Emerging ecosystem services governance issues in the Belgium ecosystem services community of practice

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## a b s t r a c t

In this paper we will focus on how governance issues are being dealt with in the BElgium Ecosystem Services (BEES) Community of Practice and on some Belgian Ecosystem Services (ES) research projects aimed at policy or practice support. As ES governance is still mainly an aspect of policy or practice oriented research, we will speciﬁcally focus on method and methodological decision making. The system or systems we aim to govern are complex. But also the governance processes are inherently complex. How do we take this complexity into account in decision support? Do we acknowledge complexity in our approach or do we drastically simplify and reduce it to relatively simple proportions? The methodolo- gical approach of decision support methods is open for debate as neither crystal clear nor undisputed yardsticks for best practices exist. On an ambition level, BEES members generally seem to prefer trans- disciplinary as well as inclusive valuation approaches, though not exclusively in all circumstances. In Belgium research projects, similar to the developments within BEES, from a research practice dominated by scientists, gradually research processes are opening up to transdisciplinary collaboration. Simulta- neously these processes gradually shift from mainly top down approaches to bottom up approaches or hybrid combinations of both entry points. A closer and more nuanced view shows that real transdisci- plinary collaboration in Belgian ES research still is only at the beginning. Partly this can be explained by the fact that inter- and transdisciplinary approaches are perhaps more realistic, but also have to deal with more social complexity. New balances have to be found between sophistication and pragmatics. Also the role of science can become more ambiguous: the closer to stakeholders, the more an independent role can be questioned. Regarding ES valuation methods, in general a trend towards more inclusive valuation is clearly noticeable in Belgian ES research, inclusive in the sense of a diversity of ES valuation aspects to be taken into account, diverse types of expression of value(s), a combination of quantiﬁable and quali- tative information, and a diversity of valuators by way of more bottom-up approaches. Still, there are quite some differences between projects and challenges for integration.

* 1. Introduction

In this paper we will focus on how governance issues are being dealt with in the BElgium Ecosystem Services (BEES) Community

of Practice (CoP). We will focus on the CoP and on some Ecosystem Services (ES) related research projects of members of BEES, in which ES policy or practice support is a key feature. As ES gov- ernance is still mainly an aspect of policy or practice oriented re- search, we will speciﬁcally focus on method (how to take into account ES in practice?) and the methodological decision making process (who was involved in problem framing, choosing the re- search approach, developing methods etc.). (1) We will brieﬂy introduce ES governance and highlight developments in policy practice and in science relevant for the discussion of Belgian ES governance. (2) We introduce BEES and focus on governance as- pects. (3) We introduce several Belgian ecosystem services re- search projects of members of this community and focus on methodological decision making. (4) We will draw some conclusions.

* 1. *Ecosystem services governance*

With the introduction of the concept of *ES*, proponents of nature and biodiversity conservation aim to demonstrate the im- portance of nature and biodiversity for mankind (e.g. [Cowling](#_bookmark15) [et al. (2008)](#_bookmark15) call it *a mission-oriented discipline*). As such, the conservation community hopes to convince society of the need and urgency to take action. A dominant strategy for this purpose seems to be one way conviction by means of establishing an evi- dence base. The question is if this is realistic. In trying to connect this body of evidence and conviction to 'others’ and ‘their’ way of doing things (individual or household or company behaviour, governance in different sectors and at different levels), this largely one-way communicative approach seems to underestimate its limitations: the issue of ES is only partly a knowledge (or scientiﬁc or ‘truth’) issue, it is also an issue of social debate and of governance.

Whereas *governing* refers mainly to governmental steering and top down management of society, *governance* refers more to the social process of acting, interacting and decision making. ([Lee](#_bookmark32) [2003](#_bookmark32)) refers to it as *social coordination*: “*solving social problems by coordinating interactions of various actors*”. This means that it is not necessarily limited to formal governmental institutions or the work of policy makers only. It could also refer to corporation management or local communities, or even households. As all of these actors potentially play a role in or are inﬂuenced by eco- system governance, or can be considered actors and/or stake- holders in other societal domains, sectors, activities that (poten- tially) have some relation to ecosystems and their services, it is clear that we may speak of a potentially rather complex con- stellation, linking quite some diversity of contexts, actors, interests and relations. Moreover according to [Jordan (2008)](#_bookmark41)“*governance is not normally tied to a particular period of time or geographical place; it is a concept that travels easily across these categories*”. [Hooghe and](#_bookmark33) [Marks (2003)](#_bookmark33) refer to this as *multilevel governance* (. The challenge of how to institutionally arrange ecosystem governance urges us to pose and try answer quite some important questions such as:

1. *What* to govern: nature and society; issues, problem framing; policy options, priorities, …;
2. *Who* is relevant: stakes, power; beneﬁts, burdens;
3. *Who* should be involved: which groups, actors, stakeholders;
4. *When* should actors be involved: e.g. at which phase of the governance process, such as issue/problem framing, research/ process design, research, social/policy interpretation, deﬁnition of policy options, prioritization, practical action, evaluation;
5. *Where* should actors be involved: e.g. which policy level, spatial scale or sector of society;
6. *Why* should actors be involved: e.g. do we involve local actors because they have a democratic right to be involved or because

we need their support for the legitimacy of the governance process, or because we need their local knowledge or because we want to raise their awareness?

