision makers.
One example involved framing arguments around economic concerns, emphasising the opportunity to increase economic development by attracting businesses but also more immediate concerns of the receiver to attract funding, reduce costs and use decreasing resources more efficiently (also comparable with the Białowieża Forest CS above: developing tourism). Although the concern for cost saving was a central one for decision makers this concern was not perceived as being central to local people. As such economic arguments directed at political decision makers were always used

alongside other arguments that were central to the concerns of local people, for example improving the visual appeal of urban areas. A second example is aligning with social goals such as protecting cultural heritage, reducing anti-social behaviour, increasing sustainable transport and access to free recreation opportunities for local people. Although this was shown to increase the perceived effectiveness of arguments, conversely the identification of negative consequences on the goals of the receiver reduced the effectiveness of arguments used.

4.2.6 Strategy 6: Appealing to science

Scientists usually appeal to scientific evidence when presenting their arguments. But appeals to science can be used also by other actors, in particular when they attempt to build credibility for their viewpoint. In the CSs, nature conservation groups and other NGOs frequently referred to science when arguing for their case.

The practice of appealing to science was particularly widespread among defenders of biodiversity. Conservation experts in the Natura 2000-Hu CS appealed to scientific findings to justify the conservation measures (for example when they argued against invasive species or when they talked about protecting animal populations). In the Białowieża Forest CS, both the scientists and environmentalists used scientific research as evidence to denounce the detrimental influence of the management on the Białowieża forest biodiversity. And, in the Danube Catchment CS, arguments first issued by the academic sector - mainly based on prior research on the ecological and socio-economic role of flooding areas and wetlands - were then used by NGOs in the media to raise awareness among decision makers and general public on the need for protection of areas under natural Danube flooding regime.

What may count as scientific evidence (and its transferability to the case in question) was not uncontested in CSs. Ecological criteria provided by scientists were used in the Natura 2000-NL CS by national policymakers as a basis to designate Natura 2000 areas. These criteria were contested by stakeholders (mainly local government and farmers) using counter-arguments that the set of criteria was too limited, not taking into account land use as well as that the set of criteria did not suit to European procedures, and that the criteria were not scientifically sound. In the Fox and wild boar CS, defenders of foxes in Flanders contested the evidence from a UK study appealed to by the Hubertus hunting association (to advocate that foxes are harmful to biodiversity) for not being transferrable to the Flemish urbanised context. In the Białowieża Forest CS, foresters opposed the scientific evidence given by the ecologists by the evidence from forestry-related scientists that supported their claims.

Parties in dispute may appeal to contradictory sources of evidence. In the Invasive species CS, both IAS opponents and proponents appealed to scientific findings when referring to impacts. For example, opponents maintained that IAS pose the second most pressing threat to biodiversity after direct habitat transformation (Wilcove et al., 199;, Simberloff, 2005) but proponents offered some evidence that this is not the case (e.g. Sagoff, 2005; Davis et al., 2011). Also in the Fox and wild boar CS, especially in the course of parliamentary discussion, both opponents and proponents of the presence of foxes in Flanders referred to scientific studies to prove that foxes are (or are not) harmful to biodiversity and that foxes (or the availability of prey species) control their population. Sometimes different parties referred to the same study, but they emphasised different facts or gave them different interpretations. For instance, the evidence from fox research in Flanders was equated with "a theory". As a result, appealing to science in this CS could not solve the controversy. Even worse, the contribution of science turned out to be confusing by increasing uncertainty rather than increasing certainty.

Whereas appealing to science can be powerful, how evidence was presented was important. In the Danube Catchment CS, we observed that when the arguments were formulated and also transmitted by the academic sector, they were much considered and had a higher impact for local authorities and the public. This was due not only to the fact that academic stakeholders represent a more credible source of information, the information itself was better explained and adapted for the audience, e.g. in accordance with the educational level of the different stakeholders. Furthermore, local NGOs sustained their arguments with scientific evidence, but the information taken was reformulated in metaphoric and/or "friendly" terms, which may be better perceived by the general public (see also Part III: "the science-policy interface").

4.2.7 Strategy 7: Appealing to common sense

Common sense refers to people's basic sensibility or ability to collectively perceive, understand and judge things. This sense works as a background to social life, providing the "standards" against which we judge the adequacy and appropriateness of explicit statements (Shotter, 1993). Appealing to certain matters that are taken for granted in the community may serve to close off (possible) counter-arguments. Appeals to common sense represent a certain generality and could be inserted without difficulty into different debates, while remaining beyond discussion (or at least being publicly defendable).

In the CS, appealing to commonly shared rights and obligations was most evident. Several CS showed that widely shared - often implicitly agreed-on or taken-for-granted - rights and obligations were frequently appealed to. We can distinguish two perspectives taken in such appeals: society at large (also including nations) and groups or individuals (in relation to society). Most examples relate to the former.

In the Peatlands Strategy CS, local stakeholders appealed to the right to a healthy environment for everyone. It was also claimed that the environment and the national heritage are the responsibility of everyone. A clear appeal to duties was also made in the Natura 2000-NL CS. In the memorandum of answer (LNV, 2007) was referred to Natura 2000 as a duty to protect nature and the future natural capital**:** *"Many rare animal species and plant species decrease in number. Unique landscapes are threatened to disappear. Nature becomes more uniform. We want to avoid that. We have to avoid that. We want to conserve our Natural Capital for future generations. In this Natura 2000 plays a role."*

It was argued in this CS that it was the obligation and common responsibility to stop decline in biodiversity. In the Danube Catchment CS, rights were assigned to species. "The right to exist" for every species, was considered by local NGOs without any doubt. Every species was considered as irrecoverable. Also academic stakeholders (at national level) appealed to this principle. They said that the possible loss of Small Islands of Brăila would be a "crime", representing an offence for the future generation ("biodiversity provides a genetic reservoir for future generations"). The principle "Every animal has right to live and exist" was also appealed to in the Fox and wild boar CS when the problem of overpopulation was raised in Internet discussions. Although it appears difficult to counteract such principles, we found some attempts to bring the discussion back to the initial issue, e.g. "Have those pigs the right to overpopulate our forests?"

Common sense is not always unitary (Shotter, 1993). Appeals to rights and duties may differ and sometimes contrast quite sharply with one another. For example, in the Białowieża Forest CS, the duty of the whole nation (or even the EU) to maintain this forest (its unique ecological state) was claimed by environmentalists and underlined by the minister of Environment. By contrast, the foresters appealed to their obligation to maintain the values of the Białowieża Forest (through forestry management) for the whole society and the future generations.

The above example touches on responsibility of social groups/individuals in relation to society. Such appeals were also evident in the Danube Catchment CS. Here the traditional approach, transmitted from father to son was that the exploitation of

services and resources should consider the capacity of nature to provide them, and it should not exceed it, speaking both from the resources point of view (fish, water), services (water regulation, etc.) and also the spiritual (uniqueness of the area) one. These arguments were also used by different stakeholders at different scales (from local to international level), in contexts like receiving the national and/or international special protected area statute, or when developing and implementing management plan. Furthermore, in the Fox and wild boar CS several attempts were made to identify with common sense views about individual (or group) responsibility, most notably the implicit principle that domesticated animals should be cared for an protected (the argument that not foxes are to be killed but chickens protected).

Appeals to common responsibility and cooperation also appeared in scientific articles, as shown in the Invasive species CS. An example here is Lambertini et al. (2011: 405): "At the Convention for Biological Diversity meeting in Nagoya, Japan, in October 2010, 193 countries adopted a historic Strategic Plan for Biodiversity for 2011–2020, setting a target to prevent, control, and eradicate the most harmful invasive species by 2020. Our organizations will be in the front line to achieve this target, and we encourage countries and communities to support and contribute to this effort."

In the Natura 2000-NL CS, persuasive arguments for action were prevalent. For example, the secretary of state mentions the following: "With these measures, I would ensure that entrepreneurs and initiators in the spatial domain will gain clarity and can have their business also near Natura 2000 areas. But I also want The Netherlands to make realistic steps towards protecting biodiversity, in which I want to take into account the typical dynamic of nature. Stagnation has only losers. Development creates opportunities for people, for nature and for the economy. Natura 2000 will be better when catching the bull by the horns, being sober, with sense and with idealism."

In the above example, the claims for action were justified by connecting them with common sense judgments (e.g. "stagnation has only losers") in a way that makes the suggested action seem the best option. In other CS, however, we also find an opposite strategy. In the Fox and wild boar CS, conservationists and other nature lovers stated: "Wild boars came here to stay". Such common sense judgment does suggest that there should be no actions taken for eradication, but rather we should accept the presence of boar and learn to cope with it. In the Invasive species CS a similar appeal to common sense was well expressed by the statement "Like it or not, these species [IAS] are here and they are not going back." (Davis and Thompson,

2000: 228). It was often argued that conservationists have to cope with IAS. They acknowledge that "economic drivers still push for further introductions" (Gozlan, 2009: 109). Therefore to accept IAS means to take a common sense point of view. For IAS opponents however, a common sense perspective would lead to a precautionary approach. IAS proponents for them fail to see reality: they "downplay the severe impact of non-native species that may not manifest for decades after their introduction" (Simberloff et al., 2011: 36).

4.2.8 Strategy 8: Appealing to Nature

An appeal to Nature is a rhetorical tactic in which it is proposed that something is good because it is natural, or bad because it is unnatural. Thus, any appeal to naturalness is also suggesting that Nature is good. In several cases terms of naturalness were used to produce positive connotations, e.g. "natural flooding regime", "natural filter", "natural place for fish reproduction" (the Danube Catchment CS); "natural habitat" (the Natura 2000-Hu CS), and more. However, uses and interpretations can differ a lot.

The Fox and wild boar CS revealed that "naturalness" frequently served as a key marker in evaluative assessments about the phenomenon of wildlife comebacks in Flanders. In this regard, naturalness was linked to a number of attributes. A first one was the naturalness of the animal itself. The origin of the fox or the boar, where it was coming from, was frequently a topic of speculation. For instance, for boar it made a big difference whether the animals were wild or either domesticated. In this respect, samples for genetic screening were collected and it was found that the boars in Flanders were "true pure boar". Further, naturalness was attributed (or not) to the animal's presence, its coming (i.e. spontaneous or not) and its behaviour (e.g. shy is natural). The naturalness of the process was defined using terms like "reconquering its place", "re-colonisation of historical habitats" and "revival". The naturalness of wildlife comebacks was further supported using historical references, pointing at the unnaturalness of their disappearance, i.e. a human induced process. Over time, evaluations gradually moved to the (un)-naturalness of populations. In this regard, the concept of "balance of nature" was frequently invoked. The naturalness of processes was also an important consideration in other CSs, such as the Białowieża Forest CS - where environmentalists argued that natural processes lead to balance in nature – and the Invasive species CS, where some scientists argued that the management of native species by humans interrupts natural processes. On the concepts of "balance and nature" and "naturalness": see Part III.

4.2.9 Strategy 9: Stereotyping and blaming

The imposition of stereotypes, or group schemata implies that the extent to which members of the same group are similar to one another is exaggerated and at the same time people belonging to different groups are viewed as being very different (Billig, 1996). In several CS stereotyping occurred in combination with linking biodiversity issues to particular groups of people and institutions and subsequently blaming them. Stereotyping is not always a purposeful strategy, but has a crucial impact on the network layer (See also Part III: "legitimacy of governance arrangements".

The Fox and wild boar CS, showed an inclination among the publics – as it was observed on internet forums - to portray "the hunters" negatively, in the sense that they kill (defenceless) animals for pleasure or out of frustration. In a similar way, "the nature guys" or "the green boys" (conservationists) were sometimes portrayed as elite people, also receiving governmental subsidies even for "destroying nature" (in contrast to the commentators being "real nature lovers".) Such stereotypes gloss over the differences between individuals and impose a composite picture on the whole group (Billig, 1996). In reaction, counterparties may complain they are "demonised" (hunters in this CS).

Furthermore, stereotyping of groups may facilitate throwing the blame on them. In the Fox and wild boar CS, issues were frequently linked to those groups and institutions, which were supposed to create the problem: e.g. "the nature conservationists" who had released foxes, "the hunters" who had released boars or had purposefully overestimated their number, "the Flemish people" who were not used anymore to co-exist with foxes/boars, etc. Thus responsibility was often shifted to particular groups and blaming these was very common. Identities were stereotyped and contrasted by making insinuations and one side blaming the other. For instance, it was contended that hunters hate foxes because foxes are predators, and predators need meat, like rabbits and pheasants, that is, animals they like to have on their own plate. Similarly, in the Invasive Species CS, opponents of IAS were blamed for vilifying alien species because of a dislike against what is foreign or unfamiliar to them. IAS opponents were also accused of racism and even to fascist ideology.

Blaming may lead in turn to responses of those who feel victimised. In the Peatland Strategy CS, the national peat company was blamed for having spoiled all the environments and water systems with long-term peat mining, and not being able to keep the environment clean. Yet the peat sector responded that people blamed them for the effects of others' practices, in particular farming.

Overall, in CSs involving conflict, we found praise-and-blame rhetoric in which the character of people is discussed, defended or prosecuted. This happened at the expense of deliberative rhetoric facilitating common solutions through policy deliberation.

4.2.10 Strategy 10: Claiming authority

Authority arguments are those arguments, in which a statement is justified by the fact that a person, a group, an institution or a text advocates the statement in question (Brun and Hirsch Hadorn, 2009: 287).

Academic affiliations

The Invasive species CS analysed argumentation in scientific journals. It was found that academic affiliations served to justify viewpoints about IAS. There were two articles that used this strategy of authority to defend their perspective. Davis et al. (2011) started their paper with the heading "Don't judge species on their origins. Conservationists should assess organisms on environmental impact rather than on whether they are natives, argue Mark Davis and 18 other ecologists". Simberloff et al. (2011) replied with " Non-natives: 141 scientists object". In both papers, the number of authors was cited in the title or subtitle, respectively, but there was a difference in the functions of listing the names. In the case of Davis et al. (2011), persons were listed as authors at the end of the paper. In the case of Simberloff et al. (2011), Simberloff was listed as the author on behalf of 141 "signatories". This gave the paper the character of a petition supported by a collection of signatures: 141 scientists (including Simberloff himself) confirmed that they share the opinion uttered in the paper. The sheer number of signatories made it improbable that all of them were involved in the production of a manuscript consisting of only seven paragraphs. The number of signatories in conjunction with academic affiliations gave the paper an air of authority. We thus think that a so-called "argument from authority" plays a major role in that paper. For Davis et al. (2011) it was difficult to decide if the authors each contributed to the content of the paper or if the names also served to justify the paper's viewpoint.

Experiences

Furthermore, practical and personal experiences can be a way to claim authority. In the Fox and wild boar CS, representatives of the Hubertus hunting association referred to the field experience of hunters and gamekeepers to prove that foxes are harmful to biodiversity and refute the conservationists' contentions (appealing to science) that the fox population is self-regulating. In the newspapers personal

testimonies by residents served to highlight the damage done by fox (often in bloody details). In the Peatlands Strategy CS, several arguments in use referred to shared experiences, more specifically negative experiences with certain stakeholders, for instance:

"Peat companies have usually spoiled all the environments and water systems with long term peat industry"

"VAPO Ltd has not succeeded before, they will not succeed now in keeping the environment clean"

Higher-level institutions, including the EU

Authority may also be derived from a higher-level institution and legal obligation. References to these were made in most of the CSs. This was most frequently done to enable the implementation of Natura 2000. For instance, in the Natura 2000-NL CS, the argument of European legal obligations (Birds and Habitat Directives) was mentioned in all government documents and communications during the whole process, as a way to enable the designation of Natura 2000 areas. In the documents it was also stated for selection of areas that no other arguments than ecological criteria are allowed.

In the Natura 2000-Hu CS it is usual to refer to EU as a powerful entity for enforcing N2000 measures:

"Since Natura 2000 system is cornerstone of the European Union's nature conservation programme, the EU do not entrust the nature conservation to member countries. Common natural values, natural capital. The goal of this programme that the most valuable and endangered habitats will be saved in the long within the EU"

"Every member country has obligation to conserve N2000 areas. Wrong status should be improved. We should report to EU"

4.2.11 Channels of transmission

Actors transmit their arguments or those of others from one level or setting to another. In several CSs, channels of transmission through which an argument gets diffused and taken up in settings/levels of decision-making could be found. *Local politicians* may play an important role in transmitting arguments to a higher level of governance. In the Fox and wild boar CS, mayors and aldermen played a prominent role in transferring citizen complaints to the minister, in particular about fox predation on chickens but also damage by wild boar to farmers. Several channels were used: interviews in the media, statements by political parties (e.g. Flemish parliament, politicians' websites), personal letters and phone calls to the minister, sending lists of complaints to the minister.

In several CS, *NGOs* played a prominent role in transferring arguments. In the Danube Catchment CS, arguments first issued by the academic sector were transmitted further by NGOs (especially as emotional appeals) through the media, and sought to raise awareness among decision makers and the general public. In the Fox and wild boar CS, the transmission of citizen complaints about foxes was facilitated by the Hubertus hunting association by organising a "reporting point" for damages and encouraging citizens to fill in a complaint form. Many municipalities referred to this initiative on their website. In the Natura 2000-HU CS, NGOs were successful at the national level in influencing the site designation as well as the management of the N2000 communication activities. A key channel of transmission was a working group of NGOs to prepare, inform, represent civil interests and to establish an effective link with national decision-makers.

The mass media often play a crucial role in the transmission and circulation of arguments and the timing of these flows. This was evident in all CS that observed media coverage: the Fox and wild boar CS, the Danube Catchment CS, the Natura 2000-NL CS, the Natura 2000-Hu CS and the Białowieża Forest CS.

