Stakeholder involvement in ecosystem service decision-making and research

Jennifer Hauck[1] (Helmholtz Centre for Environmental Research, UFZ; CoKnow Consulting)

Heli Saarikoski (Finnish Environment Institute, SYKE)

Francis Turkelboom and Hans Keune (Institute for Nature and Forest Research, INBO)

Introduction and State-of-the-Art - The rationale of stakeholder involvement

Stakeholder involvement refers to participation of interest groups (i.e. representatives of locally affected communities, national or local government authorities, politicians, civil society organizations and businesses) in a planning or decision-making process. To define '**stakeholders**' in the context of OpenNESS, we propose to use the definition of Hein et al. (2006: 213), a 'stakeholder' being "[a]ny group or individual who can affect or is affected by the ecosystem's services". Four main stakeholder groups who – in different ways – relate to the biological or physical resource(s) and its ecosystem (dis)service can be distinguished (Demeyer and Turkelboom, 2014): a) stakeholders who directly benefit (= beneficiaries); b) stakeholders who are negatively affected (burden); c) stakeholders who directly impact on ecosystem (services) (e.g. land owner, resource manager); and d) stakeholders who indirectly influence on ecosystem (services) (e.g. decision maker, civil society organisation). In reality, one ecosystem service usually has most of these stakeholder groups involved, while one specific stakeholder group could fulfil several of these 'roles'.
The levels and forms of stakeholder involvement are manifold. The US Environmental Protection Agency for example refers to the International Association of Public Participation (IAP2), who suggests **five levels of engagement**[2] (see figure 1). The first level of participation is to keep the stakeholders informed. On the consultation level (second level), feedback by the public on analysis, alternatives or decisions is obtained. On the third level, the involvement level, the idea is to work directly with stakeholders and consider their input throughout the decision-making process. On the fourth level, the collaborative level, the goal is a process that allows for effective partnering and engagement in all key activities and decisions. Last but not least, there is the fifth level of empowerment, where the public makes an informed decision, which is implemented by the responsible agency.

Stakeholder involvement is not only regarded as an essential element in environmental management and decision making (e.g. Young et al., 2012), but also considered critical in the context of ecosystem services (ES) (e.g. Hauck et al., 2013; Harrington et al., 2010). The involvement in research can enhance the credibility of information, which involves the scientific adequacy of the technical evidence and arguments (Cash et al., 2003). Another quality criterion for information and knowledge produced during research is the legitimacy of the process (Cash et al., 2003). Further legitimacy can be enhanced by a democratic character of the process and inclusion of contributions, values and opinions of different stakeholders (Sarewitz and Pielke, 2007). Salience (Cash et al., 2003) or relevance, as Sarewitz and Pielke (2007) call it, deals with the relevance of the information to the needs of decision makers. Like legitimacy, relevance can be ensured by including the respective stakeholders and their needs into the research processes (e.g. Weichselgartner and Kasperson, 2010). Stakeholder involvement is likely to result not only in "better" information and knowledge in terms of the criteria pointed out, but also result in a much richer knowledge, due to the experiential knowledge that stakeholders bring to the table (= local or indigenous knowledge). In order to ensure the quality of research results as well as governance processes (Keune et al., 2013), transdisciplinary research processes can be helpful. Stakeholder engagement is also important for promoting the sharing of knowledge and learning across and between cases. Communities of practice (Keune et al., 2015) can exchange actively in relation to specific subjects and, by providing outreach to wider communities of interest and involvement, can facilitate social learning (Reed et al., 2009). In relation

[1] Email Contact: jennifer.hauck@coknow.de
[2] http://www.iap2.org.au/documents/item/84

to ES such communities could organize across regions, problem-types and sectors and, if scientists are also involved, this would help to promote transdisciplinarity.

A transdisciplinary research process, which aims at the inclusion of stakeholders in research, can be conceptualised following Lang et al. (2012) as a sequence of three phases, namely, collaboratively framing the problem and building a collaborative research team (Phase A); co-producing solution-oriented and transferable knowledge through collaborative research (Phase B); and (re-)integrating and applying the produced knowledge in both scientific and societal practice (Phase C).

Significance to OpenNESS, specific Work Packages

The call for proposals on which the OpenNESS project is based, explicitly asked for research "to qualify and quantify trade-offs and synergies of ES and link them to the respective stakeholders across locals, sectors, scales and time, and explore, demonstrate and validate instruments and practices that will serve to align disconnected and conflicting interests".