1. *How* should actors be involved: e.g. voluntarily, top down or bottom up, by which rules, how is power distributed;
2. *Based on which information:* which and whose data or knowledge.

Attention for and development of governance in real-world practice is urgently needed according to several scholars in the dynamic ﬁeld of ecosystem services ([Cowling et al., 2008](#_bookmark15); [Daily](#_bookmark19) [et al., 2009](#_bookmark19); [de Groot et al., 2010](#_bookmark20); [Haines-Young, 2011](#_bookmark28); [Fish, 2011](#_bookmark21)). These scholars realize that the ‘*speaking truth to power*’ strategy (as coined by [Jasanoff (1990)](#_bookmark37)) is an oversimpliﬁcation of the social complexity of ecosystem governance issues ([Lebel et al., 2006](#_bookmark30)). We will now further focus on two governance developments we consider relevant for the discussion about ES governance in Bel- gium: governance developments in policy practice and in science.

* 1. *Governance in policy practice*

‘Governance’ encompass a wider, more inclusive and extensive set of perspectives on institutional arrangements than ‘governing’ or ‘government’ ([Keune et al., 2013d](#_bookmark50); [Voß and Bornemann, 2011](#_bookmark50); [Lee, 2003](#_bookmark32); [Hooghe and Marks, 2003](#_bookmark33); [Kemp et al., 2005](#_bookmark43); [Kittha-](#_bookmark24) [nanan, 2006](#_bookmark24); [Jordan, 2008](#_bookmark41); [Kluvánková-Oravská et al., 2009](#_bookmark25)). Andrew Jordan mobilizes [Rosenau (1992)](#_bookmark43) to give an account of the differentiation between both conceptualisations: ‘*Both [governance and governing/government] refer to purposive behaviour, to goal or- iented activities, to systems of rule; but* ‘*government*’ *suggests activ-*

*ities that are backed by formal authority (*…*) whereas* ‘*governance*’

*refers to activities backed by shared goals that may or may not derive from legal or formally prescribed responsibilities. (*…*)* ‘*Governance*’*, in*

*other words, is a more encompassing phenomenon than* ‘*govern- ment*’*. It embraces governmental institutions, but it also subsumes*

*informal, non-governmental mechanisms (*…*) whereby those persons*

*and organizations within its purview move ahead, satisfy their need and ful*ﬁ*l their wants.*’ In other terms, whereas ‘governing’ refers quite explicitly to a theory of public intervention that favours public authority-based – aka governmental-steering of societies, ‘governance’ refers to the soci(et)al processes of acting and inter- acting in decision making, in implementation and in evaluation of public policy. ‘Governance’ hence accounts for a less linear, less one-directional, less instrumental, less substantive, less exclusive relationship between public authorities and their subjects.

To unambiguously deﬁne *governance* is a challenge ([Keune et al.,](#_bookmark48) [2013c](#_bookmark48)): according to [Jordan (2008)](#_bookmark41) it is one ‘*of the most essentially contested terms in the entire social sciences*’. But perhaps to deﬁne it narrowly would also be a pity: as with other rather vaguely deﬁned ‘*buzzwords*’ like ‘*sustainable development*’, by deﬁning it too narrowly one runs the risk of excluding, rather than including a diversity of those actors, groups, one would want to involve, to join forces with, one might lose an audience ([Hajer, 1995](#_bookmark31); [Jordan, 2008](#_bookmark41)). We perceive governance as an important challenge, open for debate, with options to invent and choose from, with practical relevance for ecosystem services, but without an unambiguous clear deﬁnition or roadmap.

From an overview of a diversity of relevant governance ap- proaches and conceptualizations, both ES speciﬁc and more gen- eral ([Keune et al., 2013c](#_bookmark48)), several choice elements and challenges stand out, commonly captured under the notion of complexity. The system or systems we aim to govern are complex. But also the governance processes are inherently complex and therefore difﬁ- cult to capture or steer in terms of effectiveness. Some key attri- butes and challenges of governance arrangements follow from the complexity challenge ([Keune et al., 2013c](#_bookmark48)). First, taking into ac- count complexity is an important step as such: not only ecological

complexity, but indeed also social complexity, and best in an in- tegrated manner. This challenge still seems prominent in the ﬁeld of ecosystem services. Second, a turn from characterizing gov- ernance arrangements to assessing their problem-solving poten- tial, or in other words their effectiveness. Thirdly, adaptive man- agement or learning by doing approaches seem to be favoured by most approaches. In order to deal with complexity and also adapt to changes, fourthly balances between several dichotomous traits such as formal–informal, stable–ﬂexible and top-down–bottom- up have to be found. Fifthly, it seems that governance regimes that are characterized by more complexity and diversity of the above mentioned traits may have a higher adaptive capacity. Sixthly, context dependency is important to take into account, both when designing, when applying and adapting, and in assessing govern- ance processes. Finally, governance explicitly refers to practice: governance is about doing, is about real life, it is not only about academic discussions. And, importantly, *ecosystem governance is open for discussion*.