4.3 Part III Synthesis of network layer: how arguments "fit" into social-institutional networks

This part of synthesis deals with the fact that arguments are inevitably conditioned by the social-institutional networks in which they are transmitted. Social groups, institutions, organisations and professional disciplines across different levels and units of biodiversity governance, they all have their sets of rules, practices, interests and concepts that place limits and conditions on the use of arguments. Thus, what arguments are sought and employed by the arguing parties, and which of these they find adequate and are sensitive to, must be seen in the wider dynamics of social-institutional networks. In this part, we particularly focus on the following important aspects of influence: legislative rules, institutional roles, established practices, stakeholder interests and legitimacy aspects, scales of perspective, rationalities, concepts and images of nature. Finally, we give special attention to science-policy interfaces.

4.3.1 Laws and regulations

Argumentation is in several ways conditioned by laws and regulations. Law can be enabling and empowering for one party in the debate but restrictive and disempowering for another party. Furthermore, whereas legal restrictions can bring clarity, uncertainty about their development and interpretation can block progress and impede plans.

Compliance with international rules and obligations

The expansion of international rules and obligations has been an important development in the move from traditional state-centred to multi-level and networked forms of governance (Wessel and Wouters, 2007). Law making, for instance, is no longer the exclusive preserve of member states. Such development has had important effects on governance interactions in the CSs. As mentioned before (Part II, strategy 10: claiming authority), appeals to the authority of international rules and institutions were a strategy to justify changes in policy. At the same time, these international rules have often empowered actors' position in the networks of biodiversity decision-making. There are several examples of such empowering effect from the CSs.

Empowering and disempowering effects

In the Białowieża Forest CS the minister and the environmentalists frequently related to the obligations derived from the international (EU) legislation making it necessary to protect the Białowieża Forest more strictly. Finally, it was the support of EU legislation (Natura 2000) that led to the Ministry decision taken in 2013 to introduce

new management plans that decrease the level of cuttings in the Białowieża forest, thus increasing the protection of this area.
In the Danube Catchment CS, the need for compliance with European (and also national) legislation represented an important element in argumentation. Presenting the Small Islands of Brăila area as a Ramsar site, Natura 2000 site and a natural reserve underlined the need for conservation. Arguments about legal obligation have been shown to hold impact both on the local people, as well as on institutions involved in biodiversity conservation. Interesting in this CS is also the empowering effect on institutions. Restrictions imposed by Natura 2000 rules were used in argumentation for establishing the institutional role in the administration of the Small Islands of Brăila by the governmental Environmental Protection agency.

In the policy documents related to the national implementation of the EU Biodiversity Strategy to 2020- the Comparative study BDS 2012 – member states referred quite frequently to international agreements (such as the CBD) to motivate to certain changes in policy. Whereas this is in line with the rise of supra-national institutions (Wessel and Wouters, 2007) it also can empower member states to implement policies, which might be controversial or unpopular.

However, international rules and obligations can be also disempowering for parties when arguing the case of biodiversity conservation. For example, in the Natura 2000-NL CS, EU regulation was used in the discussion to limit the scope of the management plans with regard to species selection (Meervleermuis). Local governments even went to court to contest the procedures national government took to implement Natura 2000 but the case failed.

Limiting argumentation
Furthermore, it was observed in several CSs that the need to comply with EU obligations tended to limit argumentation and even came to dominate the debate. In most of the policy documents analysed in the Natura 2000-NL CS hardly any arguments for Natura 2000 were mentioned. While the European obligation of Natura 2000 was often mentioned, e.g. in the "contours document" (LNV, 2005), clarifying the steps that are mandatory and those in which some flexibility can be built in for further policy considerations, the European obligation of Natura 2000 was used as the only argument for protection of biodiversity:
"The European Union has set a target to stop the further loss of Biodiversity by 2010. An important tool for this purpose is the creation of a network of sites of European interest: the Natura 2000 Network. The main objective of this network is to safeguard the biodiversity in Europe".

Legal uncertainty

Finally, the implementation of EU regulations may generate legal uncertainty and hence have an impact on argumentation. In particular, the Natura 2000-Hu CS showed many uncertainties about the N2000 system to be elaborated in Hungary. The public administrators were initially not aware of some important facts, such as whether the new regulations would be obligatory or optional (only advisable). It was also very uncertain for some N2000 areas by which date payments could be expected and who could obtain such payments. Furthermore, the measures of Natura 2000 contradicted at some points national regulations, in particular the Forestry Act. Although Natura 2000 is not opposed to economic activity in forests, the current legislation does not support the fundamental principle of Natura 2000, which says that the economic function may not hinder either nature conservation or public benefits. As a consequence, multi-functionality was not emphasised in the stakeholder forums and it was stated several times that "economic profitability should remain priority".

National level legislations

Also national legislation can enhance or constrain the position of certain groups in debate. This was most obvious in the exercise of rights. In the Białowieża Forest CS the local people and authorities had a powerful tool to block conservation efforts, namely the Polish legislation from 2001 that let them veto any potential national park enlargement (i.e. increase of protection status). Furthermore, the power of state foresters was strongly supported by national legislation, imposing on them obligation to manage the forest.

Furthermore, established regulations can bring clarity and so reduce conflict. In the Danube Catchment CS, a specific restriction imposed by the law - "it is illegal to practice overgrazing in protected areas" - was an argument that led to a decreasing number of conflict situations arising from overexploitation of natural resources in the protected area. The rules imposed by the status of nature reserve contributed to such a decrease, and for their acceptance by the local population.

Unclear legal interpretation and responsibility may hamper the process and even lead to conflict. This happened in the Fox and wild boar CS, where the great uncertainty about who should pay for damage claims led to the politicisation of the debate about wild boar.

Payments for biodiversity

Increasingly, EU, national and other regulations use incentives and other voluntary instruments to convince farmers, forest owners, and other local landholders to take

(or avoid) specific actions. For example, through the introduction of the Natura 2000 system, land owners and farmers can receive payments for activities beneficial to biodiversity, which in turn require them to give up some profitable farm or forest management practices. The payment of financial compensation for lost profits on private land has raised much discussion in the member states.

In the stakeholder forums (2009-2014) of the Natura 2000-Hu CS, planners and public administrators initially regarded the compensations as merely an option. But the argumentation changed in the later forums and now it is commonly believed that receiving support is “fair” and a “real must” and sometimes the term “indemnity” was used for compensation. The reason for this change is that the legal uncertainty about the regulations decreased and an institutional framework was built for the implementation of Natura 2000.

Legal restrictions and framing of arguments

Legal restrictions may influence the argument contents with respect to how its message is framed. In the BD Action Plan CS, some arguments identified were negatively framed around restrictions. These related to the legal duties to comply with EU and national conservation legislation and obligations, in particular the protection of nationally important (Sites of Special Scientific Interest) and locally important sites (Sites of Biological Importance). In addition, obligations also referred to the UK Biodiversity Action Plan priority species and habitats and the Local Biodiversity Action Plan. These concerns were often linked in the argumentation process. For example, the obligation to conserve locally important species and habitats was always included alongside the obligation to protect nationally important species and habitats.

The arguers’ perception of the biodiversity value in a specific area influenced the type of arguments. This was evident in some examples in the BD Action Plan CS. In areas where biodiversity value was perceived to be low but with the potential to increase the value nonetheless biodiversity practitioners often did not select restrictive arguments relating to legislation or biodiversity policies neither did they select arguments based on the need to conserve biodiversity for biodiversity sake. In these situations more often arguments were selected which highlighted other benefits relating to economic and social goals. However, where the biodiversity value was perceived to be high or the potential to be high, arguments centring on the benefits of actions for biodiversity (as opposed to economic or social considerations) were much more prominent.

4.3.2 Institutional roles and competences

The receptivity of institutions to certain problems and solutions and, by consequence, arguments about them, is determined in part by agreed-on expectations about their role and competencies. When parties in debate have an institutional role, their arguments are often backed by institutional power. In several CS, arguments often reflected institutional roles (or expectations about them), or roles and competencies were challenged.

Public service role of government institutions
Because of expectations placed on them - i.e. being receptive of the public's needs and concerns (along with democratic decision-making) - government institutions and their representatives are bounded by their role of serving public needs.

In the Fox and wild boar CS local politicians, elected representatives (and sometimes public servants) tended to argue from the viewpoint of their audiences. In particular, mayors were very active in taking up the task of spokesperson, defending the case of those affected by foxes or wild boars at higher levels of governance (through the national newspapers, directly contacting the minister, and more). All of this had a decisive impact on the minister's subsequent decisions on loosening legislative restrictions on hunting foxes and boars.

A similar phenomenon was found in the Natura 2000-NL CS. Local politicians were taking up the interests of the entrepreneurs, having two municipalities that did go to court to contest national policies. In Polder Zeevang the municipality of Beemster filed an objection to the Court of Justice about the designation of the site and against the complementary conservation objective for the pond bat. The Council rejected the objections against designation, but the secretary of state cancelled the complementary conservation objective for the pond bat on the ground that the site was a Bird Directive area whilst protection of the bat should be limited to Habitat Directive sites only. By cancelling the complementary objective, development of an industrial area nearby became possible.

Established hierarchies and institutional power
The role and powers of nation states are a topic of increasing debate. The transfer of competencies upwards to supra-national organizations, sideways to quasi-autonomous actors, and downwards to sub-national authorities has transformed both the structure and capacity of national governments (Bache and Flinders, 2005). However, within the member states the state and its established hierarchical levels of government remain powerful in framing argumentation.

In the Netherlands, for example, the Natura 2000-NL CS has shown that the hierarchy of arguments was determined by established levels of government. In policy development, it was mainly national government's arguments that ruled. In the implementation of plans, it was mainly the provincial level. The local governmental level's arguments had the least influence and was lowest in the argument hierarchy.

That national state institutions remain very powerful was most apparent in CSs in former Eastern European countries. In the Białowieża Forest CS, state foresters at both local and regional levels represented the State Forest institution, a hierarchical organisation with great power and influence. That legislation makes the state foresters "responsible" for the forests and thus "obliges" them to manage the Białowieża Forest was one of the main arguments against the stricter protection of the forest (the park enlargement). Also, in the Danube Catchment CS, the foresters' institution Romsilva - with a hierarchical organization – has much power. It strongly argued to the Ministry of Environment that they are the ones who should administrate the Small Islands of Brăila. One key argument consisted in the fact that forest conservation was important for that area and Romsilva is the one institution that has responsibilities, funds and tools for effective measures in this sense. Furthermore, in Hungary, most of Natura 2000 areas are owned by the State and managed by National Park Directorates, either directly or via agricultural use with the purpose of nature conservation. In the stakeholder forums of the Natura 2000-HU CS it was argued that the state managed the Natura 2000 areas very well through the national park directives and that the State should purchase all the areas where it would limit the land users' rights (i.e. not putting the responsibility and burden on the farmers). It was also argued that if environmentally friendly farming was awarded/compensated, it could secure the livelihoods of farmers and local residents who would in turn not have to leave the rural areas.

Facilitation of stakeholder participation and roles in the process

In many member states, stakeholder participation was poorly organised or even absent during the designation of Natura 2000 sites (Kruk et al., 2010, p.49). Among other things, this was mainly due to a lack of institutional capacity. For example, in the Natura 2000-HU CS, it appeared that the current institutional structure was very weak and had not been adequate and effective to ensure public engagement in the implementation of Natura 2000 in Hungary. Meanwhile, however, many member states have started involving stakeholders more intensively in the development of management plans, management measures and conservation objectives (Kruk et al., 2010, p.49).

In most member states stakeholder participation is formally arranged, although the respective roles of governmental levels and types of participation vary widely (Kruk et al., 2010, p.49-50). In the Natura 2000-NL CS, governmental levels and roles in facilitating stakeholder participation were discussed. The role of the national government is to develop policy, while it was argued that the role of the provincial government is to start up a stakeholder participation process to implement policy and to develop management plans because provincial government understands much better the contextual aspects as well as the stakeholders' networks.

Stakeholder participation does not, however, guarantee stakeholder co-operation because they need to recognise their role in the process as well. In the stakeholder forums of the Natura 2000-HU CS, planners and public administrators often emphasized that Natura 2000 had adopted a new attitude in nature conservation where land-users had a large responsibility and several tasks to do. The state, in this approach, provides the conditions for operating and financing the system and the landowners are responsible for the management of a site. However, since the protection of species and habitats had traditionally been done by the state, land-users had difficulties in seeing their roles in the process.

4.3.3 Established (and new) practices in nature conservation

Arguments related to biodiversity issues are usually rooted in what is known about those issues, and at the same time these arguments reactivate such common knowledge grounds. These common knowledge grounds are reflected in practices established in biodiversity conservation and management. When these practices become commonplace, arguments for legitimizing these practices become implicit (unless they become challenged by new practices). We here refer to three fields of established practices in nature conservation. First, we relate to the inventory approach as the prevalent conservation approach based on optimizing the number of ecological entities (e.g. species, habitats) in a certain region. Second, we consider the long-established system of protected areas in the face of new approaches, in particular Natura 2000. And third, we describe the ways institutional processes and practices can influence the scope of arguments.

Inventory-based conservation

Several CSs have shown that inventory-based approaches were prevalent at national and European levels of biodiversity governance. These are characterized by developing lists of species, habitats and ecosystems or (more frequently) referring to established lists for their protection. In several CSs it was found that arguments favouring biodiversity conservation referred to such established lists of items.

Conservationists in particular often referred to existing inventories when pointing at the value of an area they wanted to see protected. For example, in the Białowieża Forest CS, scientists and environmental organisations frequently referred to a research report that presented a comparison of the protected part of Białowieża Forest and the part managed by foresters (e.g. much less dead wood and rare species in the managed part). In the Danube Catchment CS, common criteria such as rarity, threat and species richness were often used in order to argue the need for implementing biodiversity conservation measures, highlighting the importance of certain fish, bird and invertebrate species, and species that are included on the list of Habitats and Species EU-Directive.

A major consequence of the inventory approach is that threatened species or habitats in decline easily become the centre of attention in argumentation. They are indeed the first that might get lost, so turning the list of items incomplete. Importantly, this may in turn have consequences for the way other species or habitats are treated. For example, in the Invasive species CS, what were considered – or even listed – as invasive alien species (IAS) were the ones that could have negative impacts on item conservation, in particular, reducing the numbers of "items" by outcompeting and interfering with rare and threatened species.

The inventory or item conservation approach in policy-making is heavily relying on prevailing approaches and assumptions in conservation science and ecology (for instance, what is an original nature state). The selection of a reference point in time is important here, as well as the geographical scale of observation. A frequently used reference point in conservation science is the last glacial period, but - depending on the area in question and the geographical scale considered - other time references can be used. For example, in the debate over the protection of the Small Islands of Brăila area (the Danube Catchment CS), the reference point introduced was the time before the conversion of large polders into agricultural areas. Various arguments referred to the inventories made, as well as the fact that the "Small Islands of Brăila wetland system" had remained under natural hydrological conditions.

Designation and management of protected areas

Over the last few decades the number of sites with different nature protection status (and according management standards) has been rising across Europe. Currently, the building of the Natura 2000 network plays a pivotal role for the designation of protected sites in all EU member states. The fact that this European ecological network is facing considerable resistance at the local level (Paavola, 2004; Keulartz and Leistra, 2008) has received scholarly attention in particular with respect to social problems and conflicts with local communities.

However, apart from struggles of interest, Natura 2000 has also led to a clash with previous, traditional protected areas and practices. In Poland, for example, Natura 2000 was received as a complete novelty in managing nature, at least considerably different from the existing traditional system of protected areas (Grodzińska-Jurczak, 2014). The new system encouraged rethinking traditional forms of conservation and exploring innovative practices, but also raised confusion (e.g. what exactly does "protection" mean in Natura 2000). Regarding the implementation of Natura 2000 in Hungary, the Natura 2000-Hu CS found public administrators often preferring the previous system of nature conservation, which they considered very effective. It was a frequently used argument that historically, conservation in Hungary was performing well. For more than three decades, the State had played an essential role in nature conservation through the creation of natural protected areas of international and national importance and through activities that targeted the protection of species

Traditional management approaches in protected areas can be also strongly linked with institutional, professional or group identities. For example, in the Białowieża Forest CS, the foresters' managerial discourse and established practices (e.g. cuttings are needed to retain a proper sanitary state) reaffirmed the foresters' (beloved) identity as the stewards of the forest, whose "obligation" is to maintain the forest and its values "for the whole society".

Institutional practices and the scope of arguments

Institutional processes and practices influence arguments in different ways, most notably by either limiting or extending the scope of arguments (e.g. what types of argument are presented or found relevant and adequate).

The Invasive species CS considered what was left of arguments from ecology and nature conservation literature in the policy arena of the European strategy for invasive alien species (IAS). One important influence here was the policy stage at which arguments were made. As the focus was on the development of an EU regulation (on the prevention and management of the introduction and spread of invasive alien species), arguments mainly served to legitimize such a regulation and not to reconsider the need for a regulation. Furthermore, for its justification, only adverse effects of IAS were presented. Moreover, only some of the values and resources that had been considered in scientific literature to be affected by IAS were actually taken up in the process of developing this EU regulation. In particular, cultural aspects in conservation were not referred to in the European policy on IAS until recently (the 2013 proposal for a regulation on IAS concedes that IAS may

"affect cultural heritage"). It was suggested in this CS that the main reason for neglecting aspects previously debated in science (such as cultural value and naturalness) in EU policy on IAS was that these conservation motives had not been established in institutional practices within the European Commission. In other words, the rhetoric in science had failed to reach the routines of policy practice and to extend the scope of argument.

Law and practices of jurisdiction also limit the scope of argumentation. In the Peatlands Strategy CS, existing national legislation has shaped and narrowed the Court's interpretation of the case. Whereas overall nature values were considered important reasons for the protection of Viurusuo area by all of the stakeholders, the legal institutions were not able to process these values, since the legislation recognised only individual species or biotypes as targets for protection. In other words, overall nature value could not considered a relevant argument because it did not fit legislation.