In the Description of Works (DOW) of OpenNESS we have thus emphasized a transdisciplinary research approach, based on strong stakeholder involvement at various levels of engagement and decision making (see figure 1), as we believe that this will improve the impact and usefulness of our scientific output for decision-making on biodiversity and ES across different governance levels. WP6 ("Integration: Synthesis and Menu of Multiscale Solutions") is explicitly dedicated to coordinate and together with WP7 ("Impact and Dissemination") facilitate stakeholder involvement in OpenNESS. This coordination is necessary as the involvement of stakeholders in OpenNESS ranges from local level in the case studies (WP5) to the EU level stakeholders (for example in WP2 "Regulatory Frameworks and drivers if change" and WP6).

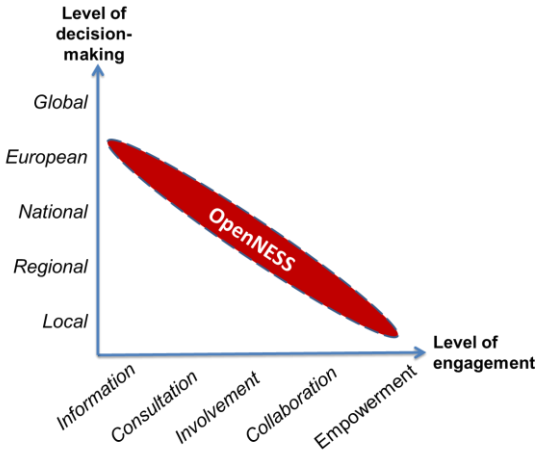

Figure 1: OpenNESS stakeholder involvement.

Further, this coordination is necessary to allow targeted communication activities of WP7. The extent of involvement is likewise manifold, covering the five levels of participation described above, from simply informing a broad audience about the project via a homepage, twitter, etc., to involvement of stakeholders in workshops and focus groups. In all the OpenNESS case studies, a 'Case study Advisory Board" (or CAB) was established. The purpose of the CAB is to create a science-practice forum where OpenNESS researchers can consult and interact with relevant stakeholders, and which enable social learning. CAB members usually represent an organization or a user group. In reality, there is wide diversity of CABs, ranging from official committees who can make land-use decisions, to informal fora who discuss advices for decision makers. Consequently, the level of stakeholder engagement in the CABs varies widely. Further details of the stakeholder involvement in OpenNESS will be provided in the stakeholder involvement plan currently prepared for the project.

Relevance of stakeholder involvement for the four challenges[3]:

Human Well-Being: As the contribution of ES to human well-being is variable from person to person and from group to group, it is necessary to integrate the manifold perspectives on human needs to advance the conceptual understanding of the	**Sustainable Ecosystem Management:** The necessity to include perspectives from various stakeholders is important for understanding potential strategies for sustainable ecosystem management. It is common that stakeholders

[3] There are certainly more societal challenges; the reduced number presented here is due to the four major challenges mentioned in the work programme of FP7 to which OpenNESS responded.

contribution of ES and natural capital to different dimensions of human well-being.	with different stakes have different perspectives on management strategies.
Governance: Ecosystem governance deals with the management of not only the ecosystem, but also of related social aspects such as decision making, social interaction and power relations. A common denominator and key question of management approaches is how to deal with uncertainty and the complexity that comes with it? Dealing with complexity inherently faces normative choices due to limited knowledge. A key question for the design of context-fit governance arrangements therefore is who has a stake in governance and who is entitled to be involved in deciding which approach to enforce?	**Competitiveness**: The understanding of how changes in ES impact on issues related to competitiveness and social justice includes understanding the synergies and trade-offs in competitiveness, i.e. if the competitiveness via the enhancement of particular ES is enhanced for some individuals or groups of people, it may be decreased or increased for others. Involving stakeholders and their knowledge in identifying 'losers' and 'winners' in a new land-use setting, provides the opportunity to uncover and tackle directly these issues.