* 1. *Governance in science*

Dealing with complexity means that the knowledge component of governance is crucial: scientiﬁc underpinning of policy and prac- tice options. It is a long way though, from scientiﬁc knowledge to concrete policy action ([Keune and Dendoncker, 2013](#_bookmark53)). Along the way many decisions have to be made. A lot of these decisions relate to setting priorities: given that one can do a lot but not everything, one has to choose. Framing complexity is a crucial aspect of any ecosys- tem services approach: how do we deal with ecological and social complexity? The complexity to be taken into account and the ap- proach for dealing with that complexity is part of context speciﬁc negotiation amongst actors involved in the process of investigation and interpretation, and as such becomes negotiated complexity.

The relation between the natural environment and humans is highly complex and still poorly understood ([Liu et al., 2007](#_bookmark38)). In case of ecosystem services the complexity is partly caused by the interdisciplinary nature of the issues ([Haines-Young, 2011](#_bookmark28)): both natural and social sciences have to be involved and different subject areas need to be integrated. This interdisciplinary chal- lenge is huge at the level of coupled human and natural systems ([Liu et al., 2007](#_bookmark38)), let alone in the young ﬁeld of ecosystem services. Complexity moreover causes the potential array of policy options to be diverse and difﬁcult to objectify due to uncertainties, am- biguity, ignorance and indeterminacy, which challenges the evi- dence base for ecosystem services management ([Fish, 2011](#_bookmark21)). But the challenge is also trandisciplinary in nature as a new level of complexity ([Fish, 2011](#_bookmark21)) comes into play when interpreting knowledge for society, when linking to decision-making processes. We move here from “knowledge about” to deciding “what is im- portant”. This not only brings a diversity of societal sectors into play, as ecosystem services relate to different aspects of society and thus to various policy ﬁelds. This also brings into play a di- versity of interests and stakes.

How does one take this complexity into account in decision support? Does one acknowledge complexity in the approach or does one drastically simplify and reduce it to relatively simple proportions? The methodological approach of decision support methods is open for debate as neither crystal clear nor undisputed yardsticks for best practices exist ([Lindblom and Cohen, 1979](#_bookmark39); [Rosenhead, 1989](#_bookmark45); [Weiss, 1991](#_bookmark51); [Marakas, 1999](#_bookmark40); [Belton and Stewart,](#_bookmark16) [2002](#_bookmark16)). The challenge is not only to do justice to the complexity of many decision-making issues and processes, but also to do this as pragmatically as possible.

Already in 1989 Rosenhead sketched the need for an alterna- tive methodological paradigm for dealing with issues that are characterized by “*complexity, uncertainty and con*ﬂ*ict*”. Almost

simultaneously [Funtowicz and Ravetz (1990](#_bookmark24), [1991](#_bookmark25), [1994)](#_bookmark26) presented their critique on normal science, pleading for a post-normal para- digm in cases when “*facts are uncertain, values in dispute, stakes high and decisions urgent*”, and do so by referring mainly to environmental issues. Funtowicz and Ravetz build upon the concept of normal sci- ence, as coined by Thomas [Kuhn (1962)](#_bookmark27), and describe it as puzzle solving within a scientiﬁc paradigm that is not disputed as such, clearly stipulating how the scientiﬁc endeavor should be performed as to solve problems, or more in general deﬁnes the truth. The al- ternative of post-normal science, especially applicable to complex issues, focuses on aspects of problem solving that are often neglected in traditional normal science: uncertainty and values. Funtowicz and Ravetz plead for a wider involvement/participation of actors next to scientiﬁc experts and a more explicit account of scientiﬁc un- certainties. Such transdisciplinary or post-normal approaches aim “*to integrate the best available knowledge, reconcile values and preferences, as well as create ownership for problems and solution options*” ([Lang](#_bookmark29) [et al., 2012](#_bookmark29)). Early involvement is crucial, as environmental assess- ments depend heavily on how issues are selected and framed ([Briggs,](#_bookmark17) [2008](#_bookmark17)). The process of methodological decision-making thus is crucial for the governance approach it underpins.