Limiting the scope of arguments can also foster the deepening of argumentation. In the case of stakeholder involvement on the issue of wild boar in Flanders (Fox and wild boar CS), institutional processes influenced the use of arguments in two ways. On one hand, at the onset of the consultation processes the Nature and Forestry Administration decided that the wild boar policy as decreed by the minister would be the starting point, and that the focus should be on developing a common-agreed co-management strategy. As such, this was a clear precondition, implying that there was no (or little) discussion anymore on the pros and cons of the presence of wild boar in Flanders. On the other hand, by involving stakeholders who manage territories where wild boar were found in a participatory process, there was a deepening of argumentation regarding the different methods and tools of controlling the wild boar population.

4.3.4 Stakeholder interests and legitimacy aspects

Stakeholders' argument perspectives are influenced by vested interests, goals and ambitions. Furthermore, perceptions about the legitimacy of governance are important.

Argumentation based on vested interests

It is common to find institutions or groups to select arguments that suit their own interests. The CSs provide many examples of argumentation based on vested interests, just to give a few: in the Natura 2000-Hu CS financial interests relating to area designation of Natura 2000 were generally highlighted in the process. In the Peatlands Strategy CS, nature conservation groups put more emphasis on the water

areas from the ecological point of view than from recreational perspectives. They also raised the concern for climate change, but only during the latter part of the process. Local people in the Białowieża Forest CS focused on their livelihoods and forest resources, while environmentalists and scientists focused on biodiversity. In the public consultation in the Natura 2000-NL CS many opponents of the designation of areas were afraid that designation of an area in the neighbourhood of their business would harm the interests of that business. Many objectors claimed that the aims of the designation process were unilateral and focussed on nature. In their view also other interests should be taken into account such as economic, agricultural, recreational, cultural and historical, and social interests.

Changes and trade-offs between interests

Furthermore, the goals and interests themselves can be influenced and even shifted in the argumentation. In the Natura 2000-NL CS, shifts of interest were not caused by arguments pro-biodiversity but by the counter-arguments referring to Natura 2000 policy, hampering business to develop and hampering economic growth. The use of this kind of arguments, the emerging of the financial crisis as well as the governmental shift after the elections in 2010 has resulted in a change of interest of national government in Natura 2000 policy.

The role of interests at the receiver's side and the potential of trade-offs between arguments was highlighted in the BD Action Plan CS. The goals and interests of a receiver may be diverse and therefore may fall within a hierarchy of concerns (Fairclough and Fairclough, 2012), thus highlighting the potential for trade-offs between goals and interests included in arguments. In this CS, the argument to increase biodiversity for the sake of biodiversity and to benefit local people may be linked to the argument for efficient use of resources, thus making the argument more central to the goals and interest of the receiver. However action to conserve biodiversity in some examples only occurred when resources were used efficiently, thus indicating that economic concerns were more central to the goals of the receiver than concern for conservation of biodiversity.

Democratic legitimacy

One of the major challenges of multi-level governance systems is their democratic legitimacy. Whereas the participation of non-state actors may bring opportunities for cooperation and synergy, at the same time critical questions are also raised about accountability and control, and possible imbalances between strong and weak actors (Peters and Pierre, 2004).

Argumentation analysis in several CS revealed explicit references to democracy. Both in the Peatlands Strategies CS and the Białowieża Forest CS the possibility of local people to influence decisions that concern their own living environment (i.e. decision-power at the local level) was an important policy claim. For instance, local people of Białowieża sometimes claimed that "In Poland we have democracy and if the citizens are deprived of some rights, they should get fair compensation for that". Moreover, the local people in the Danube Catchment CS did not trust that the integrated and long-term strategy and policy adopted by central authorities would clearly promote their interests and rights for a better life.

Also in the Danube Catchment CS, local people were blaming central authorities for promoting only sectorial and short-term interests of individuals and small groups of wealthy people who did not belong to local communities (Vădineanu, 2005). In the Fox and wild boar CS, conservationists blamed the government for pursuing the hunting interest of wealthy people at the expense of poultry keepers ("ordinary people"). And, members of the public referred to conservationists as elite (e.g. equipped with expensive 4x4, design clothing, etc.), in contrast with themselves ("real nature lovers"). Thus, it appears that debate on biodiversity governance may re-activate deep-rooted cleavages in societies, such as between classes of people and unequal power relations.

In the Fox and wild boar CS, insinuations about power relations led to sharp polarisation in debate. For instance, the government was quickly criticised for being one-sided, driven by political lobbying (e.g. with the hunting association and the farmer union). Furthermore, a recurring argument was that decision-making over nature areas was undemocratic because conservationists were "the omnipotent ruler" of them.

Scientific legitimacy

Scientific legitimacy of decisions may have an important role. For example, the whole designation process in the Natura 2000-NL CS was based on ecological criteria, which were presented as being scientifically sound and based on accurate knowledge. Therefore, it could be stated that policy decisions should be consideredas legitimated based on science. In the Natura 2000-Hu CS, to support legitimization of the area designation procedure, public administrators often argued that the designation of Natura 2000 sites was done on a scientific basis.

A perceived lack of scientific legitimacy may also foster conflict, as was evident in the Fox and wild boar CS. For instance, the minister of environment was accused by nature conservation and animal rights groups of wilfully ignoring scientific evidence.

The case of foxes was issued by a group of science students in their campaign as a "symbol dossier of scientific and political dishonesty". Earlier on, the Hubertus hunters' association had also complained that existing scientific research (proving the negative ecological impact of fox) had been silenced.

Societal support

Creating credibility and legitimacy in the eyes of the public can be critical to societal support, and hence the legitimacy of decisions.

The idea that decisions should be backed by public support was shown to exert political pressure on decision-makers. In the Fox and wild boar CS, gaining or loosing societal support was an important political argument influencing decisions. For instance, the perceived lack of public support was a main argument for the government to change its initial plan to follow a zero tolerance scenario and kill all of the wild boars in Flanders. In the case of the fox, politicians concluded (based on reports of damage) that measures to regulate the fox population in Flanders were required because "the social support base for fox in Flanders had been gradually exceeded".

In the BD Action Plan CS, political support was identified as a factor in contributing to the effectiveness of arguments. This involves not only gaining the support of decisions makers directly but also indirectly through public support for arguments. That public perception of actions contributed to the decision by local politicians to support and expand actions for biodiversity in one example. In another example public perception was presented in an argument to increase biodiversity in urban green spaces as a problem that could be overcome through consultation.

4.3.5 Scales of perspective

The scale of perspective at which problems are addressed, makes a difference in terms of actors, interests and interdependencies between them (Dewulf et al., 2001). When actors deploy different scales of perspective, it may be difficult to pinpoint who is responsible for what and how problems and solutions are defined, which may lead in turn to the stagnation of the decision-making process (van Lieshout et al., 2011).

Compatibility of scales of interest

A major source of conflict in the Białowieża Forest CS was that the forest was looked at from two contrasting scale perspectives. To the proponents of stricter conservation the forest belongs to the whole Polish society or even to the whole EU

and should be looked at from a national or international perspective. By contrast, local people perceived the forest (although it is state-owned) solely from a local perspective related to their own needs and, consequently, it was local people who should decide on the fate of the forest. Since the local people had also a veto right in the decision about the potential park enlargement, the future fate of the Białowieża Forest was for a long time dependent on the local perspective. That different scales of perspective should not necessarily incompatible was shown in the Danube Catchment CS. The Lower Danube Catchment area was also highlighted from different scales of perspective, both local (local communities) and national or international (tourism, wetland area, etc.) but with one communal aim: biodiversity conservation that provides multiple benefits for all actors.

Reconsidering scales in face of biodiversity phenomena

The scale of perspective (and discussion about it) is also influenced by the biodiversity phenomena in question. New phenomena, such as wildlife comebacks and invasive species, but also uncertainty about causes of biodiversity loss might trigger the need to reconsider the scale of perspective.

In the Fox and wild boar CS, it was the behaviour of wild boar – crossing many administrative boundaries when crossing through the territory – that led to the decision to address population control and dispersal at a higher scale (i.e. beyond specific sites). More specifically, it was the government's plan to delineate (non)-tolerance zones for boar. Currently, a collaborative co-management project is underway to deal with specific management issues. In this case, the shift to a higher scale of perspective posed a new challenge to the local stakeholders (public and private land owners, farmers, hunters, nature organisations, municipalities, etc.): no single actor had full control over the issues and actions taken since they all depend on each other.

In the Natura 2000-NL CS, the decision was made not to take measures yet in the polder Zeevang, as causes of biodiversity loss could be located outside the area, maybe even abroad. As long as it was not scientifically demonstrated yet what the causes were, it was decided not to take any measures.

Scale of biodiversity attributes

It was found in several CSs that different scales of biodiversity attributes were used. That is, participants in debate reasoned either from the perspective of specific species, habitats, landscapes, and more. For instance, in the Białowieża Forest CS and the Peatlands strategy CS, some arguments focused on particular species, while others focused on the characteristics of the forest or mire area in general. This

phenomenon was investigated more closely in the BD Action Plan CS. Here it was revealed that arguments focused on different attributes or scale of biodiversity, for example some arguments focused on specific species whilst others focused on habitats or landscapes. This main focus was often supplemented with arguments relating to other attributes of biodiversity. Examples were: conserving habitats as an aim but recognizing that there are similar habitats nearby across a larger geographical area; conserving a specific species as an aim by providing specific habitat requirements and the aim of conserving habitats whilst recognizing that within this area various protected species are found. Thus, basically the main perspective was on one attribute of biodiversity, but with recognition that the different attributes are linked as embedded units.

4.3.6 Realms of rationality

Social groups and institutions provide environments in which specific arguments can flourish. Toulmin (1958, 1984) introduced the notion of "field dependency" of arguments, which recognises that arguments are embedded in particular argumentation fields. As a consequence, arguments used in a particular field (e.g. law, science) are not necessarily suited to other fields. Bouwmeester (2013) emphasizes this by suggesting that the strength of an argument is critically dependent on the fit between the rationality underlying the argument (i.e. its "realm of rationality") and that of the argumentation field. This fit becomes increasingly complex when debates intertwine several argumentation rationalities (e.g. economic rationality, value rationality, etc.).

In the Comparative study BDS 2012, three established realms of rationality were considered in order to understand the intended meaning of written arguments: the technical-scientific realm which includes economic rationality, the juridical-political realm and the moral realm. An analysis of arguments based on a distinction of the realms of rationality they were embedded into, provided us with a means of looking beyond just topical differences and commonalities of arguments and identifying which type of reasoning dominates in argument macrostructures. A better understanding of the rationalities used at various governance levels helps us to address relevant aspects of a debate or conflict, and consequently improve decisions.

The analysis of official EU and national level documents in six member states and regions revealed that there was a strong emphasis on arguments from the technical-scientific realm of rationality and specifically on the *economy-nature* relationship, more concretely, arguments related to the creation of green jobs and the stimulation

of eco innovation. A lower emphasis was found on arguments issued from the juridical-political realm of rationality. The most remarkable argument category in that sense was the “international agreements” category. It included argumentative statements which draw upon international conventions (e.g. CBD) as a reason to support particular claims, simultaneously underlining the increasingly blurred distinction between domestic and international regulations and raising unanswered legitimacy questions (Wessel and Wouters, 2007). Arguably, some argument categories (e.g. green jobs) could have been considered political ones as they form recurrent election themes for politicians, albeit the structure of the argumentative statements did not allow us to conclude this at first sight. This does however show that the rationality of an argument can be explicit or hidden, and even consist of overlapping rationalities (in this case economic and political).

Arguments issued from the moral realms of rationality were poorly represented, with an exception for arguments relating to the responsibility of humankind for future generations. We asked ourselves whether the lack of arguments embedded in the realm of moral rationality was due to a lack of moral concerns about issues such as nature and biodiversity or to a contemporary dominant technical-scientific rationality to which arguers adapted by using arguments with mixing rationalities (e.g. economical and moral). The latter seemed to be the case as we found tacit references to moral aspects in some argumentative statements. For example terms as ‘equitable access (to nature areas)’ or ‘fair prices’ combine moral issues such as equitability and fairness with technical (access) or economic (prices) concepts. These references showed us that moral arguments were adapted to a dominant economic rationality.

4.3.7 Concepts and images of nature

In biodiversity governance and decision-making, what is considered a reasonable argument is seldom guided by facts and evidence alone. Commonly shared concepts and (ideal) images of nature reflect what we think nature is about and how we see our relationships with nature. As meaning-giving devices they heavily influence what arguments are deemed relevant and credible. Several CSs have illustrated how particular concepts (or interpretations of them) may work in support or against a certain decision or intervention (e.g. what is the right nature to protect and how to protect it). In the following we further explicate recurring concepts of influence in the CSs.

Local distinctiveness

In literature, distinctiveness is a measure of the extent a species or habitat contributes to the character, identity and uniqueness of a landscape (Heink, 2009). In this sense, loss of distinctiveness may bring about a loss of identification with a formerly familiar surrounding and a deprivation of home.

Arguments based on local distinctiveness are often used to contest plan proposals. For example, in the Peatlands Strategy CS, the sense of place and place attachment by local residents to Viurusuo mire area were evident in arguments against peat mining. In this sense, the loss of quality was a main concern. Also in the Białowieża Forest CS, local people claimed that "the Białowieża Forest is our wealth, history, tradition and culture" and that this forest had been maintained to survive to our times in its present state by the foresters and local people. By contrast, environmentalists and scientists downgraded the "human-created" distinctiveness by underlining the distinct natural development of the forest as was evident in its rich and unique biodiversity.

The concept of local distinctiveness was also helpful in promoting particular planning proposals. In the Danube Catchment CS, the distinctiveness of the Small Islands of Brăila area through its ecological uniqueness represented an important argument for its protection. This argument was also used by local consultancy firms when they promoted the idea of a zonal spatial plan. In the BD Action Plan CS, arguments for alternative management of urban green spaces included local distinctiveness, character and developing a sense of pride in local communities. The Natura 2000-NL CS observed that in the polder Zeevang it was referred to conserve the uniqueness of the area and therefore not to hamper agricultural production in that area. This means that local distinctiveness was used here as a counter-argument.

Loss of distinctiveness has also been termed "homogenisation". In the Invasive species strategies CS the notion of "homogenisation" has aided to negatively evaluate alien species without considering their impact on biodiversity loss. Remarkably, the EU did not take up the homogenisation argument against IAS. I could be that homogenisation was regarded as a cultural argument not strong enough in political debates, or that it is less relevant at an EU scale.

Forest images

The Białowieża Forest CS documented in detail the vital role that forest concepts or ideal forest images play in the controversy over the Białowieża forest. The forest was seen differently by the conflicted groups, either as shaped by humans and useful for them (shared by foresters and local people), or as an entity that persists without human intervention and is important no matter what are human needs (shared by

scientists and environmentalists). The former concept was rooted in traditional forestry practice and backed up by a range of forestry legal documents and guidelines. The second one rather referred to ecological science framing nature as a dynamic system of natural processes.

Balance of nature

The idea of a balance of nature dates back to ancient times and it appears to persist both in scientific discourse and public imagination. The CSs showed that this concept was frequently referred to at different levels and units of biodiversity governance. The concept is, however, open to different interpretations, which in turn have important implications on biodiversity decision-making.

In the Białowieża Forest CS the main arguments related to how the forest should be managed/protected referred to the idea of "balance in nature". Maintaining the balance of nature was the ultimate goal of both proponents and opponents of increasing the protection status of the forest. However, the concept was interpreted differently. For environmentalists and scientists, the balance of nature is a natural state, for foresters it is a man-made state. We found similar opposing views in the Fox and wild boar CS. Both hunters and nature associations expressed agreement that achieving a balance of nature is utopian, but they differed in opinion about how to address this issue. Remarkably, members of the public believed in the balance in nature. On the one hand, there was the vision that humans should help keeping the balance. On the other hand, there was the contention that "Nature knows best" (i.e. how to recover and find new balance) and humans should not interfere.

In the Danube Catchment CS, there were frequent arguments about achieving balance of nature, healthy systems and natural functions issued by academic stakeholders (and retransmitted by local NGOs or public consulting firms). Those arguments referred to maintaining the structural and functional diversity of the Small Islands of Brăila, as habitat for many species or as a natural filter, preserving its fragile ecological equilibrium. Many arguments in favour of nature conservation contained references for the major threats that acted against the "natural balance" in Lower Danube Catchment area: extensive conversion of wetlands into agro-ecosystems; intensification of auxiliary energy and material inputs into food production systems; point source and diffuse pollution; hydro-technical works and overexploitation of natural resources (Vădineanu, 2007).

Naturalness and natural evolution

In the CSs concepts such as naturalness and natural evolution were not frequently discussed (rather they were taken for granted). However, there were two notable exceptions: scientific and popular debate.
The Invasive species CS revealed that in scientific articles definitions for "invasion" and "invasive" species (e.g. Richardson et al., 2000; Kowarik, 2003; Colautti, 2004; Occhipinti-Ambrogi and Galil, 2004) were closely linked to the concept of naturalness. The invoked definitions generally consisted of two parts. The first part refers to one or several criteria, which relate to the novelty of a species in a certain (biogeographic, ecological or evolutionary) context, the second to its success i.e., the ecological or biogeographic behaviour (spread, population growth, range expansion) or effects on the environment. Naturalness is closely linked to novelty. Novelty of species is in general defined in dependence of some "original" distribution. None of the definitions regard colonizers within their natural range as invasive, although such species can spread rapidly within their range, become dominant or have a great impact on ecosystems. The novelty concepts mainly differ in the inclusion of human introduction. Heger and Trepl (2013) explicitly state that it does not matter whether the passing of the major geographical barrier was aided by humans, while others restrict novelty to intentional and unintentional introductions (Richardson et al. 2000; Pyšek et al., 2004). As naturalness can be defined as the absence of human influence (McIsaac and Brün, 1999), the human introduction criterion serves to emphasize the importance of naturalness in the definition of invasions.