How to identify and involve stakeholders (SH)

In order to identify the relevant stakeholders that should be involved in a process, a SH analysis can be conducted. A typology of data collection methods can be found in Reed et al. (2009). A working group within OpenNESS has prepared a manual for different Stakeholder analysis methods which can be used in the context of environmental decision making, including a ES SH matrix, interests-power analyses, business model canvas, stakeholder map and Net-Map. SH analysis, can also be part of an institutional analysis, e.g. for an in-depth understanding of power structures (Lovens et al., 2014). While a stakeholder analysis is particularly important in the beginning of a project, it might be necessary to repeat it during a trans-disciplinary research process, e.g. in the beginning of each phase of a transdisciplinary research process outlined above. Once the stakeholder analysis is conducted and the more conceptual process of framing is done, practical guidelines such as the Defra manual[4] or the IIED participatory learning and action guide[5] can be used to select appropriate tools and/or practical advice for stakeholder involvement. An overview of 51 participatory manuals is made available at the OpenNESS extranet. Within the OpenNESS project, guidelines for a number of specific participatory methods – which are expected to be highly relevant for OpenNESS – will be developed, including the cross-cutting methodologies: multi-criteria evaluation methods, Bayesian Belief Networks, scenario analysis as well as many valuation methods of WP4.

Open Problems/Issues to be discussed further

With the growing popularity of stakeholder involvement, so problems and critiques grow. While some of them might be addressed during the lifetime of OpenNESS, others are more general in nature and will probably remain unresolved. While long-term relationships between researchers and stakeholders foster trust and enhance collaboration, this also bears the **risk to only work with particular people** or organizations that are interested in the topic and consider collaboration beneficial. While a proper stakeholder analysis can ensure that all stakeholders are identified, this still does not ensure that all stakeholders will be interested and involved (e.g. Lovens et al., 2014; Hauck et al., 2015). Another issue is the often **unclear role of the representatives of stakeholder organizations**. Are they supposed to 'behave' like experts or more politically as defenders of the stakes of their organization. The latter may be practically problematic, as they may need to consult within their own organization before expressing input in a SI process. Further, sometimes the identified **problems are not shared by all stakeholders**, or some stakeholders might have enough power to go their own way (and ignoring the complex and slow process of consultation). There is also the **risk of power imbalances** within the process (e.g. powerful organisations, dominant personalities) that can cause biased results. This is further complicated by a usual **lack of resources**, both time and money, or a clear mandate to solve a problem. This usually allows only for a **watered-down version** of the ideal and adequate stakeholder process, which does for example not allow changing the problem definition based on all stakeholder perspectives. A dilemma arises, when a strategy

[4] http://randd.defra.gov.uk/Document.aspx?Document=NR0124_10262_FRP.pdf
[5] http://pubs.iied.org/pdfs/6021IIED.pdf

developed during a transdisciplinary project on a local or regional level cannot be implemented as it **violates common laws and regulations**, e.g. from the national or EU level. **Discontinuous involvement or too frequent consultation sessions** – due to a lack of proper planning – almost certainly leads to **involvement fatigue** with stakeholders. This can result in drop-out of stakeholders in the follow-up processes. Careless processes which are poorly facilitated might also **spark conflicts**, which were previously latent. While much of this can be avoided by the highest possible transparency, carefully planning and dedicating enough resources to a stakeholder involvement process, there is still the potential dilemma between the **interests of scientists and the interest of stakeholders**, which cannot be solved easily. Transdisciplinary sustainability research is a research practice and, as such, needs to adhere to quality standards, in particular, when it comes to adopting and applying research methods. However, quality standards in transdisciplinary research are not as clear-cut as it might be the case in other academic fields. Saliency and legitimacy demand equal attention in transdisciplinary sustainability research, even though scientists in the present academic system are still primarily judged by scientific credibility. This might lead to conflict between scientists and other stakeholders, who might have **different expectations** concerning the processes and outcomes, and who expect different quality standards. A similar problem, which can however be solved with adequate resources, is the **integration of knowledge and communication** of project results, where at least a twofold strategy is necessary to fulfil the needs of scientists (publish in journals) and stakeholders (publish 'easy' messages in relevant news outlet). A risk is also the **(mis-)use of project results** for purposes not agreed upon within the project. Examples could be a scientist who publishes sensitive findings, or a policy maker who presents only selected results or transforms the results in a way that supports his or her policy.