1. The BElgium Ecosystem Services Community of Practice

We will now introduce the BElgium Ecosystem Services Com- munity of Practice (BEES), which tries to add to ES governance relevant community building by connecting interested parties from a diversity of backgrounds, both from science, policy and stakeholder organizations. As such BEES exempliﬁes transdisci- plinarity from a bottom up perspective, aiming at facilitating sci- ence–policy–society interfaces and capacity building.

* 1. *The BElgium Ecosystem Services (BEES): From science cluster to community of practice*

The BElgium Ecosystem Services (BEES) cluster project (2009– 2012; [Jacobs et al., 2013](#_bookmark34)) aimed to deliver an overview of ES issues at stake, from environmental, economic to sociological perspectives, to bring together scientists involved in ES research, policy makers and other stakeholders, and to advise on priority research and actions needed to come to an adequate strategy on sustainable management of these vital assets to human well-being. This project, though largely focusing on scientiﬁc issues, expanded on the exploration of the need for socially and policy-relevant knowledge. Capitalizing on this pro- ject, the BEES Community of Practice (CoP) ([BEES: BElgium Ecosys-](#_bookmark18) [tem Services](#_bookmark18)) (<http://www.beescommunity.be/>) emerged to further engage a variety of Belgian policy and private sector representatives and other stakeholders as to improve the societal relevance of future scientiﬁc work through close consultation and collaboration. It fur- ther aims to build bridges to other sectors in society, such as the business sector, in order to collaborate in practice-oriented projects. After a widely distributed open invitation, On April 26th of 2012 during a round table discussion, a group of Belgian actors from sci- ence and policy convened and decided to establish a Community of Practice on ES in Belgium. A Community of Practice ([Wenger and](#_bookmark54) [Snyder, 2000](#_bookmark54); [Meessen et al., 2011](#_bookmark42)) is a network made up of in- dividuals and organizations that share an interest and practice, who come together to address a speciﬁc challenge, and further each

other’s goals and objectives in a speciﬁc topic area.

The round table participants agreed upon the following aims of this BEES community:

1. Develop mainstreaming and policy tools, to promote the ac- quisition of an improved knowledge on the uptake of ES con- cepts in policy and management, business and society;
2. Facilitate capacity building, exchange of expertise and experi- ence, to enable involvement of Belgian actors in international initiatives and build the capacity to conduct assessments of ES;
3. Provide overview of state of the art knowledge and best practices.

The BEES community is an open and ﬂexible network that serves as interface between different societal actors. It is open to all organizations, and informal in its functioning, organization and membership, there are no restrictions to community membership. Its activities are demand-driven, responsive to societal needs, and it promotes engagement of Belgian ES experts in relevant national and international initiatives, such as, the Intergovernmental Plat- form on Biodiversity and Ecosystem Services (IPBES), the EU Working Group on Mapping and Assessment of Ecosystems and their Services (MAES), The Economics of Ecosystems and Biodi- versity (TEEB) and the Ecosystem Services Partnership (ESP). The BEES community is supported by a secretariat facilitated by the Belgian Biodiversity Platform (<http://www.biodiversity.be/>). The Belgian Biodiversity Platform is funded by the Belgian Science Policy ofﬁce, which also supports BEES for organizing meetings.

* 1. *ES governance viewed by ES actors*

With respect to the policy relevance of ecosystem service sci- ence a survey ([Keune and Bauler, 2012](#_bookmark52)) was set up as to highlight the views of a diversity of BEES members: scientists, policy re- presentatives and others. The survey touched upon valuation is- sues, context dependency, the role of biodiversity, the policy re- levance of scientiﬁc knowledge on ecosystem services, the sci- ence–policy interface, scientiﬁc objectivity and independence, knowledge communication from science to policy, the responsi- bility of social scientists and the knowledge ability about science or policy for subsequent ‘other actors’. The survey was distributed amongst the BEES community (at that stage mainly ES scientists, and to a lesser extent policy representatives) and the personal mailing lists of the researchers organizing the survey, with the special request for further dissemination to other interested actors via the people addressed by the survey. As such we hoped to get response from Belgian actors interested in the ES concept. We will brieﬂy reﬂect on some results which address governance relevant issues.

Valuation of ES is both considered as a scientiﬁc responsibility and a topic for social and political debate. Some respondents propose a strict division of responsibilities between science and society, whereas others do not make a clear distinction between science and society regarding valuation and point at the need for close collaboration, between scientiﬁc disciplines, between science and society, and some do not even make a distinction between science and society at all when it comes to science, e.g. by pointing at the importance of citizen science. Quite some respondents (mainly those in favour of scientiﬁc valuation) touch upon the debate about valuation and monetization. As pro-monetization arguments especially the awareness raising capability is men- tioned. Opponents of monetary valuation point at context de- pendency of ecosystem services, therefore monetary value having little signiﬁcance. Most respondents are in favour of close colla- boration between scientists and policy representatives, though some concerns are raised about the independency/neutrality of science from political inﬂuence. Most respondents consider sci- entists to have the responsibility to be objective and independent,

e.g. in order to be credible as a scientist. But it is also stated to be mainly an ideal that in reality is not straightforward, or even im- possible. The importance of objectivity and independence does not necessarily mean that scientists should mainly focus on issues that can be objectiﬁed: 57% agrees, 32% disagrees.

