Institutional Analysis

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Why do we need to analyse institutions?

When conducting the OpenNESS analyses, it is important to recognise the institutional context of ecosystem management and governance. Identifying the institutional context allows us to understand what has produced the current management systems and which institutions will condition the future recommendations. The regulatory frameworks, at the EU level as well as at the national and lower governance levels, rest on broader national state and supranational institutions. Moreover, place-based management of ecosystem services can be strongly conditioned by local informal institutions. For this reason, we have to consider and analyse institutions at several governance levels and pay attention to their interplay. Institutional analysis can be carried out in a general and qualitative fashion, or it can be developed into detailed hypotheses and subjected to empirical testing.

Institutional theory

Institutions can be taken as regularities that frame or condition action and allow coordination. Because of the conditioning character, institutions are often called "rules", whether they are formally designed or have evolved as informal customs (Ostrom, 1990; North, 1990).

Formal institutions include laws and legal principles that define, for example, property rights or market transactions. Breaking formal rules is at least in principle followed by a sanction. Institutions are often formalised in processes that involve politics and confrontation but the formalization might also be a mere stating of a practice that has gradually been taken up by the actors. Institutional evolution, where the formal laws and informal customs are in interplay and influence each other, can be exemplified by new biodiversity policies that introduce legal changes (LePrestre, 2002; Primmer et al., 2013). The implementation of these policies is conditioned by pre-existing norms, which might be formalised later.

Informal institutions are norms embedded in interactions between groups or individuals. They can represent codes of conduct about appropriate behaviour in the society or within particular organisations or professions. Just like formal institutions, informal institutions shape and condition what actors can do, should and should not do (Ostrom, 1990; Scott, 2001; Primmer, 2011). They differ from the formal ones in that they are not explicitly stated or written. The control of customs is social; breaking against informal rules triggers disapproval. As an example of informal institutions, organisations or policy processes might give certain actors a decisive role, even if all actors formally hold similar positions. Informal institutions about biodiversity conservation can include customary rights to access a resource, shared norms about what rights humans or other species have, or ways that phenomena are understood, framed, and categorised in everyday practice. The stability of institutions and the clarity of rules contribute to predictability and efficiency in the society and in organisations. However, because institutions incorporate and express power relations, they may constrain the available management options. For this reason, institutions might cause tensions, trade-offs, and conflicts.

Institutions and ecosystem structures and functions

Institutions determine the ways in which ecosystems are managed and governed currently and condition new management systems. The functions embedded in the complex ecosystem structures and processes as well as the social-ecological systems, which the ecosystem services approach is aiming to make more explicit, cannot be managed as separate entities (Vatn, 2005). The inter-related ecosystem functions are however influenced by people and organizations whose behaviour might be targeted at a limited number of functions at a time, ignoring the systemic effects of the behaviour. Ecosystem functions, such as passage of water or biomass accumulation, are inter-related and influenced by complex societal processes. For example, the simple indicators of land use and land use change are inter-related with markets and technological advances driving water and biomass extraction. The water use regulations and the

management practices on agricultural and forestry lands used for biomass production influence ecosystems and ecosystem services beyond mere changes in land-use classes. Moreover, the rights and mandates to govern ecosystem structures and functions do not rest with one sector only, as the water and biomass examples demonstrate. The relevant institutions governing ecosystem structures and functions span also across governance levels, from international agreements to local level practices (Young, 2002). As a result of this complexity, governance of ecosystem services faces several challenges including coordination and assigning rights as well as problems of uncertainty and ignorance.

- For the analysis of institutions, it is important to keep in mind the complexity and uncertainty of biophysical structure and ecosystem functions. The analysis should start by identifying those institutions that address ecosystem functions in the form of 1) laws and policies at different governance levels, 2) dominant practices in administration, management, and research. Further, it might seek to unravel the institutional interplay between different regulations and practices.

Institutions and ecosystem services

Institutions condition the way ecosystem services are perceived and actually used or enjoyed (Norgaard, 2009). ES are framed and defined in various decision-making and analytical processes that are embedded in institutions. Tangible, extractable ecosystem services are governed by various natural resource sector administrations and organisations. Ecosystem services that rely on larger landscapes can be governed by land-use planning and particular ecosystem services can be governed with specific instruments (Primmer and Furman, 2012). Some policies, for example, payments for ecosystem services, assume that rights to the use and production of the ecosystem service can be defined. However, ecosystem services differ in terms of whether there are governance systems in place and whether the rights to the services have been – or can be – determined. The right of fishermen to a fishing quota has been determined much more clearly than the rights of local inhabitants to clean water or beautiful landscape. Some ecosystem services fall between governance systems, partly because the services are products of multiple ecosystems interacting. Flood prevention might depend on vegetation cover and pollinators might need other habitat than agricultural areas. The analysis of institutions related to ecosystem services should identify:

1) the institutions that are in place to govern ecosystem services and those ecosystem services that are not covered by formal or informal institutions and
2) the potential mismatches between these institutions. Additionally, the analysis would benefit from
3) being sensitive to those institutions that condition the way we perceive ecosystem services.