Furthermore, intervening in evolution (including for nature conservation) is often criticised. There is the prevailing idea that nature adapts to new conditions. For example, in the Invasive species CS, proponents of IAS regard ecosystems as constantly in flux due to natural and human change. But interestingly, this is also a topic of popular debate. For example, in the Fox and wild boar CS, members of the public argued that humans should not intervene much in natural processes. In the case of wild boar, managerial assertions that overpopulation should be reduced and balance in nature should be strived for were counteracted with principle-based statements, e.g. the views that Nature always recovers and a new type of balance will develop and that Nature knows best and we should not interfere. Similarly, in the Białowieża Forest CS it was asserted by the environmentalists that the forests had existed long before the foresters started managing them and, therefore, they do not need management, i.e. nature can manage itself.

Ecosystem services

In recent years, the concept of ecosystem services has gained wide acceptance within the international scientific community and, at the same time, it gained

considerable attention from policy makers and practitioners. Two CSs have specifically followed the use of this concept in argumentation.

The first one is the local master planning process in the Urban green areas CS in Finland. The concept of ecosystem services was introduced as a comprehensive, over-arching theme including all kinds of services that could be achieved through multi-functional green and blue infrastructure both under and over the land and water surfaces. Analyses of the first official planning guideline documents (Sustainability criteria and Development policy) revealed that arguments relating to specific ecosystem services (although not named as such) persisted quite well in the planning process. However, this CS also revealed that the ecosystem services concept was not clearly understood, even by the municipal planners leading the process. Rather a shift towards a traditional way of dealing with environment could be observed leading to loss of innovativeness and opportunities provided by the holistic concept of ecosystem services.

The second CS is the Invasive species CS. The CS's analysis of EU policy documents observed that the ecosystem services concept has played a major role in introducing cultural aspects of IAS. Cultural aspects of IAS have been neglected in EU policies on IAS until recently. The CS's analysis of EU policy documents revealed that the ecosystem service term is still missing in the Communication "Towards an EU Strategy on Invasive Species" (EC, 2008) and is even not explicitly mentioned in context of Target 5 (Combat invasive alien species) of the EU Biodiversity Strategy (EC, 2011), although explicitly referred to in Target 2 (Maintain and restore ecosystems and their services). We assume that reference to ecosystem services in the IAS context parallels the percolation of the ecosystem service concept into EU environmental policy.

4.3.8 The science-policy interface (SPI)

Improving the science-policy interfaces (also abbreviated as SPIs) in the environmental field is a topical issue, brought about by the perceived under-use of science in policy-making (Spierenburg, 2012). Specifically, the biodiversity issue needs direct relations between science and society or, in other words, between researchers and the other stakeholders such as policy makers, as well as those using the benefits of, caring for or being constrained in their activities by biodiversity (Neßhöver et al., 2013). Building a science-policy interface is necessary for assuring a mutual understanding between all involved actors in order to develop a common language as basis for effectiveness of biodiversity conservation measures (Neßhöver et al., 2013). Scientists need to become much more involved in clarifying and

interpreting scientific results by creating platforms for the crucial and continuing dialog between the scientific society and decision makers (Larigauderie and Mooney, 2010). Several CSs suggest that science-policy interfaces are still problematic. This was especially evident in the Natura 2000-NL CS, the Natura 2000-Hu CS and the Fox and wild boar CS.

The Natura 2000-NL CS revealed that in preparing the policy process, the existing science-policy interfaces were hardly used since policy makers drafted the designation process without hardly any consultation of stakeholders or input from the academic society (Janssen and Schaminee, 2014). On this point, The Netherlands did not act different than many other member countries (Beunen et al. 2012; Bouwma et al. 2008). Keulartz (2009) reported that many other countries had a top-down approach of the process, but in many member states this approach was forced to change in an earlier stage than in The Netherlands and became more bottom-up (Keulartz, 2009).

In the Netherlands for a long time the most dominant argument used to justify Natura 2000 as it was a legal obligation from Europe, and that following the European directives it was allowed to use only ecological criteria for the designation of sites. By this the European Commission itself has also played an important role in the raising debate around Natura 2000. But the different member states followed different ways. The Netherlands persisted for a long time in the top-down approach. Only after severe pressure of the European Commission who threatened to bring The Netherlands before the European Court of Justice because of not listing an adequate number of sites meeting the aims of the directives, the attitude changed. Not only more sites were listed, but also more stakeholders were involved drafting the boundaries of the sites. In this process the science-policy was more used, but still only for the ecological criteria and not for the social-economic criteria. Still using the argument that designation may only be based on ecological criteria. The debate however was especially addressing socio-economic effects of Natura 2000 on the surroundings of the sites. To meet these objections it was decided to draft management-plans for the sites, in which the interests of many of the stakeholders involved were taken into account. On first sight, the transition from a top-down to bottom-up process looks positive. Dubbink (2008) however mentioned that too much stress on politicians and policy makers will make them hostiles of local stakeholders. And by that, the democratic process is threatened, because local stakeholders are indeed the most directly involved but also form a minority of the total population and the total interests. Van den Belt (2008) mentioned that making it a more bottom-up process also means that original objectives will become more

diluted. In the case of the Netherlands due to consultation for instance some site boundaries were adapted (Janssen and Schaminee, 2014).

Furthermore, whilst many initiatives exist to improve the link between science and policy, many follow a linear model of science into policy (Young et al., 2014), not building on current knowledge and theory of SPIs. While a number of key challenges have been identified in SPIs, enabling factors are also an increasing focus, for example the trade-offs inherent in, and approaches to, developing and strengthening credible, relevant, legitimate and iterative SPI processes and outcomes (Cash 2003, Sarkki et al., 2013). Such approaches to improve SPIs include improved communication (Young et al., 2014) and language in framing information in SPIs (Carmen et al., in prep) for example using concepts and languages familiar to policy and other decision-makers.

The BD Action Plan CS has examples of how arguments were framed and linked to increase their salience and relevance for decision makers. In particular positively framed arguments emphasized opportunities for the receiver of arguments and grouping arguments together targeted more than one goal of receiver.

In some cases, having brokers or "translators" may be important in bridging the gap between science and policy (Young et al., 2014). The mobilisation and participation of stakeholders can indeed be hampered by a lack of appropriate translation. Making reference to expert knowledge is a convenient way for institutional members and other experts to develop their plan proposals but, more often than not, it is also the way they bring these plans into the arenas of public debate (Van Herzele and van Woerkum, 2011).

For example, in the Natura 2000-Hu CS, farmers and forest owners did not understand the criteria of the designation of land into the Natura system. Public administrators and planners tended to use the arguments from expert opinion both to reply to questions and to justify their authority. Land users often encountered categories and terms they do not understand (e.g. meta-population or source population). Such terms require ecological knowledge and it often happened that planners did not reply to land users' comments or questions.

Furthermore, Carmen et al. (forthcoming), Adams and Sandbrook (2013) and Young et al. (2014) all highlight the need to include different types of knowledge with scientific knowledge to increase the effectiveness of communication and more broadly interactions between science and policy. The recent Intergovernmental

Platform on Biodiversity and Ecosystem Services (IPBES) also emphasizes the need for integration of different forms of knowledge to develop more credible and legitimate outputs.

In this respect, the practical experiences from the CSs show mixed findings. The Natura 2000-Hu CS points to the problem of neglected knowledge. While farmers possess much knowledge in relation to local ecosystems and habitats or traditional farming, the Natura 2000 regulations often did not rely on such knowledge. The actual use of different forms of knowledge – including traditional ecological knowledge – was especially highlighted in the Danube Catchment CS. Many of the identified arguments were taken from the academic sector and transformed by NGOs. These arguments often expressed the ideas in a metaphoric manner (e.g. "When a man dies, it's pain, when a species disappears, it is irretrievably gone and the world is smaller"). Thus, in this CS arguments were easily transferred to and received by general public and decision makers who had the opportunity to influence policy makers through mass-media channels. All of this enlarged the spreading and dissemination of scientific knowledge, and the pressure on the decision making process. This resulted in a better use of resources and services along with support and knowledge input from the local area. At the same time, it's worth mentioning that not all information and arguments transmitted by NGOs or mass media was scientifically precise due to the lack of correct understanding and interpretation of scientific concepts and approaches. And also because there frequently was a lack of common vision and language among all actors involved.

5 Conclusions

This research focused on argumentation in multi-level governance interactions in the context of European biodiversity policy. In this multi-level context, multiple actors operate in various configurations within and across different levels and units of governance (legal orders, kinds of service sectors, organisations, etc.). In such settings, it is mainly the network relations between the actors - including the extent and effectiveness of their collaboration - that affect the development and implementation of biodiversity policy.

In this research we developed an overarching analytical framework to synthesise the findings from the CSs. This framework successively focuses on the arguments used (i.e. what arguments "say"), the argumentative strategies for using these arguments (i.e. what parties "do" with arguments) and the social-institutional networks conditioning these processes (i.e. how arguments and transactions fit into these networks). By taking these three perspectives together, a comprehensive understanding could be developed of argumentation processes in relation to biodiversity governance.

A collaborative approach was taken for this research. The various cases were initially studied from the interests of researches with different disciplinary backgrounds. But gradually, the case studies learned from one another. Specifically, the meta-ethnographic approach provided an iterative way to assess the themes and concepts that emerged from the cases, and enabled the case study researchers to compare and relate their findings to each other. The conclusion is that this approach is highly valuable when carrying out interdisciplinary research. Traditionally this approach provides a rich amount of findings that enables in depth understanding of the argumentative phenomena in a specific case. In the BESAFE project we further built on the advantages of this approach, and involved more actively the CS researchers in the synthesis (eventually resulting in new perspectives on the own case).

In the following we summarise main observations in relation to the three broad research questions outline in the introduction of this report:

1. **What (different types of) arguments can be identified at different levels and units of biodiversity governance?**

A first observation is that there are quite many arguments used in biodiversity policy. The most frequently used arguments, at least in the Life projects, are inherent value of nature and the importance of species conservation.

By comparing the categories of arguments between global, European and national governance level, it is revealed that at both global and regional level, the social arguments are most dominant, while at the European level, economic arguments are more prominently used. The study on global/EU comparison revealed a discrepancy between arguments at both levels. Certain arguments, referring to gender and the importance of human livelihoods and impacts on poor communities are not mentioned at all in European documents.

Comparison between European and national governance level reveals little discrepancy. Argumentation lines between EU and Member States are relatively uniform. It is observed that among all analysed member states, England uses more argumentations lines than other member states to argue the three analysed claims.

Comparison between actors indicates a small diversity of arguments used. Most actors use the arguments that nature needs to be protected because of its inherent value. Regional authorities and park authorities also argue that nature contributes to social wellbeing, while national authorities argues that it is obliged by legislation. Some case studies have indicated that it happens that arguments of the same type of actor, for instance nature conservation groups, differ between local and regional level. And, also the level of discussion differs, since regional level discussion uses more science in the debates than at local level.

The analysis also considers differences in *the variety of arguments*. In documents like the LIFE project presentations, the variety of arguments is very limited (most often one single argument). Furthermore, non-binding documents have a larger variety in arguments than binding documents. It is also indicated that variety differs among stakeholders. Politicians uses the smallest variety of arguments, while the largest variety of arguments is found in the science actors. In addition, in almost all case studies the same evolution in argument variety is observed, going from small variety in the beginning of the planning process towards much larger variety as soon as the policy is in the implementation stage. Some cases also explores the variety of arguments in communication channels and have observed that discussions on Internet forums are much richer in terms of argument variety compared to organisations' websites and magazines.

And lastly, arguments do change over time at global, European, national and regional level. For instance, it is found that the arguments on ecosystem services have emerged over time at both global and European level policies. It was shown in some CSs that such arguments were introduced at the local policy level but did not persist at the local policy level.

2. How are these arguments exchanged and put to work in multi-level and networked interactions?

The case studies reveal plenty of strategies that actors used when they are arguing, most of the time aiming to gain support for one's own perspective in order to convince others to agree or to oppose with the policy. The identified strategies are:

1. Particularisation: treat something as special or unique in order to gain support for policy measures.
2. Up-scaling: situate the issue on a higher scale to make it more important and to situate themselves at the centre of power and search for legitimation of own perspective.
3. Positive and negative framing: emphasising positive (a gain) or either negative aspects (a loss or constraint) of decisions and actions.
4. Dichotomisation: making oppositions (e.g. polarisation between two alternatives) and emphasising their incompatibility in order to exclude the possibility of an intermediate alternative.
5. Aligning arguments to stakeholder interests: aligning arguments to the goals and interests of others, in order to attract more attention or to affect outcomes in a manner beneficial to yourself.
6. Appealing to science: using evidence from science in order to justify your viewpoint and create credibility.
7. Appealing to common sense: referring to people's basic sensibility (e.g. widely shared rights and obligations) in order to close of possible counter-arguments.
8. Appealing to nature: rhetorical strategy claiming that something is good because it is natural, or bad because it is unnatural.
9. Stereotyping and blaming: imposing stereotypes or group schemata to exaggerate the similarity of people within a group and impose a negative picture on the group.
10. Claiming authority: justifying something by reference to the fact that a person, institution or text has advocated the statement, aiming to close of counter-arguments

The channels that actors use to transmit arguments are diverse. Main examples are: local politicians who are using their political parties to transmit argumentations; NGO's who are using media and working groups to transmit argumentations; Mass media.

3. How are the arguments rooted in and how do they feed into different perspectives, worldviews and functioning of social groups or institutions at the different levels and units of biodiversity governance?

The case studies illustrated that argumentation is conditioned by law and regulation,

institutional roles and established practices. The following conclusions are made based on the case study analysis.

First, actors consider arguments in law and regulation as being adequate and are sensitive to it. On the one hand, the expansion of international rules and obligations related to biodiversity resulted in an increased empowerment of member states to implement biodiversity policy and to finish disputes. On the other hand, European regulation did also disempower actors because the limited scope in terms of species selection, making it more difficult for these actors to include other species than decided at the European level. But also national legislation is a powerful institution to condition arguments, in particular in case of legal uncertainty at the European level. It can empower certain groups in a debate or hamper conservation efforts. And in cases where uncertainty occurred in legislation at the national level, the debate became politicised. The cases also made clear that using legal restrictions affected the argument's message in a negative sense, i.e. focussing on these restrictions rather than the benefits of biodiversity.

Second, the analysis concludes that also institutional roles and competences also condition arguments. Politicians are bounded by their role of serving public needs. They tend to argue from the viewpoint of their audiences (e.g. local residents, farmers, entrepreneurs, etc.). Also the argumentation used by public officers at national level appears to be more powerful than those used by regional or local ones because of hierarchy.

Third, established and new practices in nature conservation condition arguments about biodiversity conservation. For instance, inventory approaches based on lists of species or habitats are prevalent at national and European levels. The common criteria (such as rarity, threat and species richness) to make these lists are often used in argumentation to justify the need for implementing biodiversity conservation measures,
Another practice conditioning argumentation is the designation and management of protected areas. This practice did sometimes clash with traditionally protected areas of species and raised confusion, resulting in increased argumentation.

Finally, also stakeholders' interests and values affect argumentation. Argumentation is often conditioned by vested interests, as for instance by the interest of local groups that considered the biodiversity issue from the perspective of livelihoods and forest resources. What actors value as a legitimate process conditioned the argumentation. In three cases arguments are considered to be more legitimate: when they are the result of a democratic process; when they are science-based; when they gain societal support.

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Annex to Deliverable No: 3.1

Comparative Study

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Reviewers:	Juliette Young
Dissemination:	PU
Keywords:	Biodiversity Strategy 2020, Argument mapping.

7 Contents

1 Glossary

- **Argument**: a claim together with one or more reasons (statements) why it should be believed
- **Argumentative statement** (reason): a declarative sentence and evidence to support a claim
- **Argumentation line**: A sequence of arguments leading to a claim
- **Argument depth**: refers to the diversity and number of argumentative statements supporting a claim
- **Argument mapping**: Method to visualize the logical structure of arguments by breaking up an argument into its constituent claims. It uses lines, boxes, colors and location to indicate the relationships between various parts of the argumentation
- **Debate**: a set of argumentation lines and their claims. (the clash of arguments)
- **Logician**: in this report, the term 'logicians' refer specifically to researchers participating in the argument map analysis of the comparative study
- **Objection**: evidence to counter an argumentative statement
- **Rebuttal**: an objection to an objection

2 Introduction

The goal of this comparative study was to identify and analyze argument differences and commonalities at various governance levels. For this study we analyzed the EU and Member State (or regional) governance levels (see figure 1) using a selection of relevant documents for national and EU biodiversity management.