Concerning method development and use, different collabora- tive scenarios appear appealing for the majority of respondents: 1. science develops best practices to be used by policy or 2. science and policy collaborate in the use of methods. Respondents are inconclusive about the choice between on the one hand a rather strict division of labour between science and policy and close collaboration on the other: a majority clearly sees beneﬁts from both scenarios, and thus does not necessarily see them as ex- cluding options. Of course both scenarios do not need to be mu- tually exclusive and can both be incorporated.

In another analysis of the views of a diversity of BEES actors ([Keune et al., 2013b](#_bookmark46)), also a clear tension appears between some policy actors’ desire to acquire tools for monetary valuation and the risks perceived by others on *strictly* monetary valuation (e.g. commodiﬁcation of nature, neglect of other values, etc.). On the one hand, there is the need for ‘proof of concept’, and the avail- ability of economic tools and mainstream character of ‘money talk’ is a pragmatic choice. On the other hand, we note a strong need for broader valuation approaches and a critical attitude towards the culture of ‘math and money’ at all levels: it is perceived as one of the main causes of social and ecological unsustainability. Another tension appears between top-down (science and policy driven) approaches and more bottom-up, participatory approaches. Sev- eral actors urge for more collaborative approaches of ES valuation,

e.g. to build trust between providers and beneﬁciaries, as mone- tary valuation is not relevant in their working context. Among the suggested solutions are the development of alternative, more in- clusive governance methods and practices—amongst others using social debate and including relations between humankind and nature—as well as methods to integrate different types of values (e.g. economic, cultural heritage, and biodiversity) in decision making.

Both analyses clearly show appreciation for transdisciplinary collaboration and ambiguity regarding valuation methods: both the beneﬁts and drawbacks of monetization are mentioned, compared to more sophisticated and inclusive valuation ap- proaches ([Dendoncker Nicolas et al., 2013](#_bookmark22)).

* 1. *Community of practice governance aspects*

Recently, on both of the above mentioned governance and methodological aspects, transdisciplinarity and valuation/assess- ment methods, the BEES community produced several ES gov- ernance relevant communications. As such, as a CoP, BEES tries to formulate joint recommendations and reﬂections, addressing ES governance issues and processes. We will ﬁrst discuss one ex- ample oriented at Belgium and second two examples oriented at EU level ES governance.

* + 1. *ES governance in Belgium*

On the 9th of July 2013, a group of Flemish, Walloon and Fed- eral policy representatives and scientists (called the *9th of July group*) joined with the aim of developing a BEES policy brief to raise awareness on the importance of the uptake of the concept of ES in policy and society at large. The policy brief is published in 2014 as BEES-brief and restates the importance and urgency of ES research and practical implementation for different policy do- mains. Amongst the recommendations we clearly recognize pleas for transdisciplinary collaboration and inclusive valuation:

*Acknowledge the existence of multiple values of biodiversity and ecosystem services*

*Sound decisions should integrate all types of value, including less quanti*ﬁ*able ones such as intrinsic value, welfare, good life, liberty of choice, etc., and not be limited to (seemingly) obvious and tangible values.*

*Adopt a transdisciplinary approach*

*Transdisciplinary cooperation and communication is key to ef*ﬁ*- cient implementation and innovation. Stand-alone economic, ecologic or social approaches will not suf*ﬁ*ce. Scientists, policy representatives and stakeholders need to act together.*

One of the governance processes the *9th of July group* had in mind as a target area for the BEES brief, was the Walloon policy process. In Wallonia (French speaking part of Belgium), policy uptake of the ES concept lagged behind compared to Flanders (Dutch speaking part of Belgium). End of 2013, some Flemish BEES members (both from science and policy) together with some Walloon colleagues, were invited to the Cabinet of the Walloon Minister for Sustainable affairs, to bring them up to date about ES developments in general, within BEES and in Flanders in parti- cular. This visit (and before contacts between Walloon and Flemish scientists and policy representatives through BEES) helped in- spiring the Walloon government to decide on the installation of and ﬁnancial support for an ES platform of scientists and members of the Walloon administration. This platform will provide the basis for ES quantiﬁcation and mapping in Wallonia. As such this is a good example of the success of the BEES community of practice, without which to the conviction of Walloon ES experts, this would probably not have been possible.