Institutions and ecosystem benefits and values

When the focus shifts from ecosystem services to the benefits that humans experience and the value that humans derive from them, the institutions that become relevant are those that allow value identification and allocation in the society (Norgaard, 2009). The most apparent “value articulating” institution in the modern economy is the market, which is based on clear rights, measurable units, and such frequent transactions that capture the essential information about the traded units in prices. Many ecosystem services and benefits are not commensurable or tangible, so they cannot be clearly appropriated to some actors. Therefore, the market is rarely the correct institution to refer to when identifying values and when planning (re-)allocation of benefits. Other institutions that support identifying and (re-)allocating benefits include political and other decision-making processes.

- Who has the right to benefit from ecosystem services and how rights are distributed should be identified prior to analysing policies for (re-)allocating the benefits and values.

Institutions and the multi-level governance system of the EU

Ecosystem service provision and use are governed by a range of authorities with partly overlapping jurisdictions and also by private organisations with a range of goals and responsibilities. The intricacies of this kind of multi-level governance structures are exemplified by policy making and implementation processes in the European Union: power over the design and implementation of policies for securing ecosystem services rests with responsible EU and international organizations, regional authorities, cities, and communities as well as civil society and non-state actors. For multi-level governance to function, cross-level and cross-sectoral mismatches should be avoided and the different types of governance mechanisms should be coordinated.

- The analysis of institutions in a multi-level context should identify the potential mismatches of institutions across governance levels and across policy mechanisms. Further, this analysis might identify fruitful institutional interplay and coordination.

The performance of institutions

Although descriptive institutional analysis is informative, the consequences of particular institutional arrangements or governance mechanisms are often the target of analysis. Particularly economic and policy analyses with an institutional focus have aimed at identifying the connection between institutions and conservation behaviour, and even conservation outcomes. As an example, the payments for ecosystem services literature has addressed the institutional preconditions of establishing payment schemes and the conservation consequences following from different arrangements. Policies and institutions can be evaluated also with respect to equity, social acceptance, political feasibility and practicability, transparency and democracy, and legitimacy as well as trade-offs between different criteria.

- The analysis of institutions should, where possible, test the relation between institutional arrangements and ecosystem service provision.

Significance to OpenNESS and specific Work Packages[1]

WP1 **(Key challenges and conceptual frameworks)** needs to be sensitive to the institutional conditions that produce conceptualisations, and pay particular attention to the disciplinary and geographical boundaries that might allow identifying influential informal institutions (e.g. Jax & Heink, 2015; Saarikoski et al., 2015; for a thorough analysis of the concept, see Deliverable 1.1; Potschin et al., 2016).

WP2's (Regulatory frameworks and drivers of change) starting point is the analysis of formal institutions, i.e. existing and forthcoming regulatory frame-works. WP2 will identify potential regulatory gaps and institutional mismatches. WP2 seeks to unravel the mechanisms by which formal institutions influence ecosystem services and the benefits derived from them (see Deliverable 2.1 and Schleyer et al., 2015). In the scenario analyses, WP2 tests the influence of different institutional changes (see Deliverables 2.4 and 2.5). WP2 supports case studies in analysing national and local level formal and informal institutions (see also Primmer, 2016.

WP3 **(Biophysical control of ecosystem services)** is geared toward serving ecosystem service management and influencing the status of ecosystems with improved knowledge systems. Therefore, WP3 should pay attention to the existing knowledge use and management practices and the ways that these practices are embedded in formal laws and policies (see Deliverable 2.3 and Primmer et al., 2015). As a part of this exercise, WP3 should be sensitive to the rights and responsibilities that are assigned (or assumed) to different actors, including scientists. Additionally, WP3 would benefit from identifying practices that stem from informal norms, for example, in administration or research.

WP4 **(Valuation of the demand for ecosystem services):** The institutions that frame valuation should be identified in WP4. Ideally, WP4 should be sensitive to the very many different "value articulating" institutions that can be used in the scientific analysis but that are also applied in practice in the case studies (See Deliverables 4.1; 4.2 and 4.3). In particular, WP4 should identify the beneficiaries in an open fashion and seek to unravel why some actors have rights to benefit and identify values while perhaps others do not.

WP5 **(Place-based exploration of ES and NC concepts):** All case studies should be sensitive to the institutions framing the ES management practices in their case, and, where possible, identify the formal and informal institutions and the mechanisms by which they influence (facilitate or constrain) practice(s). Further, the case studies are in a position to link the ecosystem service provision with particular institutional arrangements.