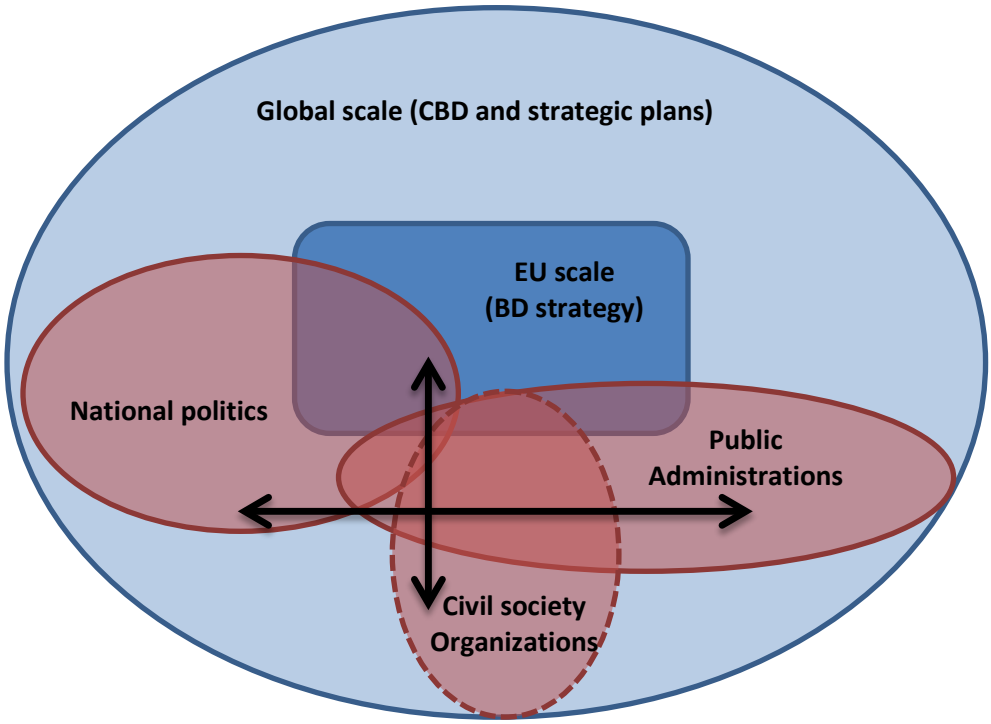


Figure 1: Scope of the comparative study.

In particular, we aimed to learn about arguments used in debates surrounding the EU biodiversity strategy 2020 and its actual (planned) transmission between (supra-) national/regional policy decision-making. In addition, some attention was also given to the potential role of national/regional level arguments in influencing EU level arguments.
In the end, we aimed to achieve an in-depth analysis on the occurrence and composition of a selection of argumentative claims from the strategy on a vertical (EU-National) and horizontal level (National –National). We also analyzed which rationalities were predominantly used at these governance levels.
This annex consists of 4 parts, first we provide an introduction on the aims and focus of the comparative study, then we present our methodology and experiences, provide results and policy recommendations and finally conclude with a discussion on our methods and their limitations.

3 Theoretical background of the comparative study

3.1 Arguments in documents

Argumentation research concentrates on two main approaches: argumentation as process and arguments as products. Whereas the study of arguments as processes focuses on the process of back and forth between arguer and opponent, the study of arguments as products focus on "*the argumentative elements as a means of representing meanings, abstracted from the process of communication*" (Simosi 2003).

In the WP3 comparative study (CS), we have chosen to work based on written argumentation, thus we subscribed mainly to the 'arguments as products' approach. More specifically our focus is on written argumentation extracted from official documents. This choice has several implications:

- Arguments in such documents are usually the result of an underlying, ongoing process of live argumentation, which we will also refer to as a debate. The type of arguments used in such debates differs from written arguments. For example, arguments, and more importantly argumentation strategies, which might be very effective in a live debate, might be less so in a document. Live debates are characterized by a 'fast dynamic of quickly traded points and counterpoints' where redundant and sometimes irrelevant counter arguments are common and often effective (Yoshimi 2004). Arguments in documents on the other hand, result from a more thorough consideration about their structure and strength. Because of the official nature of the documents used for this study we can assume that arguments have been carefully considered and only a selection of arguments from a debate has been used in the final version of the document. Particularly those arguments which the authors reached consensus about and which fit the intended purpose of the document. Understanding some of the contextual information about the document, such as its purpose and its importance, is therefore essential when analyzing the arguments. It provides critical information to logicians about the (non-)occurrence of particular arguments in documents, and allows to better understand the intended meaning of these arguments. Hence important contextual information has been gathered during key informant interviews and literature research conducted during the comparative study (ref protocol CS).

- Arguments intend to address a perceived gap between a claim and the acceptance of that claim. While writing a document, authors reflect their perception of this gap by the choice of their argumentation. As a matter of fact authors are attempting to fill this gap by constructing an image of their audience which helps them to determine potentially effective arguments (Perelman and Olbrechts-Tyteca 1958). The challenge for the authors is to form an adequate picture of the audience in order to effectively address gaps between assertions and their acceptance, keeping in mind that this audience is likely not passive but also involved in a debate about the given issue. In short: understanding the position of the authors inside a larger debate is key to analyze document arguments because it influences the choice of arguments. Additionally, an analysis of arguments from documents also provides the means to identify the author's representation of the acceptance gaps of his intended audience (see figure 2). A misrepresentation of these acceptance gaps will result in a mismatch between the categories of arguments used in a policy document and those used by the targeted audience of these documents. As a consequence argument effectivity will be low. In the comparative study we carried out a comparison of argument categories between the EU and national levels to highlight some of these potential mismatches.

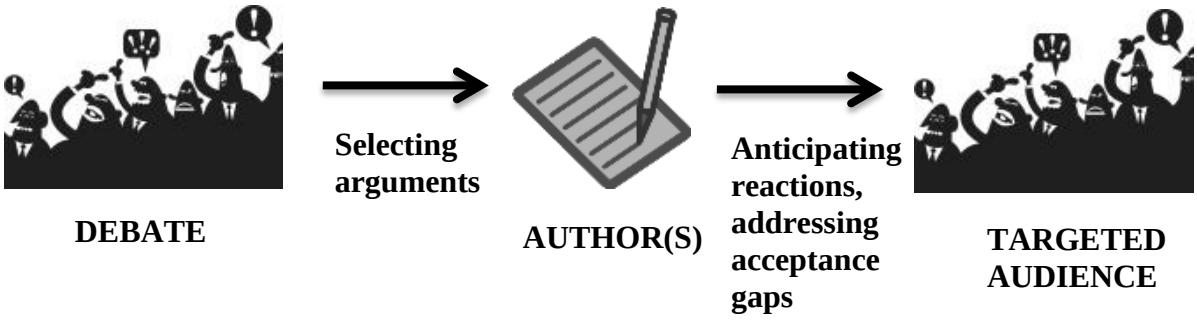


Figure 2: Particularities of document argumentation

3.2 Microstructure and macrostructures of arguments

A typical argument map is used to evaluate the strength of individual arguments and is therefore mainly the domain of formal logic. Argument mapping is for example used to build clear and well organized arguments in order to increase understanding and validity of arguments. Increasing argument validity does not however account for an argument's effectiveness since invalid arguments might be more effective than valid ones depending in which context they are used.

Argument maps can also be used to summarize larger sets of arguments used in topical debates. Nonetheless, as pointed out by Yoshimi (ref), logicians have usually

focused on the structure of individual arguments and the avoidance of logical fallacies rather than on the structure of whole debates. For instance Toulmin[2] provides us with the means to analyze arguments by describing six recurrent constituents of an argument: the claim, the ground, the warrant, the backing, the rebuttal and the qualification. Although this is useful to ascertain the strength of single arguments, it says little about the role of the same argument within a macrostructure of arguments (e.g. a debate) and within the larger context to which that macrostructure belongs (e.g. political context of a debate). Toulmin acknowledges this as well by pointing out the importance of field dependency (Toulmin 1958, Toulmin, Rieke et al. 1984). Freeman (1991) and Yoshimi (2004) also point out that arguments can be either broken down into increasingly simple parts or aggregated into complex macrostructures. The macrostructure then forms the wider context of individual arguments and guides logicians when building an argument map. Additionally the wider debate and the social context in which this debate occurs provide fundamental information for logicians to organize the links between individual arguments.
In our comparative study we focused on the occurrence of argument macrostructures (argument lines) at member state and EU levels and on the comparison of macrostructure composition both between the national and EU level and, to a limited extent, between member states. We argue that argument macrostructures form better units of comparison than single arguments outside their macrostructure context. We did not explore the strength and potential effectiveness of individual or groups of arguments, although we recognize that the results of this study could be used to assess argument effectiveness.

[2] Toulmin model in short: "*The data are the facts cited as premises or support. The claim is the argument's conclusion, and the warrant is a general operating principle or rule of thumb allowing a bridge to be made between data and claim" Fulkerson, R. (1996). Teaching the argument in writing, National Council of Teachers of English Urbana, IL.*

4 Methods

As mentioned earlier, we chose to work with argumentation in documents. We selected these documents based on two criteria. First, they had to be official documents, publicly available and binding, or highly influential to policymakers (e.g. TEEB, UK NEA). Secondly they had to be relevant for current decision making related to biodiversity. To ensure that those criteria were fulfilled we conducted a range of helicopter interviews (2-3 per country and 4 at EU level), mainly with civil servants and decision makers who had a good overview on biodiversity policy at EU and/or Member State level. We asked each of them to select 2 to 3 documents which they considered as important and provide us names of potential key informants for these documents. We then used three (or more) of the most relevant documents per country for our analysis.

As the debate about biodiversity and ecosystem services is highly complex and encroaches on many issues, we also chose to focus on three main claims (see results section) in order to limit the size of the analysis and increase comparability. These claims were selected with the help of helicopter interviewees at the EU level and based on the biodiversity strategy 2020 document. Our intention was to limit the size of the argument macrostructure by putting a boundary at the top.

We used argument mapping software, RATIONALE (http://austhink.com), to map the arguments supporting each claim in the previously selected documents. It is important to mention that in doing so, we did not rigorously follow the existing argumentation structure from the document but used 'external' claims as a starting point. The link between the claim and the first layer of argumentation in the argument maps is therefore partly an interpretation of the logician creating the map. To avoid different interpretations by logicians, a mapping protocol was created and intensively discussed during project meetings. Regular exchange between logicians and internal map reviews also ensured a consistent approach was used. Also, no predefined categories were used to categorize arguments. Instead emergent categories were identified from the data itself (Ritchie et al, 2003). Figure 3 illustrates the approach we followed.

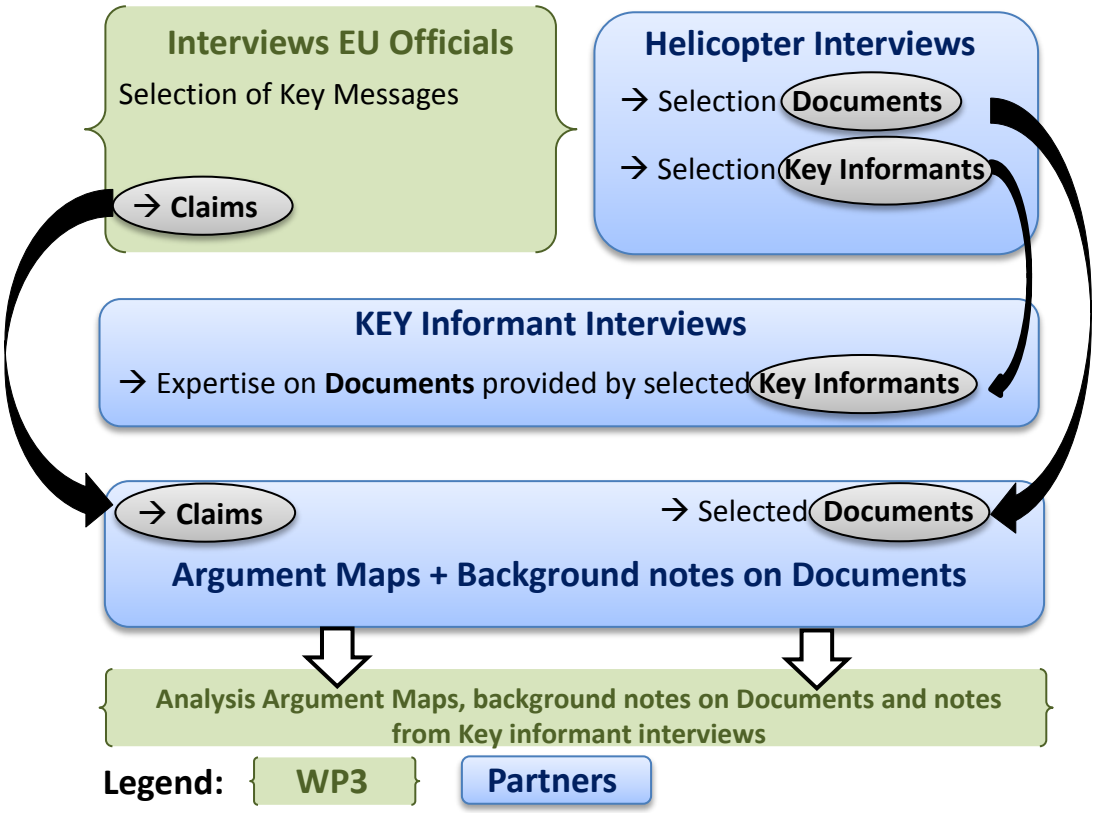


Figure 3: Research framework with key inputs and outputs for the comparative study from WP3

The advantage of using argument maps (figure 4) is to provide a compact overview of complex realms of discourse (Yoshimi, 2004), save time and prevent redundant argumentation (Van Gelder 2003). Some authors such as Eagleman & Holcombe (2003) also suggested that appropriate representations of debates could accelerate scientific progress by clarifying complexity. Another important advantage in light of this study is that argument maps help logicians to close reasoning gaps by identifying implicit statements. Filling in implicit statements is however subject to interpretations of logicians and particularly dependent on their knowledge of document context (eg cultural, political contexts). In order to reduce interpretations, key informant interviews were conducted during the mapping exercise. Key informants could then provide their views on missing statements.

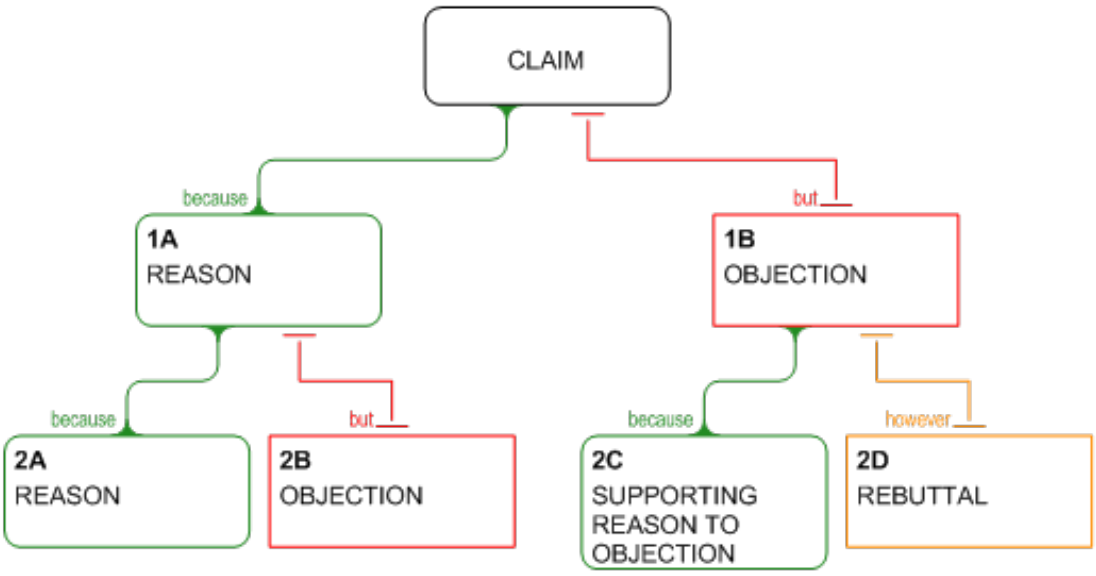


Figure 4: Basic building blocks of an argument map in Rationale (ref)

Finally we produced 21 argument maps, one for each claim and each of the 6 participating member states/regions and at EU level, representing the range of arguments used in support of the 3 claims (see figure 5).

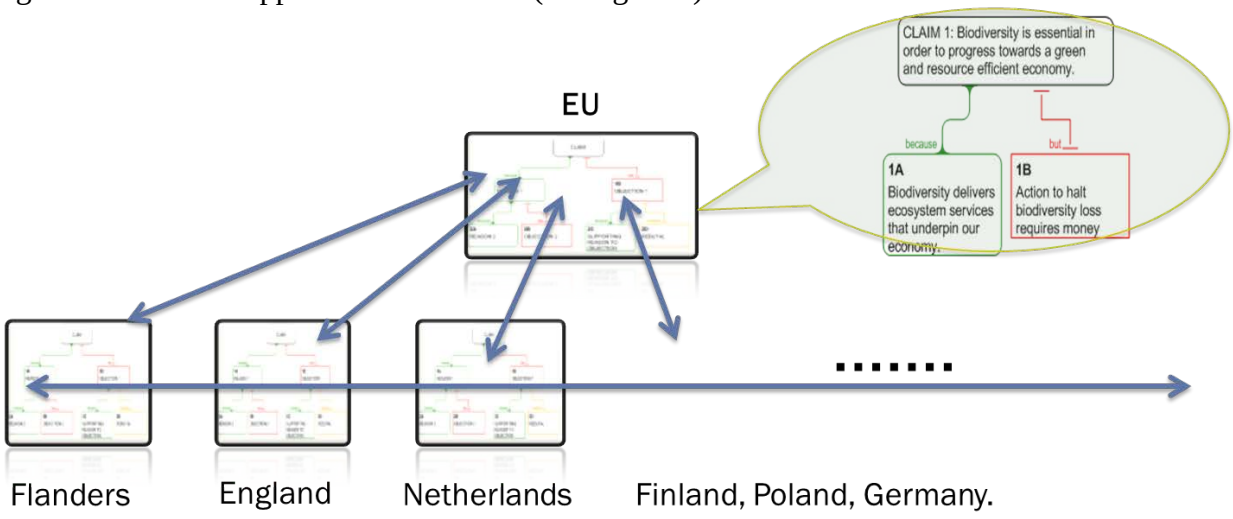


Figure 5: EU –national/regional levels.

Each argument map was then coded by its author. To improve inter-coder reliability, map authors were paired and received non-coded maps from their partners. As a consequence each argument map was coded twice, after which codes were combined and discussed among authors and the lead researcher. This approach increases the validity and reliability of the results (Ryan et al, 2003). Eventually a single list of codes resulting from all the individual map codes served as a basis to categorize all the maps and group similar categories of argumentation lines into single maps. These maps were then used to compare similarities and differences of, 1) the occurrence of categories and, 2) the build-up of similar categories across countries and at the EU level as shown in figure 6.