The BEES brief, while being under construction, brought to the attention a complicated challenge, by which the initiators were taken by surprise. With good intentions, from the start of the development, the brief was called ‘*policy brief*’, which is not un- common for scientiﬁc communities addressing policy makers. It was also agreed upon to ask those who contributed to the brief and later others within BEES, for support of the text of the brief, which would supposedly strengthen the message and the urgency for ES policy uptake. Quite some scientists and policy re- presentatives, both Federal, Walloon and Flemish, agreed to have their names mentioned as supporters. Unexpectedly, this caused quite some concern within some policy departments: the mandate of policy representatives to undersign such policy relevant state- ment was questioned. Formally this should be approved by the politically responsible Ministers. Clearly here the advantages of having an informal network in which exchange of viewpoints and joint vision and knowledge building can blossom, are confronted with the formal limitations of policy representatives to express their viewpoints without formal political backing. Solutions such as adding a disclaimer about the personal and informal status of their support were disqualiﬁed, as it could bring the policy re- presentatives in an awkward position and jeopardize their free- dom of joining other BEES initiatives. Therefor it was decided to not list any names and change the header of the brief from ‘*policy brief*’' to ‘*BEES brief*’'. It was also decided that this formal–informal split should be further discussed, in good spirit, as also the policy hierarchies clearly recognized the added value of policy re- presentatives being involved in BEES. *This example clearly shows that new forms of governance can exist next to more formal gov- ernmental processes, but also that they sometimes can create friction and become incommensurable. A lesson learned is that these kind of issues may arise but need not necessarily lead to an impasse, but may* ﬁ*nd a way forward in joint learning and collaboration.*

* + 1. *EU ES governance*

An important European Union ES governance initiative is the EU Mapping and Assessment of Ecosystems and their Services in Europe, one of the key actions of the EU Biodiversity Strategy to 2020 (MAES; [http://ec.europa.eu/environment/nature/knowledge/](http://ec.europa.eu/environment/nature/knowledge/ecosystem_assessment/) [ecosystem\_assessment/](http://ec.europa.eu/environment/nature/knowledge/ecosystem_assessment/)). The Belgian MAES working group (fa- cilitated within BEES) recently issued a communication to give feedback on the second MAES report on ES indicators ([Joachim](#_bookmark40)

[Maes et al., 2014](#_bookmark40)). This *Re*ﬂ*ection of the Belgian MAES working group on the 2nd MAES report* clearly is in support of both a transdisci- plinary/stakeholder input and inclusive valuation:

*How will indicators be selected in a participatory manner as to raise local stakeholder support for their selection, application and outcomes?*

*Why is the report focused at physically quanti*ﬁ*able aspects? And moreover, exclusively at data available in a spatially explicit way? How can the many robust quantitative indicators on ES supply, demand and use for which the spatial aspect is absent or unreliable be applied? How can the non-physical indicators be applied?*

Another BEES communication recently developed in close col- laboration with members of the Dutch Community of Practice Ecosystem Services, also provided feedback on the EU MAES pro- cess. Formulated differently and to some extent more ﬁrmly, si- milar feedback on the importance of transdisciplinarity and in- clusive valuation was expressed:

*To do the assessment and to develop, use and improve the maps interactively, i.e. together with end-users and other stakeholders. This will increase transparency and legitimacy;*

*To take into account different ways of valuation (including non- monetary) and different approaches by different stakeholders, without translating them into only one (monetary) unit;*

The importance of community of practice contributions ap- parently is appreciated in the second MAES report ([Joachim Maes](#_bookmark40) [et al., 2014](#_bookmark40)):

*There is a need for capacity-building in all Member States in order to create a community of practice in Europe that will contribute to improve the knowledge and evidence for EU environment policy in line with Priority Objective 5 of the General Union Environment Action Programme to 2020* ‘*living well, within the limits of our planet*’*.*

Whether this EU perspective on CoPs will be in line the pre- ferences highlighted in the BEES communications, remains to be seen, as the MAES process only just started. Here also we may draw the conclusion that new modes of governance like the CoP’s may be appreciated even when the spirit of the dominant mode of governance is still aimed mainly at a top-down governmental mode of operation. Openness to new modes of governance will not immediately or necessarily result in widespread change. But it is clear that also within the EU new modes of governance are within the visor, and gain interest.

1. Methodological decision making in Belgian ES research
   1. *Brief introduction of some Belgian ES research projects*

We will now focus on some Belgian ES research projects. The selection of projects was based on a bottom-up interest of Belgian ES projects in joining for a joint publication. This collection of projects covers most relevant ES research projects at that time as well as the larger part of the diversity of the BEES community members. As such the selection displays the variety of ES projects in Belgium quite well. We analysed the projects by studying the descriptions of the projects as were included by the projects. We also send round some questions on valuation approaches and transdisciplinarity. The project descriptions as included in the analysis and this paper and outcomes of the analysis were con- veyed to the projects so that they could comment on them if considered necessary.