WP6 **(Integration: Synthesis and Menu of Multiscale Solutions)** is dependent on the institutional analysis conducted in the project, so that it can base the institutional design recommendations on genuine empirically tested knowledge.

[1] For a brief description of the OpenNESS Work Packages see: http://openness-project.eu/about/work-packages

Relationship to four challenges[2]

Human well-being: Formally and informally defined rights of different actors to benefit from ecosystem services are institutions. Without recognising these institutions, we cannot influence them. Formal and informal institutions condition allocating and redistributing benefits to different groups in the society.	**Sustainable Ecosystem Management:** Formal regulations and informal practices condition ES management and also the supporting knowledge systems. It is essential that these institutions are identified, so that informed decisions about developing management tools can be made, and institutions can be designed to support sustainable development.
Governance: Institutional design and the rights of different actors are the starting point of governance. In addition to formally defined governance mechanisms, also existing informal practices shape governance. Identifying both formal and informal governance mechanisms provides an essential basis for further developing governance.	**Competiveness:** Clarity about the allocation of rights allows improved self-coordination by different actors and might improve opportunities for learning, innovation, and better coordination.

Open Problems/Issues to be discussed

1. Who benefits from ecosystem services, who uses them, and who governs them? Which institutions define the rights to benefit from ecosystem services and the responsibility to carry costs as well as the rights to manage or to (re-)allocate and alter the benefits and costs? (See, e.g., Primmer et al., 2015; Felipe-Lucia et al., 2015)
2. Which formal institutions enable governance of ecosystem services and by which mechanisms do they influence decisions? Which ecosystem functions are not formally governed? (See, e.g., Deliverable 2.1; Schleyer et al., 2015)
3. Which informal institutions influence the decisions made regarding ecosystems and by which mechanisms do they influence decisions? (See e.g., Primmer et al., 2015)

'Must Read' Papers

Ostrom, E. (1990): *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press, Cambridge, 280p.

Paavola, J. (2007): Institutions and environmental governance: A reconceptualization. *Ecological Economics* **63:** 93–103.

Vatn, A. (2005): Rationality, institutions and environmental policy. *Ecological Economics* **55**: 203– 217.

Further Literature or cited References

Felipe-Lucia, M. R., et al. (2015): Ecosystem services flows: why stakeholders' power relationships matter. *PloS one*, *10(7)*, e0132232.

Jax, K., Heink, U. (2015): Searching for the place of biodiversity in the ecosystem services discourse. *Biological Conservation* (191): 198-205.

Le Prestre, P.G., Ed. (2002): *Governing global biodiversity: The evolution and implementation of The Convention on Biological Diversity*. Ashgate, Aldershot, Hampshire, 428p.

Norgaard, R.B. (2009): Ecosystem services: From eye-opening metaphor to complexity blinder. *Ecological Economics* **69**: 1219–1227.

North, D.C. (1990): *Institutions, Institutional Change and Economic Performance*. Cambridge University Press, Cambridge, 152p.

[2] 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

Potschin, M., Haines-Young, R., Fish, R. and Turner, R.K. (eds). (2016): Routledge Handbook of Ecosystem Services. Routledge, London and New York, pp 582-585.

Primmer, E. (2011): Analysis of institutional adaptation: integration of biodiversity conservation into forestry. *Journal of Cleaner Production* **19**: 1822-1832.

Primmer, E. (2016): An institutional perspective. In: Potschin, M., Haines-Young, R., Fish, R. and Turner, R.K. (eds). Routledge Handbook of Ecosystem Services. Routledge, London and New York, pp 582-585.

Primmer, E., Furman, E. (2012): Operationalising ecosystem service approaches for governance: Do measuring, mapping and valuing integrate sector-specific knowledge systems? *Ecosystem Services* **1**: 85–92.

Primmer, E., et al. (2015): A framework for empirical analysis of ecosystem services governance. *Ecosystem Services* **16**: 158-166.

Primmer, E., Paloniemi, R., Similä, J., Barton, D.N. (2013): Evolution in Finland's forest biodiversity conservation payments and the institutional constraints on establishing new policy. *Society & Natural Resources*. DOI: 10.1080/08941920.2013.820814.

Saarikoski, H. et al. (2015): Appraising the cascade model to determine operational ecosystem service definitions: Case boreal forest in Finland. 25(7), 667-682. http://dx.doi.org/10.1016/j.ecoser.2015.03.006

Scott, W.R. (2001): *Institutions and Organizations*. 2nd Edition. Sage Publications, Thousand Oaks, 255p.

Young, O.R. (2002): *The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale*. The MIT Press, Cambridge, 221p.

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