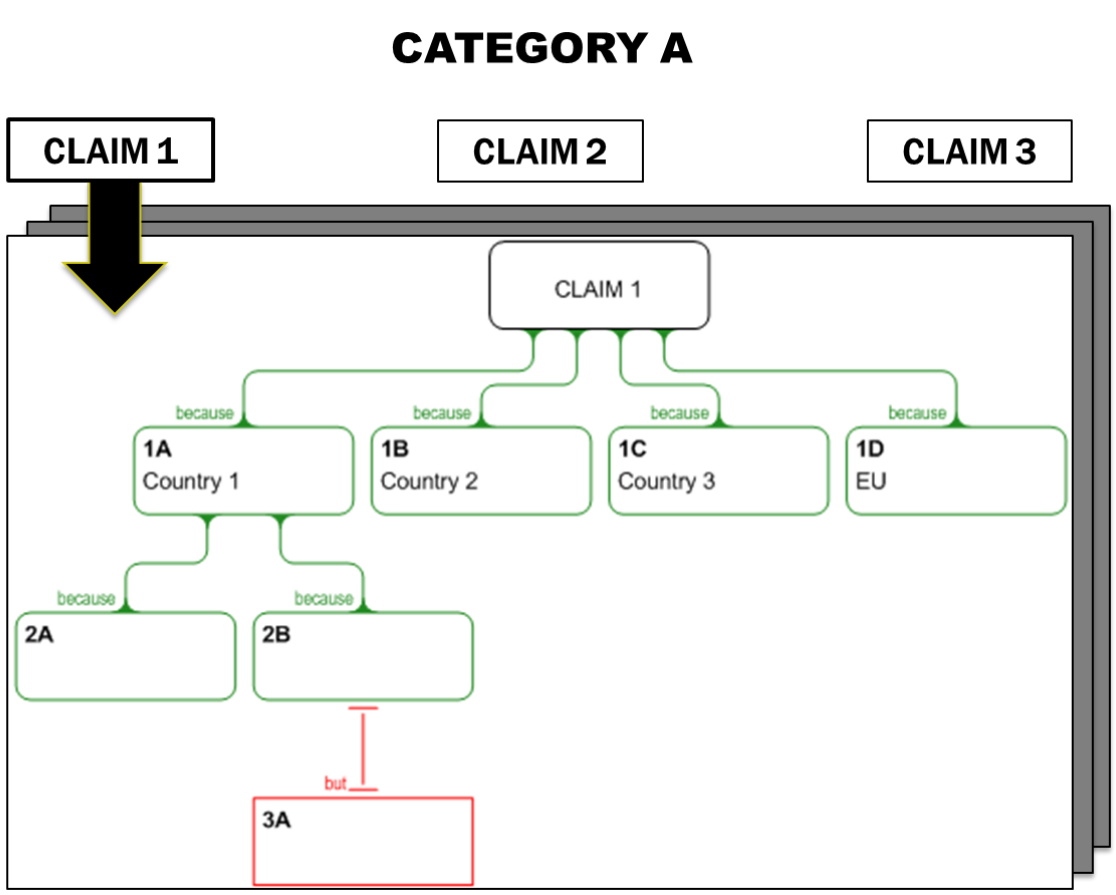


Figure 6: comparison of argument categories

When argumentation lines could fit several categories, as was often the case, they were put in the 3 most dominant categories to which they belong. These argumentation lines were then also included in their respective category maps.
Most recurrent arguments were not included in the argument maps unless they showed important differences in their built-up by putting more emphasis on specific aspects. Repetition can be a sign of the importance of an argument. Therefore our results cannot be interpreted as the importance each member state puts on argument categories. These results do however reflect the occurrence of these argument categories. Beside repetition, several other factors should be considered before making conclusions about the importance of arguments within Member States. For example factors such as the depth of argument lines (diversity of statements within an argumentation line) or the degree of influence of the document are important considerations.
In order to obtain a better overview of the differences and commonalities in argument categories overview tables were created, compiling percentages of argument category occurrence at Member State and EU levels. An average for the Member States was also calculated with the purpose of comparing with the EU. When calculating the member state average we took into account important variations in the amount of argumentation lines between member states. These variations can partly be explained by different levels of attention for biodiversity issues in Member States but also due to sample disparities related to type of selected documents and because of different interpretations of argument structures by logicians. To minimize the impact of

countries with very small amounts of argumentation lines, and avoid important interpretation errors, we used a weighted average of the member states. However, because absolute values should not be neglected, we took an average of absolute values and weighted values. In that way we obtained a good approximation of the average occurrence of argument categories across Member States. We have to stress however that these results are purely indicative and cannot be interpreted as statistically significant.

To compare the structure of a single category of arguments over several Member States or between member states and the EU, we chose to work based on a 3-order framework (as shown below). We draw on the 3 orders of Pascal –materiality, intellect and faith (Blaise 2003) and revisited by Comte-Sponville (Comte-Sponville 2004) who identified 5 orders: the technological-scientific order, the juridical-political order, the moral order, the ethical order and the Religious order. We also draw on Habermas notions of market state and organizations. This distinction of orders recognizes that argumentative statements are embedded in their own realms of rationality where they receive meaning. For example Jütten (Jütten 2013), interpreting Habermas, pointed out that "*individual behavior in market settings, the institutional order of markets and their regulation are not governed by the moral and political norms that govern other forms of social interaction, and (therefore) are in some sense beyond the scope of moral and political appraisal*". Using this distinction of orders allows us to identify predominant realms of rationality in argumentation categories by relating argumentative statements to their respective orders.

Due to the scope of the comparative study, we only used the first 3 (of 5) orders, which we will also refer to as realms of rationalities, as described by Comte Sponville:

1. 1st Order: the technical-scientific order: It is characterized by the distinction between what's technically or scientifically possible and impossible. In practice the technical order refers to what is technically possible or impossible given current knowledge. Economically, it refers to rules of the market. Scientifically it refers to what we can accept as possibly being true and what we shouldn't accept because it is certainly false. It is quite clear that this order has its own logic mainly based on scientific evidence or market rules for example. However it is also evident that this logic is unsuitable to organize society. Indeed, everything that is possible is not desirable on moral or societal grounds.
   The technical/scientific order tells us what we can do, not if we should do it. Without another order, the Gabor law holds: "anything that can be done will be done". Argumentative statements drawing on the first order are for example: '*The EU is one of the most fragmented continents of the world*' or '*Nature management is costly*'.

   Examples of rationalities in this order: *Economic rationality, instrumental rationality…*

2. 2nd Order: the juridical-political order: It is characterized by the distinction between legal and illegal. It is structured by what is allowed or not in a juridical context, and those who are able to make the law because they possess the power to do so (in a democracy because they have been elected by the citizens). The

democratic principle of sovereignty of the people seems to justify this order as self-sufficient. Its limits are less obvious but nonetheless existent. A government refusing to acknowledge the limits of the technical-scientific order (e.g. refusing to acknowledge what's economically impossible) can lead to major problems. On the other hand, doing everything that is required by law might make you a good citizen, but does not make you a good person or a responsible person per se on moral grounds. As Comte-Sponville (2004) summarizes it: '*a human being has more duties than a citizen*' and '*human beings have fewer rights than the juridical system allows them*'. Argumentative statements drawing on the juridical-political are for example: '*There is a political consensus about the importance of sustainability*' or '*International agreements binds us to action*'.

Examples of rationalities in this order: *Political rationality, Instrumental rationality …*

3. 3rd Order: the moral order: It is characterized by the distinction between good and bad. It is what should be done by individuals in an unconditional way. Although Comte-Sponville (Comte-Sponville 2004) proposes to limit this order by yet another order, we choose for the purpose of this analysis to use only the 3 first orders because they are the most relevant for the type of data (documents) we analyzed in the comparative study. Argumentative statements drawing on the moral order are for example: '*We have a responsibility towards future generations*' or '*Nature has an intrinsic value*'.

   Examples of rationalities in this order: *Value/belief rationality…*

Using a distinction of orders, or realms of rationalities, helps us to increase our understanding of an argument structure and how it relates to one or several rationalities. For example the notion of 'Responsible economic growth' draws on an economic concept (1st order), while 'responsible' draws on a moral concept (3rd order). As such it provides us with a means of looking beyond just topical differences and commonalities of arguments and identifying which type of reasoning predominates in argument macrostructures (see also textbox example).

ANALYZING THE ISSUE USING REALMS OF RATIONALITY

Example issue: *Open access to nature areas.*

Example of potential issues in each order:

Fences block access to nature area (1st order). Walking tracks are not maintained (1st order). Recreants are using their right to access (2nd order) but leave garbage on privately owned forest (1st order). There is a legislation gap that prevents accountability (2nd order) of recreants for the garbage. The recreants are mainly from a big city nearby and form a large voting group (2nd order). Some private owners have large land properties and possess large companies, providing employment to many (1st order). It is considered a moral imperative that people should have equitable access to green areas (3rd order). Currently entrance fees (1st order) or distances to public nature areas (1st order) reduce accessibility to poor people.

Tool: Building an argument map of a debate surrounding an open access issue allows to quickly identifying key argumentation lines, and determining which orders argumentative statements refer to.

Example in practice: A team of Australian researchers have developed an interactive tool based on the same principles of argument maps, but allowing stakeholder participation via a web interface. It provides decision makers with an overview of what they called the collective wisdom about an issue (ref: www.yourview.org.au).

5 Results

As we pointed out earlier, the aim of this comparative study was to compare the occurrence of written argumentation categories between governance levels, and more specifically at member state and EU levels. Furthermore we aimed to compare structure of similar argument categories based on a framework of three orders of logic. We have compared argument categories for each selected claim, between countries and between countries and the EU. We then reflected on a few general commonalities or differences between claims as well.

5.1 Comparison of argument categories

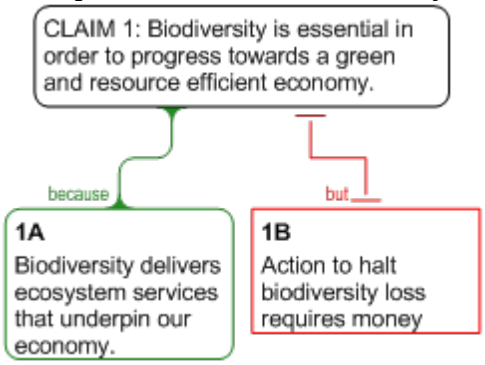
5.1.1 CLAIM 1

5.1.1.1 Overview

CLAIM 1: Biodiversity is essential in order to progress towards a green and resource efficient economy.

The importance of biodiversity for the economy is strongly emphasized in the biodiversity strategy 2020. In a foreword to the strategy, EU commissioner Potocnik stated: "*Biodiversity is essential for our economy and for our well-being*". The introduction text of the strategy also contains numerous arguments why biodiversity is important for economic reasons and concludes with the aim of the strategy: "(…) *reversing biodiversity loss and speeding up the EU's transition towards a resource efficient and green economy*", which also highlights the link between the Biodiversity Strategy 2020 and the EU Flagship for Resource Efficiency. The focus of this argument map is to represent the range of arguments used to clarify why biodiversity has an economical dimension.

Example from the EU Biodiversity Strategy 2020:



An important message in the EU biodiversity strategy is that biodiversity conservation is essential, not only for intrinsic (moral) reasons, but also for economic reasons (EESC 2007, EESC 2011). As a result, much attention is given in the strategy to economics aspects of biodiversity. For example, the introduction of the ecosystem services concept helps to achieve this emphasis on economic aspects because it provides a means to systematically describe the range of services an ecosystem

provides to society. The European Economic and Social Committee (EESC) stated however that despite the Commission's emphasis on economic arguments for biodiversity conservation, the "*results have been meager*" (EESC 2011), suggesting that this choice of arguments has not been very effective so far. Claim 1 reflects the importance of the link between biodiversity and a green economy in the Biodiversity strategy 2020. Due to the structure of the claim, it is not surprising that the argumentation category "Jobs, Innovation and Technology" generally contains the largest amount of argumentations lines. Overall Claim 1 is well represented in selected policy documents. But there are some differences in the range and depth of the supporting arguments. For example, Poland and Finland seems to have fewer references to the economic value of biodiversity and ecosystem services. Germany and England on the other hand, have much a much broader range of arguments, while Belgium and the Netherlands have slightly less (see also Table 1).

Table 1: Percentage of argumentation lines per argument category and per region; and average[3] of Member States

CATEGORY /REGION	Dependency	Jobs Innovation Technology	Cost of no action	Valuation (for decision)	Future prospectives/ generations	International (image)	Conservation doens't have to be negative for the economy	BD under threat, so action needed	Non Categorized (particular)	# argument lines
Germany	4,0%	32,0%	8,0%	12,0%	0,0%	0,0%	0,0%	12,0%	32,0%	*25*
Poland	20,0%	60,0%	0,0%	0,0%	20,0%	0,0%	0,0%	0,0%	0,0%	*5*
England	16,7%	8,3%	0,0%	37,5%	8,3%	4,2%	4,2%	4,2%	16,7%	*24*
Finland	28,6%	14,3%	14,3%	14,3%	28,6%	0,0%	0,0%	0,0%	0,0%	*7*
Flanders	7,1%	35,7%	7,1%	0,0%	7,1%	14,3%	7,1%	14,3%	7,1%	*14*
Netherlands	12,5%	31,3%	12,5%	0,0%	6,3%	6,3%	0,0%	12,5%	18,8%	*16*
EU	10,0%	20,0%	0,0%	10,0%	10,0%	0,0%	0,0%	30,0%	20,0%	*10*
Average Member States	13,5%	28,3%	6,8%	12,5%	9,7%	4,3%	2,0%	8,0%	15,0%	

5.1.1.2 Argumentation categories

Dependency

There was a strong emphasis in many argumentation lines, on the dependency of society in general and businesses in particular, on biodiversity and ecosystem services. This category was present in all the Member State documents. It formed an important part of the argumentation of Polish and English documents, although there was no big difference between the average of the Member States (13,5%) or the EU (10%) (see Table 1).

Jobs/Innovation/Technology

The argumentation category relating to employment (e.g. 'green' jobs), innovation and technology (e.g. 'clean' technology) was the largest category for Claim 1. Both Member States (28,3%) and the EU (20,0%) put much emphasis on these arguments. It was not unexpected, because these issues are strongly linked to the green economy concept.

Cost of no action

This category of arguments relates to the possible cost of 'doing nothing' to maintain biodiversity. It was a less important category for Member States (6,8%) and was not identified within selected EU documents. Mainly Finland, Germany, Flanders and the

[3] Average was calculated based on: 1)the weighted average of Member States depending on the total amount of argumentations lines they have and, 2)the average of absolute values (see methodology section).

Netherlands had statements relating to this category. Most of them emphasized the societal cost of, for example, resource overexploitation or neglecting biodiversity. Also the economic cost was highlighted in the Dutch and German documents.

Valuation (for decision making)

A strong component of the recent debate about ecosystems services is valuation of those services, especially in monetary terms, that should allow policymakers to make better informed decisions. We found argument lines relating to this category mostly in the English (37,5%), Finnish (14,3%) and German (12%) maps. The EU (10%) also emphasizes the capacity of ecosystem service valuation for improved decision making. Notable was the strong presence of valuation-related argumentation lines in England, most likely due to the UK-NEA[4] (one of the selected documents for the comparative study).

Future prospectives/generations

One common argument when referring to the need to protect biodiversity is the responsibility we carry to take action for the well-being of future generations. This argument was found in each Member State, although the German reference was not explicit (and therefore left out from the analysis). The average of the EU and Member States was almost identical (10% and 9,7% respectively), suggesting that this argumentation category was rather universal in Europe.

International (image)

The international category is more ambiguous. During the argument analysis we noticed there were numerous references to the responsibility of Member States or the EU for their international impact. Also the international reputation of regions was sometimes used as an argument (e.g. Flanders). Finally international agreements were also used as important arguments for action. For the latter, one could argue whether this is really an argument at all. Two aspects influenced our decision to consider this as a potential argument: first, international law and international agreements are not often binding or are known to have numerous 'escape routes' (i.e. ways and means not to follow the agreements strictly), and their legitimacy is often put into question as well in light off democratic principles. Secondly, referring to agreements issued from the 'upper' spheres of governance can be used to deflect responsibilities to other institutions, and for example avoid popularity loss for governing parties as they have to carry out controversial decisions.

We found statements relating to this category mainly in Flanders, but also in England and the Netherlands. There were some rather vague references to Nagoya in documents at EU level, but not clear enough to be included in the analysis. This was not unexpected since there are not so many agreements the EU could refer to at international level concerning a green economy. However there were however numerous EU regulations and agreements that Member States can refer to. There were some differences between Member States however, for example in the Netherlands development issues were referred to (e.g. poverty, hunger); in England the emphasis was on international impact, while Flanders was mainly concerned with its international image as a region.

Conservation doesn't have to be negative for the economy

One category seemed to answer the implicit question that 'conserving biodiversity has an economic cost, can we afford it?' Especially Flanders and England had argumentation lines relating to this category, suggesting for example that a healthy

[4] UK National Ecosystem Assessment: http://uknea.unep-wcmc.org/

environment is compatible with economic growth. We found no evidence of this category at EU level, although one could argue some argumentation lines implicitly address it, especially arguments in the Jobs/Innovation/Technology category.

Biodiversity under threat, so action needed

Pressures on biodiversity are recursive arguments used in the documents to underline the need for action. They can be very general (e.g. pressure on nature, overexploitation of natural resources) or rather particular to the context of certain regions (e.g. competition for space in Flanders and the Netherlands). The EU map showed numerous references to biodiversity threats and some Member States as well, particularly Flanders, the Netherlands and Germany. But overall the Member State average (8 %) is well below the EU (30 %).