We cannot extensively introduce the research projects that form basis for our analysis of methodological decision making. The topical focus amongst the different projects/cases is quite diverse, but can be grouped in two clusters. Four ES projects are speciﬁ- cally aimed at valuation: freshwater ES valuation, regional ES as- sessment and valuation tools, integrated ES valuation in munici- palities and an ES valuation tool. And four ES projects are speci- ﬁcally aimed at a participatory bottom up approach: two partici- patory regional ES master plans, participatory wild boar manage- ment and a bottom-up city soil depollution project. For an over- view, see [Table 1](#_bookmark12)

Reference

Limited stakeholder input (steering group, low attendance/input; interviews, questionnaires); more collaborative method framing needed (conclusion)

End-user input before the project design (interviews) incorporated; stakeholder involvement throughout the whole project; partly collaborative (case studies) Limited policy input (steering group); citizen involvement as research objects (in- terviews, focus groups); openness to user feedback

No stakeholder involvement in project design; limited input during the project (interviews); more collaborative method framing needed (conclusion)

Van Der Biest et al. (2013)

[https://www](http://www.uantwerpen.be/en/).uantw[erpen.be/en/](http://www.uantwerpen.be/en/) rg/ecoplan/

Liekens et al. (2013)

Fontaine et al. (2013)

Janssens (2013)

http://www.phytoremediation. be/

Verboven and Ulenaers (2013)

Keune et al. (2013a)

All projects to some extent aim to provide policy/socially re- levant knowledge, processes and/or solutions. Hence, the ambition to be governance relevant clearly is present. We will now discuss to what extent the projects have a transdsciplinary and inclusive valuation ambition.

Collaborative bottom-up approach (methodological design only with policy, but open for co-decision making)

Informal bottom-up action oriented collaborative network; consensus oriented, demand driven; method design mainly scientiﬁc

Collaborative bottom-up approach (methodological design only with policy, but open for co-decision making)

Collaborative bottom-up approach (methodological design only with policy, but open for co-decision making)

* 1. *Methodological decision making process: From expert affair to transdisciplinary coalitions*

Based on a quick scan of the above mentioned research pro- jects, we should distinguish between *transdisciplinary collaboration and participation*. Participation does not necessarily equal trans- disciplinary collaboration: participation can be limited to data- input, e.g. in valuation exercises. Transdisciplinary collaboration refers to joint/collaborative research, potentially including joint methodological design, development and application, research, interpretation and evaluation. Following from this, we should also distinguish *parts of the research process* were non-scientists feed into the process. Furthermore we should distinguish between different *types of non-scientists* involved in the research projects. In the ES projects generally three main groups are distinguished: policy representatives, stakeholders and citizens. Finally we should distinguish *forms of interaction*, between the scientists and non-scientists. Interaction can be rather limited, e.g. through questionnaires, more interactive e.g. through interviews, steering group meetings or end-user meetings, or very interactive by means of research collaboration.

Actor involvement

Inclusive: ES valuation in monetary and other terms

Inclusive, but mainly quantitative approach

Gradually towards more inclusive valua- tion: initially mainly monetary

Inclusive: integrating social, biophysical and economic valuation exercises

Inclusive: bottom up and open approach

Action oriented, not valuation oriented

Inclusive: bottom up and open approach

Inclusive: bottom up and open approach

Clearly, similar to the developments within BEES, from a re- search practice dominated by scientists, gradually research pro- cesses are opening up to transdisciplinary collaboration. Simulta- neously these processes gradually shift from mainly top down approaches to bottom up approaches or hybrid combinations of both entry points. Several projects still have a strong scientiﬁc orientation: scientists are the main methodological decision ma- kers and research actors. It mainly concerns interdisciplinary teams, involving ecological, economic and/or social scientists in different combinations performing this coordination. In other projects though, transdisciplinary collaboration is the starting point, mainly involving policy representatives as non-scientiﬁc methodological decision makers and co-researchers, from start to ﬁnish. In the less ambitious projects from a transdisciplinarity perspective, still some involvement from non-scientiﬁc actors is present, be it more distant, less interactive or intense and with less inﬂuence on methodological decision making. Some projects without a clear transdisciplinary collaborative approach, in hind- sight conclude the importance of stakeholder involvement for future research, also concerning methodological issues. Main ad- vantages being real-life contexts ﬁtness of tools, products and applications, incorporation of social debate, inclusion of other forms of knowledge, social learning, networking and capacity building, trustworthy relationships and support for the research approach.

Table 1

Overview Belgian ES research projects.

Research project

Project topical focus

Valuation perspective

*Valuation oriented ES projects*

ECOFRESH

Freshwater ES valuation

ECOPLAN

Regional ES assessment and valuation tools

ES valuation tool

Nature Value Explorer

Integrated ES valuation in municipalities

*Participation oriented ES projects*

Inland dunes project

Participatory regional ES master plan

Bottom-up city soil depollution for ES

Participatory regional ES master plan

Participatory wild boar management

Operation Sunﬂower

De Wijers

Wild boar management

We also looked at the funding source ([Table 2](#_bookmark13)) for the different projects, assessing whether this could have an inﬂuence on sta- keholder involvement. All projects have governmental funding,

VOTES

Table 2

Project funding sources.