Recommendations to the OpenNESS consortium

All recommendations apply for the entire OpenNESS project, but also for individual processes, e.g. in case studies:

- Develop a stakeholder involvement plan, starting with a stakeholder analysis. Involve as many different (but relevant) stakeholders as possible to ensure that different voices are considered while designing the research and project activities. Proper planning, coordination and facilitation of the process help to avoid issues of stakeholder fatigue and/or inflated expectations.
- Involve stakeholders only if there is an added value for involvement, instead of just token participation.
- Involve stakeholders as early as possible in the research, e.g. when selecting the ES to be studied in detail, selecting indicators, trade-off analyses, valuation exercises, and if suitable even in biophysical assessment or mapping of ES, e.g. by citizen science.
- Conduct participatory process evaluations of the different stakeholder involvement processes (For further information see Deliverable D5.1-D5.4 and Deliverable D2.4).
- Develop recommendations for stakeholder interactions, which are expected to produce policy-relevant, reliable and legitimate knowledge about ecosystem services and the practices to maintain them.

Key Papers

Lang, D. et al. (2012): Transdisciplinary research in sustainability science – practice, principles, and challenges. *Sustainability Science* **7**: 25-43.

Lovens A. et al. (2014): OpenNESS manual: Stakeholder analysis for environmental decision-making at local level. Publication developed in the framework of OpenNESS. EC FP7 Grant Agreement no. 308428. INBO, Brussels.

Reed, M.S. et al. (2009): Who's in and why? A typology of stakeholder analysis methods for natural resource management. *Journal of Environmental Management* **90**: 1933-1949.

Further reading

Cash, D. et al. (2003): Knowledge systems for sustainable development. *Proceedings of the National Academy of Sciences* **100(14)**: 8086-8091.

Demeyer, R. and Turkelboom, F. (2014): The ecosystem services stakeholder matrix. In: Lovens A. et al. (eds): OpenNESS manual: Stakeholder analysis for environmental decision-making at local level. EC FP7 Grant Agreement no. 308428. INBO, Brussels.

Harrington, R. et al. (2010): Ecosystem services and biodiversity conservation: concepts and a glossary. *Biodiversity and Conservation* **19(10)**: 2773-2790.

Hauck, J. et al. (2013): Benefits and limitations of the ecosystem services concept in environmental policy and decision making: some stakeholder perspectives. *Environmental Science and Policy* **25**: 13 – 21.

Hauck, J. et al. (2015): Seeing the forest and the trees: Facilitating participatory network planning in environmental governance. *Glob. Environ. Change* **35**: 400 – 410.

Keune, H. et al. (2013): Ecosystem Services Governance: Managing Complexity? In: Jacobs S. et al. (eds): *Ecosystem Services – Global Issues Local Practices*. Elsevier, New York, pp: 135-155.

Keune, H. et al. (2015): Emerging ecosystem services governance issues in the BElgium Ecosystem Services Community of Practice. *Ecosystem Services* 16: 212–219**.**

Sarewitz, D. and Pielke, Jr. R. A. (2007): The neglected heart of science policy: reconciling supply of and demand for science. *Environmental Science and Policy* **10(1)**: 5-16.

Weichselgartner, J. and Kasperson, R. (2010): Barriers in the science-policy-practice interface: Toward a knowledge-action-system in global environmental change research. *Global Environmental Change* **20(2)**: 266-277.

Young, J. et al. (2013): Does stakeholder involvement really benefit biodiversity conservation? *Biological Conservation* **158**: 359-370.

Review Editor: Kurt Jax (UFZ)

Suggested Citation: Hauck, J.; Saarikoski, H.; Turkelboom, F. and H. Keune (2016): Stakeholder Analysis in ecosystem service decision-making and research. In: Potschin, M. and K. Jax (eds): *OpenNESS Ecosystem Services Reference Book*. EC FP7 Grant Agreement no. 308428. Available via: www.openness-project.eu/library/reference-book

Acknowledgements: The following OpenNESS partners have contributed to the consultation: Anders Madsen (HUGIN),), Francesc Baró (UAB), György Pataki (ESSRG); Ignacio Palomo (UAM), Jan Dick (CEH), Bruna.Grizzetti (JRC), Angheluta Vadineanu (UB-DSES), Berta Martín-López (UAM); Ben Delbaere (ECNC), Marina Garcia (UAM), Joost Tersteeg (WING), Bálint Czúcz (MTA ÖK), Eszter Kelemen (ESSRG), Juliette Young (CEH), Esther Carmen (CEH), Pam Berry (UOXF)

Disclaimer: This document is the final version of the Synthesis Paper on the topic within the OpenNESS project. It has been consulted on formally within the consortium in 2014 and updated in 2016.