Other (non-categorized) argumentation lines

There was an important range of arguments which could not be readily categorized. We discuss some of them here. For example a competiveness issue was referred to at EU but not at Member State level. However this is primarily a concern at EU level, in relation to a broader debate on competitiveness and 'over-protection' of EU markets. Similarly argumentation related to the achievement of EU objectives was frequently used at EU level, but not at Member State level.

Germany accorded much importance to genetic resources and tourism. The Dutch documents also mentioned genetic material as important.

Contribution to human wellbeing and recreation were mentioned in Germany, Finland and the Netherlands.

Arguments relating to stakeholder participation and political consensus were identified in England. Arguments about stakeholder participation linked to an emphasis on voluntary instruments and a general aim for less regulation.

Finally, Finland noted the interlinkages between biodiversity and ecosystem services and valuation of ecosystem services needed further research in order to achieve a green economy.

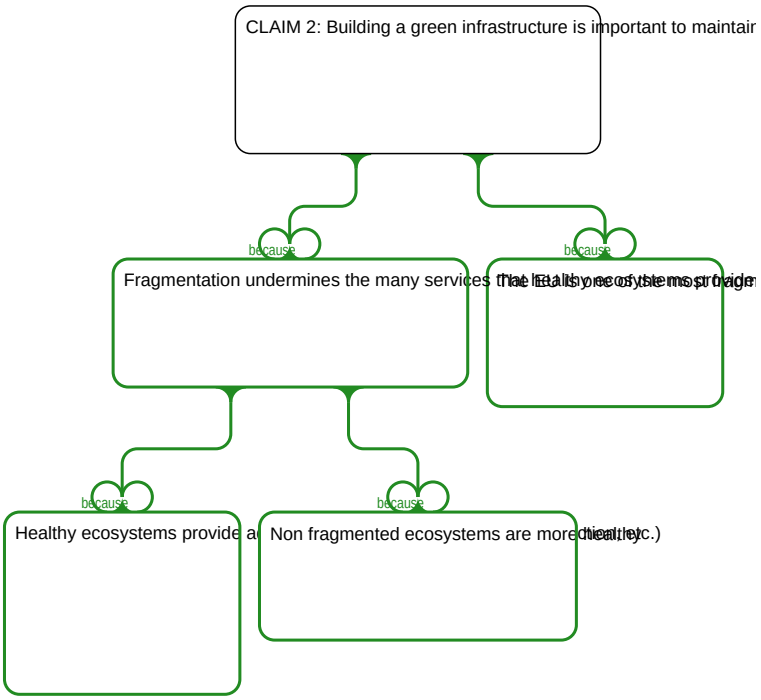
5.1.2 CLAIM 2

5.1.2.1 Overview

CLAIM 2: Building a green infrastructure is important to maintain biodiversity, but also beneficial to land users and society at large.

A large amount of fragmented natural areas constitute a major issue for biodiversity in the EU, especially in densely populated areas. So far, EU member States achieved mixed results in developing a green infrastructure to connect fragmented areas. The strategy contains now a number of arguments to demonstrate why a green infrastructure is beneficial for the health of ecosystems and the services they provide and therefore worth investing for. A shift is made towards including a more diverse range of arguments for the development of such infrastructure. Ecosystem services have a central role in this argumentation line at EU level (see Target 2 of the Biodiversity Strategy).

Example from the EU Biodiversity Strategy 2020:



The principles underlying the concept of green infrastructure has been on policy agendas for a relatively long period of time (since the 1970's), but it is still a relatively new EU policy instrument. With the rise of the ecosystem service concept, a strong(-er) emphasis was placed on the additional benefits of green infrastructure for land users and society. A shift is made towards the inclusion of a more diverse range of arguments for the development of such infrastructure. Important argument categories at EU level beside the ecological category are 1) the relation of ecosystem services and green infrastructure (category benefits & costs for society – ES, see table

2), 2) Jobs/Innovation/Technology and 3) green solutions (green versus gray category).
At Member State level, we especially noticed a strong presence of arguments relating to the need for a green infrastructure in England, but also to a lesser extent in Poland, Flanders and the Netherlands. Germany and Finland had less argumentation lines related to this claim.
For Claim 2, it is important to note that there is some confusion on the definition of Green Infrastructure. The document analysis and the interviews conducted for the comparative study showed discrepancies in the definition between Member States. This was also stated by the EESC: *"The EESC considers the use of a clear and easily understandable definition of GI to be an essential precondition for this publicity work. The definition used by the Commission does not fulfill this condition*" (EESC 2013).

Table 2: Percentage of argumentation lines per argument category and per region; and average[5] of Member States

CATEGORY /REGION	Ecological/BD	Climate change	International (convention/ regulation)	Pressure	Space optimization	Current efforts insufficient	Benefits & Costs for society (ES)	Jobs Innovation Technology	Green vs grey	Urban	Synergies with other policies	Non Categorized (particular)	# argument lines
Germany	14,3%	14,3%	0,0%	57,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	14,3%	*7*
Poland	60,0%	10,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	30,0%	*10*
England	7,5%	5,0%	7,5%	15,0%	7,5%	5,0%	17,5%	0,0%	2,5%	5,0%	10,0%	17,5%	*40*
Finland	12,5%	12,5%	0,0%	0,0%	0,0%	0,0%	25,0%	12,5%	0,0%	37,5%	0,0%	0,0%	*8*
Flanders	18,2%	9,1%	0,0%	27,3%	9,1%	9,1%	9,1%	0,0%	0,0%	0,0%	0,0%	18,2%	*11*
Netherlands	50,0%	10,0%	0,0%	0,0%	20,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	20,0%	*10*
EU	**13,6%**	**4,5%**	**9,1%**	**4,5%**	**4,5%**	**0,0%**	**22,7%**	**22,7%**	**9,1%**	**4,5%**	**4,5%**	**0,0%**	*22*
Average Member States	**24,0%**	**9,1%**	**2,4%**	**15,8%**	**6,5%**	**2,9%**	**10,1%**	**1,6%**	**0,8%**	**6,4%**	**3,2%**	**17,1%**	

5.1.2.2 Argument categories

Ecological/Biodiversity

Ecological reasons to establish a green infrastructure still acted as important arguments for the establishment of a green infrastructure. About 24% of the arguments used at Member State level can be grouped under this category, and 13,6% at EU level. Poland (60%) and the Netherlands (50%) put a strong emphasis on this argumentation category, while England seems to put much less (7,5%), in relation to other categories. However England still had a large amount of argumentation lines in this category if we compare absolute numbers between countries.
Connectivity, habitat protection and improvement, as well as network of nature areas were important terms used at Member State level. On the EU level more emphasis was put on improving ecosystem health in order to support ecosystem services.

Climate change

Anticipating and dealing with current impacts from climate change was an overall important argument category, and especially received a lot of attention (in comparison with the 2 other claims) in the debate about the need for a green infrastructure. All Member States documents had references to climate change, although England had relatively more argumentation lines in this category. The Member State average (9,1%) being higher than the EU (4,5%).

[5] Average was calculated based on: 1)the weighted average of Member States depending on the total amount of argumentations lines they have and, 2)the average of absolute values (see methodology section).

Climate change argumentation was however rather weakly developed, as the depth of the argumentation lines was relatively small (few supporting argumentative statements).

International (convention/regulation)

There was little reference to international conventions by Member States, except for England (7,5%) where arguments about international obligations and responsibilities are used. The EU (9,1%) on the other hand refers to decisions taken at the 10th Conference of the Parties (COP) held in Nagoya and its global 2020 targets.

Pressure

Similarly to Claim 1, pressure on ecosystems was an important argument to promote the need for a green infrastructure. Habitat fragmentation, scarcity of space, and declining biodiversity are common terms used in this argumentation category at both Member State and EU levels. Member States (15,8%) put more emphasis on pressures than the EU (4,5%), with Germany, Flanders and England being the main contributors. The relatively high percentage of Germany can be partly be explained by a rather low amount of total argumentation lines for Claim 2.

Space optimization

Several argumentation lines were found that referred to an optimal or efficient use of space by combining a maximum of functions for a nature area, such as biodiversity protection, recreation, landscape scenery, etc. Especially the Netherlands (20%) and Flanders (9,1%) used this type of argumentation, probably as these are both densely populated areas with a high demand on space. England (7,5%) also used this type of argumentation, albeit with a slightly different focus on the need for stakeholder involvement due to overlapping interests. At EU level this argumentation was also used as efficient land use, or the “ability to perform several functions in the same area” was tagged as key attraction of green infrastructure.

Current efforts insufficient

This argument category centers on the failure to achieve notable results and use it as an argument to step up efforts or propose alternative plans. Although this category was relatively small as it contained only few argumentation lines, we felt it was still important enough to be included. Especially England (5,1%) and Flanders (9,1%) referred to this category. England focused on the lack of implementation of policies and the need to step up efforts, while Flanders mentioned that the current green infrastructure network was too small.

There was no mention of this category at EU level. However there were several references to the failure of the 2010 strategy (see also Claim 3), which could be interpreted within this category.

Benefits and costs for society (ecosystem services)

This category is closely linked to the Claim content and was therefore expected to be the largest category at the EU level, which it was (22,7%) but together with the category: Jobs/Innovation/Technology (also 22,7%). The focus of this category is on the additional benefits and costs green infrastructure provides to society. These benefits were often expressed in terms of ecosystem services but not necessarily so. Surprisingly, only England, Flanders and Finland picked up this type of argumentation. As a result, the average value of Member States (10,1%) was much lower than the EU (22,7%).

Jobs/Innovation/Technology

Similarly to Claim 1, the EU showed much attention to jobs and innovation (22,7%) in relation to the development of a green infrastructure. For example the value of green infrastructure for the private sector was described and the potential high returns on investment. This category was sparsely identified at Member State level (Finland 12,5%), suggesting a potential difference between EU and Member State level.

Green versus gray

The green versus gray category refers to the benefits and cost of green solutions versus technical solutions to solve common environmental issues such as flooding, erosion, water purification, etc. Using green infrastructure as a green solution was identified as an emerging category at EU level (9,1%) but was very small at Member State level (0,8%). Only England had one argumentation line in this category.

Urban

Urban biodiversity and especially urban ecosystem services are rising concepts in the scientific literature and the general biodiversity debate. At EU level we identified argumentation lines relating to urban ecosystems and their potential for green jobs. But also at Member State level this concept was picked up by Finish (37,5%) and English (5%) documents. The relatively high percentage of Finland compared to England is explained by the low amount of total argumentation lines. As a new concept, its occurrence is still small overall.

Synergies with other policies

Several argumentation lines at EU and Member State levels emphasized the added value of green infrastructure to support other policies or political goals. For example, England stressed the ability of a green infrastructure to fit in government priorities and contribute to national and local identity. English documents also referred to the rise of the biodiversity conservation issue as politically important (implicit: to win votes). This category was relatively small at EU level (4,5%) and only picked up by England (10%).

Other (non-categorized) argumentation lines

There was a small range of arguments which could not be readily categorized at Member State level. We present some of them here.

Germany and The Netherlands referred to legislation and legal obligations as important drivers to take action and develop green infrastructure.

Poland mentioned a legal gap that causes problems to move forward.

England acknowledged intrinsic reasons to conserve and develop green infrastructure (e.g. ‘intrinsic value of landscape’), knowledge gaps in ecosystem service valuation to show the added value of green infrastructure, the history of their NGO conservation movement suggesting increased popularity of biodiversity, and the need for strong stakeholder partnerships for implementation.

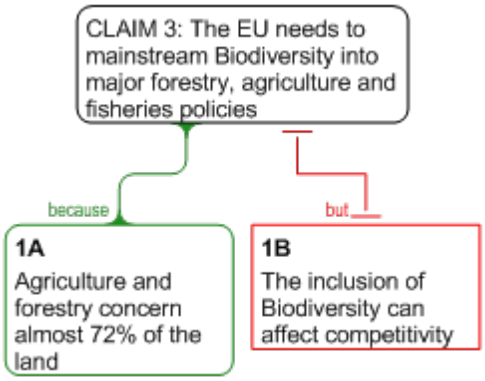
5.1.3 CLAIM 3

5.1.3.1 Overview

CLAIM 3: The EU needs to mainstream Biodiversity into major forestry, agriculture and aquatic/fisheries policies

Much attention is directed towards mainstreaming biodiversity into existing policies in order to increase the contribution of agriculture and forestry to maintain and enhance biodiversity. Especially the integration of Biodiversity targets in the Common Agriculture Policy is a major challenge. Target 3 & 4 of the Biodiversity Strategy 2020 illustrate the commitment of the EU to mainstream biodiversity into major agriculture, fisheries and forestry policies (e.g; Common Agriculture Policy, Common Fisheries policy, etc.).

Example from the EU Biodiversity Strategy 2020:



Claim 3 on the need to mainstream biodiversity into major policy areas shows that there is a strong emphasis on the agriculture, forestry and fisheries sectors at EU level. The EESC also pointed out that other sectors which have also important impacts on biodiversity, such as transport and urbanization, should also be taken into account in the biodiversity strategy 2020. One notable exception is maybe the rise of 'urban ecosystem services and biodiversity', which is not related to any of the three aforementioned sectors (see Claim 2, table 2).

The main motivation to mainstream biodiversity in other sectors is that biodiversity cannot be handled separately but should be managed within all the sectors which have an impact on biodiversity simultaneously.

Argumentation lines supporting Claim 3 were mainly found in England but each Member State had a reasonable amount as well. The Netherland and Flanders had the lowest amount.

Table 3: Percentage of argumentation lines per argument category and per region; and average[6] of Member States

CATEGORY /REGION	Coordination /Synergy	Pressure/Negative Impact	Importance/ Potential contribution to BD	Experience from 2010	Funding	Climate change/ Resilience	Decision making	Benefit/importance BD for other sectors	Current effort insufficient	Appropriate for ecosystem scale	Non Categorized	# argument lines
Germany	0,0%	8,3%	50,0%	0,0%	0,0%	8,3%	0,0%	8,3%	0,0%	0,0%	25,0%	*12*
Poland	9,1%	18,2%	36,4%	0,0%	0,0%	9,1%	9,1%	18,2%	0,0%	0,0%	0,0%	*11*
England	6,9%	20,7%	3,4%	0,0%	6,9%	6,9%	20,7%	6,9%	3,4%	10,3%	13,8%	*29*
Finland	0,0%	33,3%	8,3%	0,0%	8,3%	8,3%	0,0%	25,0%	16,7%	0,0%	0,0%	*12*
Flanders	25,0%	12,5%	25,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	37,5%	*8*
Netherlands	33,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	16,7%	0,0%	33,3%	16,7%	*6*
EU	**10,0%**	**5,0%**	**15,0%**	**10,0%**	**5,0%**	**0,0%**	**10,0%**	**10,0%**	**5,0%**	**10,0%**	**20,0%**	*20*
Average Member States	**10,7%**	**16,7%**	**19,2%**	**0,0%**	**3,2%**	**5,9%**	**7,0%**	**12,0%**	**3,6%**	**6,8%**	**14,8%**	

5.1.3.2 Argument categories

Coordination/Synergy

An important category of arguments stresses the benefits of creating synergies (win-wins) and reduce trade-offs between policies which have an impact on biodiversity. The EU for example emphasized the need for 'coordinated change'.

This category was picked up at EU level (10%) and Member State level (10,7%). Some Member States mentioned somewhat context specific argumentative statements however. For example Flanders referred to the 'high demand for space' to require cooperation between sectors. England acknowledged the need for an integrated approach because of the mix of policies typically needed to conserve biodiversity.

Pressure/Negative impact

This category contains argument lines which focus on the negative impacts of sectors on biodiversity, arguing that action should be taken within these sectors to mitigate these impacts. Agriculture and fisheries are the main sectors which are blamed for biodiversity loss. But also in the English maps more general pressures were highlighted such as economic growth, technological advances and consumption choices/needs.

The EU (5%) had limited argumentation lines in this category compared to Member States (16,7%), only referring to a high impact of these sectors on biodiversity. The Netherlands was an exception as no argumentation lines were identified relating to the need to mainstream biodiversity due to pressures.

Importance/ Potential contribution of sectors to biodiversity

Next to their impact, the potential contribution of sectors to conserve and increase biodiversity was an important category of arguments. At EU (15%) and Member State (19,2%) levels, it was the most important category of arguments. Germany (50%), Poland (36,4%) and Flanders (25%) had a large amount of argumentation lines related to this category.

A few statements (e.g. Poland, Belgium) referred specifically to how the knowledge spread over sectors could contribute to effective integration of biodiversity into policies and practices.

Experience from 2010 biodiversity strategy

A few argumentation lines at EU level mention past failures in the biodiversity strategy 2010 as pressing reasons to increase efforts to conserve biodiversity. This

[6] Average was calculated based on: 1)the weighted average of Member States depending on the total amount of argumentations lines they have and, 2)the average of absolute values (see methodology section).

argumentation category was only present at EU level (10%). It was however used regularly, acting as an important argumentation line. It is perhaps surprising that no Member State referred to past mistakes at EU level to emphasize the need to step up biodiversity conservation efforts, although it is evidently primarily a concern for the EU. Still Member States could have referred to their own past failures to urge action.

Funding

The lack of funds to implement biodiversity targets is often seen as a problem. A small amount of argumentation lines emphasized the benefits of mainstreaming biodiversity in other sectors to obtain new funds or to obtain consistent budgetary policies. For example contra-productive subsidies are seen as a major problem for biodiversity.

While the EU argued for a coherent budget policy which largely implies budget efficiency, Member States were more concerned by the possible costs of biodiversity protection (e.g. Finland) and the necessity to re-allocate funds towards biodiversity (e.g. England). Overall this category of arguments was rather small at EU (5%) and Member State (3,2%) levels.