Project Funding source

making, incorporating diversity of opinions and concerns. It will be key to connect to new developments in both science and gov- ernance in order to enhance societal and policy relevance of Bel-

gian ES research.

ECOFRESH Federal science policy

ECOPLAN Flemish science policy

Nature Value Explorer Flemish environmental policy VOTES Federal science policy

Inland dunes project Flemish province & EU funding

Operation Sunﬂower National lottery & Brussels environmental policy De Wijers Flemish governmental land agency

Wild boar management Flemish governmental nature agency

and only one has (also) non-governmental funding. It seems that projects funded by science policy have a tendency to be less fo- cussed on transdisciplinary approaches. An obvious explanation is that the funding agencies are less active in the ES practices which are under investigation in ES research. In most cases often these practice agencies are even actively involved in the case studies, which is not the case for science policy agencies.

* 1. *Method choice: From monetization to inclusive valuation*

Methodologically the projects differ signiﬁcantly, also from a valuation point of view: what is the meaning of ES, what is the importance of ES and how is it valued? From a governance per- spective the questions *why do we value, how to value, who values, whose values are important and what is the information basis for valuation*, are crucial. Decisions on these valuation relevant issues have an impact on outputs of the valuation research and uptake/ use in practice ([Bauler and Pipart, 2013](#_bookmark14); [Dendoncker Nicolas et al.,](#_bookmark22) [2013](#_bookmark22)). Several projects acknowledge the importance of economic valuation (in the sense of monetization) for governance, which is currently the dominant focus in international ES research and practice. The rationale behind this is that ‘*money talks*’. This in- terpretation of governance relevance originally was the main focus for one project (Nature Value Explorer), and of signiﬁcant im- portance to the ECOFRESH project. Within the Votes and ECOPLAN projects, monetary valuation is less a central issue: they include also ecological and social valuation perspectives. Three projects largely left it open at the start, leaving it to the actors involved in the process: the Wijers project, the wild boar project and the In- land dunes project. Later on in these projects inclusive approaches were chosen. The Operation Sunﬂower project does not speciﬁ- cally focus on valuation and is mainly action oriented.

In general a trend towards more inclusive valuation is clearly noticeable in Belgian ES research, inclusive in the sense of a di- versity of ES valuation aspects to be taken into account, diverse types of expression of value(s), a combination of quantiﬁable and qualitative information, and a diversity of valuators by way of more bottom-up approaches. Still, there are quite some differences between projects and challenges for integration ahead.

1. Conclusions

The shift from a mainly scientiﬁc focus to a more policy re- levance focus gradually evolves in most of the Belgian ES research projects presented here. Still we have to conclude that the focus within quite some projects largely is on scientiﬁc challenges and only to a lesser extent geared to policy relevance, especially when it comes to transdisciplinarity. The growing BEES-community and its transdisciplinary nature shows that there is a large potential also for research projects to open up to transdisciplinary ap- proaches, including non-scientists in methodological decision

On an ambition level, BEES members generally seem to prefer transdisciplinary as well as inclusive valuation approaches, though not exclusively in all circumstances. In Belgium research projects, similar to the developments within BEES, from a research practice dominated by scientists, gradually research processes are opening up to transdisciplinary collaboration. Simultaneously these pro- cesses gradually shift from mainly top down approaches to bottom up approaches or hybrid combinations of both entry points. A closer and more nuanced view shows that real transdisciplinary collaboration in Belgian ES research still is only at the beginning. Partly this can be explained by the fact that inter- and transdis- ciplinary approaches are perhaps more realistic, but also have to deal with more social complexity. New balances have to be found between sophistication and pragmatics. Also the role of science can become more ambiguous: the closer to stakeholders, the more an independent role can be questioned. Regarding ES valuation methods, in general a trend towards more inclusive valuation is clearly noticeable in Belgian ES research, inclusive in the sense of a diversity of ES valuation aspects to be taken into account, diverse types of expression of value(s), a combination of quantiﬁable and qualitative information, and a diversity of valuators by way of more bottom-up approaches. Still, there are quite some differences between projects and challenges for integration.

Whatever governance strategy is chosen, limitations and im- perfections are inherent. Moreover it is important to realize that indeed one *chooses* a governance approach, often being the out- come of negotiation amongst the most prominent actors involved. There are different options for framing socio-ecosystem research and governance and the way crucial how-to-do-governance questions are operationalized is open for context dependent dis- cussion. We may conclude here that the consciousness, explicit planning and evaluation of governance aspects throughout ES projects can make these choices more explicit and transparent. We believe this remains an important challenge within the Belgian ES science and practice context.

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