Climate Change/Resilience

Biodiversity is seen as a means to increase the resilience of sectors such as agriculture (genetic resources) and fisheries (fish stocks). Several Member States (Germany, Poland, England and Finland) made also a link between the integration of biodiversity in policies and climate change. For example, English documents referred to future pressures from climate change to stress the need to mainstream biodiversity, but also pointed out that there is yet little evidence on how climate change could impact ecosystems. No argumentation lines were identified at EU level for this category.

Decision making

Mainstreaming of biodiversity into sectors, in order to improve decision making was mainly emphasized by England (20,7%) and Poland (9,1%). England mentioned the current undervaluation of ecosystem services in decision making and the opportunity to better identify win-wins by integrating biodiversity into relevant sectors. Poland stressed the subordinate role of biodiversity in economic decision making. The EU (10%) also acknowledged the potential of better decision making, stating that better information will help policymakers to better weight choices and “decide where to focus efforts”.

Benefit/Importance of biodiversity for other sectors

Previously we mentioned a category of arguments focusing on the potential role of sectors for biodiversity. This category of arguments relate to the inverse link of how biodiversity can contribute to other sectors. For example it was mentioned in some documents that biodiversity is important for the provision of forest ecosystem services (Poland), for bio-technology (Germany), or for the protection of genetic resources necessary to agriculture (Finland and EU). The EU more generally stressed business dependency on biodiversity and ecosystem services as well. Both at EU (10%) and Member State (12%) levels this argumentation category was well developed.

Current effort insufficient

The argumentation category on the need to take action because current efforts are not sufficient was also taken up in Claim 2. However the occurrence of this category was much smaller here than in Claim 2. Mainly Finland referred to legislation gaps and insufficient progress to protect biodiversity in forest habitats. England also mentioned a lack of action by stating for example that despite some pollution reductions there is still an important threat.

At the EU level we found statements about the failure of the 'business-as-usual'. Overall the occurrence of this category was rather small both at Member State (3,6%) and EU (5%) levels.

Appropriate for ecosystem scale

Another argumentation category emphasized the need to mainstream biodiversity into sectors in order to work at an appropriate scale to manage ecosystems. For example England stressed that political boundaries do not reflect ecosystems and that a narrow sectoral approach does not align with the multifunctionality of ecosystems. The Netherlands also mentioned the need for a cross-sectoral approach in all "relevant" sectors and even cooperation beyond Member State borders. Similarly, the EU acknowledged that biodiversity is a collective conservation challenge and that mainstreaming biodiversity would help to achieve better results at the landscape level.

Other (non-categorized) argumentation lines

In the EU map, we found statements about the contra-productivity of policies in relation to BD. Surprisingly there were not direct statements in member state maps about this issue. Although one could assume it was implied in statements relating to the need to improve policy coordination or achieve a coherent budgetary policy (funding category). Also the EU identified mainstreaming as an opportunity to be able to reward land users which manage their lands above cross compliance.

Flanders strongly emphasized the added value of mainstreaming to enhance stakeholder- participation, -support and achieve shared responsibilities. The Netherlands also mentioned stakeholder support as an important benefit.

England referred to their aim to achieve international leadership in biodiversity issues and identified some knowledge gaps, albeit claimed that these should not prevent progress.

German documents suggested that alternative agriculture practices (e.g. extensive agriculture) are able to combine biodiversity targets with economic needs, and stated that much of the fauna and flora from extensive agro-ecosystems common in the 1950's could be regained.

5.2 Summary comparison argument categories

CLAIM 1

- Overall, the EU and Member State argumentation lines were quite uniform, with perhaps a slightly stronger focus of the EU documents on threats for biodiversity.
- Germany and England had the highest numbers of argumentation lines for this Claim
- Jobs/ Innovation and Technology was the most dominant category of argumentation lines, with Germany having the largest share of argumentation lines in that category.
- England also had a strong focus on the valuation for decision making category

CLAIM 2

- The focus of Member States and the EU was slightly different, although for both the "ecological" and "benefit and costs for society (ES)" categories were important. Member States emphasized more the former and the EU the latter.
- England had (by far) the largest amount of argumentation in this claim. Other Member States had less argumentation lines, but similar amounts to each other.
- The category "Jobs/Innovation/Technology" was important at EU level and much less so at Member State level. However some different interpretations of the benefits from green infrastructure within documents increased this difference.
- The "Space optimization" category is particularly important in Flanders and the Netherlands, two densely populated areas.
- Poland referred relatively much to the "ecological" category, while England emphasized relatively much on "pressures" and "benefits & cost for society (ES)"
- New concepts ("urban" and "green vs gray") were picked up at each level (EU and Member States). The "green vs gray" argument category was however poorly represented compared to Member State documents.

CLAIM 3

- Overall, the EU and Member States had a rather uniform spread of argumentation lines within categories. Some slight differences could be found as the EU emphasized more on past mistakes in the biodiversity strategy 2010, and less on pressures on biodiversity.
- England had the most argumentation lines in this category, while other Member States had a relatively even number of argumentation lines.

- England had a relatively strong focus on the “pressures” and “decision making” categories. Germany and Poland referred more on the “Potential contribution to biodiversity” category.

General conclusions

- All three EU claims were represented in all Member States, albeit with sometimes important differences between Member States.
- Overall, there were no big differences between the average occurrence of argumentation lines in Member States and the EU. The focus of certain Member States on specific argumentation lines compared to other Member States can best be explained by context (e.g. population density, political ideology, etc…)
- Some argument categories were strongly related to the claim contents, but some could be found across all claims. For example threats for biodiversity and climate change were recurrent in argumentation lines.
- The type of document played an important role. Overall there seemed to be a trend that binding documents contained much less argumentation than less binding documents. For example a policy plan contained usually more argumentation categories than a political brief. Advisory reports, scientific assessments (e.g. UK NEA) and Government White papers contained the broadest range of argument categories.

Social groups and institutions provide environments in which specific arguments can flourish. Toulmin et al. (1958, 1984) introduced the notion of "field dependency" of arguments. For instance, they acknowledged that arguments from the legal field are not necessarily well suited to other fields using different argumentation rationalities. Bouwmeester (2013) emphasizes this when he points out that: "*The force of arguments used by proponents or opponents of a strategic decision is critically dependent on the 'fit' between the kind of rationality embodied in their arguments and the context provided by the argumentation field*".

The type of arguments used in a debate is a reflection of what the arguer deems to be appropriate argumentative statements in that particular context. The strength of the argument therefore results from the ability to make coherent arguments within one or several given realms of rationality and depends on the rather subjective perception/framing of the context in which the argument is to be used (field dependency). This fit, as described by Bouwmeester, becomes increasingly complex as debates often intertwine several argumentation rationalities (e.g. economic rationality, value rationality, etc.). Participants to a debate may adapt their arguments to dominant rationalities or attempt to change/weaken dominant rationalities.

In the Comparative study we chose to use three argumentation rationalities based on previous work from B. Pascal, J. Habermas and Comte-Sponville, to help us understand the intended meaning of written arguments: the technical-scientific realm which includes economic rationality, the juridical-political realm and the moral realm (see also methods section). We chose to use the term 'realms of rationality' because we recognise that these realms contain arguably several sub-argumentation rationalities. For example the notion of 'fair prices' draws on an economic concept (technical-scientific realm), while 'fair' draws on a moral concept (moral realm). As such it provided us with a means of looking beyond just topical differences and commonalities of argument categories and identify which type of reasoning predominates in argument macrostructures. A next step, subject to future research, would be to investigate whether the dominant realms of argumentation used by policy makers in documents, coincide with the dominant realms of argumentation their key-stakeholders operate in. As several authors pointed out, "*controversial decisions tend to be plagued by dilemmas that stem from conflicting rationalities*" (Diesing, 1976; Healy et al., 2010; MacIntyre, 1988). A better understanding of rationalities used a various governance levels for a given issue helps us to address the right questions and improve decisions.

5.3.1 Comparing rationalities in argument maps

We found there is a strong emphasis on arguments from the technical-scientific realm of rationality and specifically on the *economy-nature* relationship. Scientific facts and economic principles form the main body of evidence supporting statements and we can observe specific facts used for each country, relating to local issues (e.g. high fragmentation in countries with population densities). More concretely arguments related to the creation of green jobs and the stimulation of eco innovation are numerous. This emphasis on arguments with an economic rationality is for example reflected by the process that resulted in the selected claim about a green economy (Claim 1, see also method) but also by the range and diversity of arguments used in related categories of arguments (e.g. economic valuation, small impact on economy, cost of no action etc.) in comparison to other categories.

A lower emphasis was found on arguments issued from the juridical-political realm of rationality. The most remarkable argument category in that sense is the "*international agreements*" category found mainly in the maps from Claim 1 and 2. It includes argumentative statements which draw upon international conventions (e.g. CBD) as a reason to support particular argumentative statements, simultaneously underlining the increasingly blurred distinction between domestic and international regulations and raising unanswered legitimacy questions (Wessel and Wouters, 2007). Arguably, some argument categories (e.g. green jobs) could be considered political ones as they form recurrent election themes for politicians, albeit the structure of the argumentative statements does not allow us to conclude this at first sight. This does however show that the rationality of an argument can be explicit or hidden, and even consist of overlapping rationalities (in this case economic and political). Only in the England were there a slightly more diverse amount of argument categories relating to the 2nd order.

Arguments issued from the moral realms of rationality are poorly represented, with an exception for arguments relating to the responsibility of humankind for future generations. The low amount of moral arguments can largely be explained by the nature of the claims used for the comparative study. They have but little overlap with explicit moral questions. Nonetheless, these claims are a reflection of the key messages within the biodiversity strategy 2020 and therefore reflect a low priority for claims directly connected with moral issues. A possible general explanation why moral statements are not explicitly used in documents is that people typically do not communicate readily about moral values to one another (Yanow, 2000). Govier (1987) pointed out that albeit beliefs and values might not been explicitly stated, they are essential knowledge in order to understand an argument as intended. The question then rises whether the lack of arguments embedded in the realm of moral rationality is due to a lack of moral concerns about issues such as nature and biodiversity or to a contemporary dominant technical-scientific rationality to which arguers adapted by using arguments with mixing rationalities (e.g. economical and moral). The latter seem to be the case as we found tacit references to moral aspects in some argumentative statements. For example 'responsible economic growth' or 'equitable access' combine concepts form the 1st order (economic growth and access) with moral values (responsibility and equitable). But never are these statements supported based on explicit 3st order statements. It seems therefore that moral issues, albeit important enough to be included, can be considered to be more controversial or less relevant for authors of policy documents.

6 Policy relevance

6.1.1.1 Visualize, communicate about, and achieve a better understanding of complex debates

The main advantage of an exercise such as the comparative study is no doubt that is provides decision makers with an overview of a complex debate. Rendering complexity in manageable formats greatly helps understanding of complex issues but also communication about those issues. But argument mapping is not only providing a visualization benefit. The process itself has its value because it allows logicians to consistently infer implicit argumentative statements, often taken for granted by certain groups or purposefully left out of documents. Rendering implicit statements is important for two reasons: first, to properly understand an argumentative discourse one needs to take into account the written text (explicit) but also these characteristics 'which are left understood, and which can be inferred trough the consideration of the social context within which this discourse is fashioned' (Simosi 2003). Secondly, by rendering implicit statements, they become available to the discussion.

6.1.1.2 Focus argumentation where it is needed

From the comparative study we can see that certain argumentation categories are well spread across the EU and Member States. For example in Claim 1, most argumentation categories are more or less equally present at each level. For Claim 2 however, there are important gaps between Member States and the EU. For example the argumentation category about the benefits and cost for society is poorly represented at Member State level. This gap between the EU and Member States can mean several things:

- that increased efforts should be diverted towards that category or,
- that the category is relevant only for the given context (governance level),
- that the category is not effective.

6.1.1.3 Identify conflicting arguments and develop appropriate argumentation

Acting rationally improves decision making effectiveness and quality (Elbanna and Child 2007, Bouwmeester 2013). However there are a rather large number of rationalities on which argumentation can be build and legitimized (e.g. political rationality, economic rationality, bounded rationality…). In the comparative study we choose to work with 3 realms of rationality, as we found these to be appropriate to analyze the biodiversity strategy. But there are alternative rationalities that can be used, for example Bouwmeester (2013) uses instrumental, social and expressive rationalities for respectively 3 different contexts: the field of objective, intersubjective and subjective issues.

More than often, in complex situations, several rationalities are used to support argumentative claims. Especially when debates reach large audiences with a high variety of stakeholders, the mix of rationalities will increase. To communicate effectively and build strong arguments in such an environment requires decision makers to distinguish the main rationalities which drive the debate, and especially identify in which of those rationalities are the main sources of conflicting or diverging argumentative discourses. By adapting the arguments to the relevant rationalities used

in a given context, decision makers can greatly improve the strength of these arguments.
Identifying rationalities used in a debate is however a difficult task. As Comte-Sponville (2004) pointed out, rationalities are not always explicit. In his example about 'fair prices' (see also method section) it is clear that a moral issue (fairness) is mixed to a debate where the dominant discourse rationality is economic (prices). If 'fair prices' is an important issue in the debate, then decision makers should make sure to focus their argumentation on moral aspects as well. Trying to solve an essentially moral conflict with arguments embedded in an economic rationality is likely to yield little results, or even generate strong opposition. Arguably, one could say that opposition to the ecosystem service concept at some local governance levels is due to the perception that ecosystem services is mainly about the economic valuation of nature, while the dominant rationality to protect nature at that level might be moral (e.g. intrinsic value of nature).
A suggested approach would be to identify in which realm of rationality (order) there are conflicts (available tool: argument mapping), identify which conflicts should be addressed (strategic decision), and develop argumentation addressing the conflict in one or several orders, and which fits the audience context.

7 Limitations

A comparative study of arguments on the scale of Europe is an ambitious endeavor. To ensure consistency and ultimately comparable argument maps, a research protocol was developed and intensively discussed at project meetings. Hereafter we discuss some essential aspects of our approach, specifically how uncertainties and challenges were overcome.

Document selection

Document selection was not based on a fix timeframe (e.g. between 2000 and 2013) but rather on actual relevance, based on expert opinions through interviews (see method). Therefore the time range of arguments covered is quite large, and comparability can be put into question. However, it makes more sense to compare currently influential policy documents rather than most recent documents. In the latter case one might conclude there is a strong overlap of arguments from EU to national levels, based on documents which have perhaps little effective political or policy relevance.

Comparability of argument maps

The documents analyzed in the comparative study are usually quite large and often contain argumentative reasoning that is difficult to identify because it's implicit. As a consequence, the likelihood that logicians can interpret or select statements differently is high. Inter-coder reliability was therefore a major concern throughout the study to ensure a common and consistent approach across all cases in the study. To enhance inter-coder reliability close cooperation between researchers was necessary to discuss mapping methods and clarify inconsistencies. Three sessions on argument maps, in Ispra to prepare for data collection and discuss interview and argument mapping methods, in Sevilla to discuss argument maps and analysis, and in Gödöllő to discuss final argument map results and final analysis, allowed exchanging experiences and reaching a common understanding on methods. Additionally the maps have gone through a review process in close cooperation with the authors.

However, using the same terminology and methods is not enough to ensure map quality. Map structure is also highly dependent on knowledge about contextual information. Kneupper (1978) suggested that logicians should also be ethnomethodologists in order for their '*reconstruction of the arguments examined to approximate the meaning of the argument, as intended by the arguer himself*'. We therefore actively drew on the affinity of our international research team on the context of their respective member states, but also relied on key informant interviews to provide insights on document context. Minimizing personal interpretations of arguments was an important challenge for this study although we also recognized that any given argument is subject to interpretation by its audience. Nevertheless, implicit statements are sometimes difficult to objectively add to the maps. As Simosi (2003) suggests, they can often be inferred using a combination of other (explicit) statements. But they also require a great deal of understanding of 'shared values, beliefs' and 'common knowledge'.

Using pre-established claims as starting point for member state argument maps also leaves room to interpret whether argumentative statements in documents support these claims or not. The 2 first layers of the argument maps do not necessarily follow the structure of the argumentation of the analyzed document. As Homer-Dixon and Karapin (1989) put it in their reflection on argumentation graphs:"*(…) an analyst with a different critical purpose, (…), could produce a different yet equally reasonable graph. Since the analyst's purpose affects many aspects of graph construction (such as the connections made between elements, the extraction of relatively implicit elements, and the selection of areas to graph in detail), not only can graphs be best created if this purpose is clearly understood, but they can be defended only with reference to it.*"

Terminology

Different or similar discourses and concepts intersect within debates. Uncertainties and confusion arise when concepts are interpreted or used differently by participants. Different interpretations of a concept can result from different levels of understanding of the given concept (some concepts are more complex than others) or simply because these concepts are used in different contexts (field dependency).

The claims used for the comparative study explicitly referred to biodiversity. However in documents there is a high variety of terms relating to biodiversity, ranging from general terms such as nature and green space up to specific terms such as ecosystem services or landscape features. The choice of terminology is largely dependent on the document type and its intended audience. Political documents for example will typically use more general terms. The challenge for the logician is to understand whether the authors are also implicitly including biodiversity aspects, whether consciously or unconsciously. Logicians had to rely on their expert knowledge about documents and interviews with key informants to determine if general statements about nature could be put in relation with biodiversity claims. Also, due to the unclear relationship between biodiversity and ecosystem services, the link between specific statements about ecosystem services and statements about biodiversity is difficult to determine. Arguably authors have their own conceptions about the strength of the biodiversity-ecosystem services link. An internal review of argument maps allowed us to minimize interpretations on terminology as well. Confusion also arises due to uncertainties about specific definitions, such as was the case with Claim 2, about the need for a green infrastructure. Due to different

interpretations of a rather vague definition of green infrastructure there are important discrepancies between Member States.

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