

Beyond Measurements: Multiple Values of Nature and their Diverse Conceptualization

An introduction for practitioners, based on
the IPBES Preliminary Guide on Multiple ValuES

David González-Jiménez, Uta Berghöfer, Augustin Berghöfer, Katja Heubach,
Marina Kosmus, Alejandro von Bertrab-Tamm

April 2018

In a nutshell

In 2016 [IPBES](#) released a guide for improving the consideration of the different ways in which people relate with, appreciate and value nature. The guide is titled '[Preliminary guide regarding diverse conceptualization of multiple values of nature and its benefits, including biodiversity and ecosystem functions and services](#)' (henceforth IPBES guide on multiple values).

The underlying purpose of the IPBES guide on multiple values is to open up the space for recognizing, examining and articulating the value of nature. There are different ways in which the importance that humans attach to nature can be measured, other than solely monetary value metrics. By pointing out that diverse valuation approaches exist, something else is also acknowledged: There is a 'plurality' of worldviews which encompass various understandings of nature and notions of a 'good life'. Practitioners should not neglect this plurality when advancing practices, methods or standards in the assessment of biodiversity and ecosystem services. To consider this plurality can improve the design and implementation of policies, increasing their acceptance and legitimacy.

In order to improve the understanding of the different ways in which people value nature, the IPBES guide on multiple values reviewed a range of valuation methodologies and approaches, and developed a stepwise approach to design and perform value assessments. Primarily geared towards orienting IPBES assessments, the IPBES multiple values guide can be helpful to anyone who recognizes the need for taking a broader approach to assess and value nature's contributions to human well-being.

Example 1. Ignoring the diversity of values can exacerbate conflicts: The Gibe III dam in Ethiopia

The Gibe III dam, completed in 2016, is Africa's second largest dam. The dam will ensure energy security in face of Ethiopia's rapidly growing energy demand. It will reduce the risk of floods, while providing irrigation to large-scale plantations. However, this project has also affected about 200.000 agro-pastoralists and indigenous tribes by forcing them out of their land affecting the fragile ecosystems they live in and depriving them from their sources of livelihood.

The dam's supporters claim that it will boost national economic development. Its opponents argue that the dam's likely huge socio-environmental impacts have not been adequately considered during planning and construction. Beyond the loss of homes and livelihoods, the dam will most likely affect eight tribes further downstream, thus causing further losses of cultural identity, stewardship and knowledge about the land.

This environmental conflict is in a field marked by power asymmetries and a poorly articulated civil society. In this context, focusing only on the possible monetary gains or financial costs of the dam, conceals other important social and ecological values which also play a role in development. Such other values would be those that local groups attach to land-based livelihood strategies, to the provision of ecosystem services from the previous state of ecosystems or the values associated to their relationship with the landscape. Poor visibility of multiple values may lead national decision makers and foreign investors to neglect efforts towards a more integrated development path.

Sources: <http://www.canr.msu.edu/oturn/>
<https://www.internationalrivers.org/campaigns/gibe-iii-dam-ethiopia>

What are 'multiple values of nature and their diverse conceptualization'?

Conceptualizing 'values' begins with clearly distinguishing between the ways in which people understand the term and how values can change across contexts and scales:

1. People differ in how they understand the word 'value'. The term can refer to:

- **Principles** or core beliefs underpinning rules and moral judgement, for example the values of 'solidarity', 'honesty' or 'intergenerational equity'. According to this perception, 'values' point towards what a particular social group considers as morally 'right' or 'wrong'.
- The **importance and preference** that people have for something or for a particular state of the world, for example, the value attributed to the giant sycamore trees in Virginia, or the value of a river in good ecological status compared to a degraded river.
- A **particular value metric, indicator or symbol**, such as a monetary value estimate of a wetland's water purification capacity. Such a value estimate can become an indicator to analyze and compare people's preferences.

2. People differ in the importance (i.e. the value) they attribute to nature and its elements. This depends on the local, cultural, socio-economic and ecological contexts. It is also shaped by people's experiences, beliefs and understandings. Furthermore, values can change across spatial scales differing as we zoom in or out from local to global scales and across contexts; they can also change across temporal scales, being that values today may not be the same as in the future (see the peatland rewetting example in the box below).

Example 2. Different values attached to the same landscape

In Northern Germany, the drainage of peatlands has been for generations a prerequisite for being able to live off the land. Developing drainage infrastructure, which has been a policy priority since the 18th century, required continuous human efforts. It became part of everyday life and local culture. Drained peatlands are characteristic landscapes in many districts. Today a high proportion of peatland in the region is degraded due to these practices, and further drainage is increasingly costly. In addition, from a climate policy perspective, there is a clear demand for peatland rewetting. Thus economic and climate motivations challenge the traditional agricultural use of peatlands.

This has resulted in conflict. For many residents and farmers, peatland rewetting contradicts their view of the landscape. As dry meadows are restored to wet peatlands, the agricultural value of the land changes, the local sense of place is affected, and professional and local identities are challenged. Contrary to them, other residents, birdwatchers, conservationists, and tour operators welcome rewetting efforts and the changes these efforts bring to the landscape.



Moor frog (*Rana arvalis*). Picture: A. Künzelmann/UFZ

3. Scientific disciplines have developed different concepts for analysing and describing values that people assign to nature. These comprise intrinsic, instrumental and relational values (see figure 1).

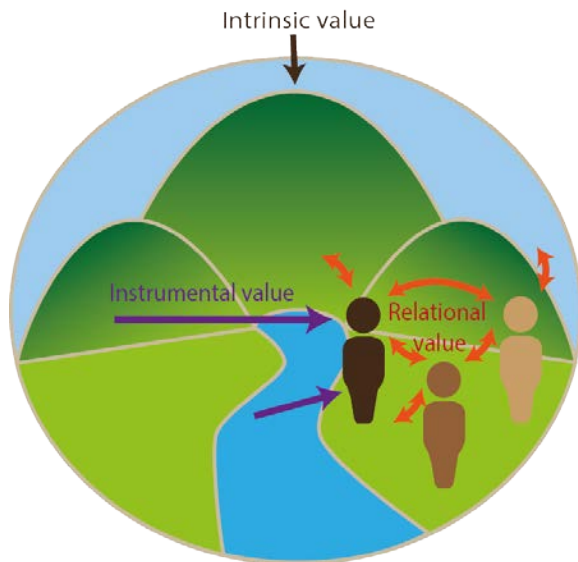


Figure 1. Intrinsic, instrumental and relational value categories co-exist. They complement each other, reflecting different aspects of human interactions with nature. Source: Modified from Piccolo et al. 2017

a) Intrinsic values are independent of any human experience and evaluation, and refer to the inherent value of nature and its components. *Example: A certain species has the right to exist and possesses inherent worth, independent of its contributions to people's well-being.* Those who recognize the intrinsic value of nature usually express this through their principles and preferences, their actions and their decisions.

b) An instrumental value refers to the value attributed to nature as a means to achieve a particular end, relating to nature's contributions to people's well-being. *Example: Water regulation as an ecosystem service that enables many different human activities.*

c) Relational values do not refer to things but reflect human relationships with nature, and the importance people attribute to these relationships. *Example: A caring attitude or a loving attachment to a certain landscape.* Relational values are associated with cultural identity, social cohesion, social responsibility and moral responsibility towards nature, which are components of a good quality of life.

The IPBES framework on multiple values of nature

Philosophy, economics, sociology, and anthropology have explored human-nature relationships from different angles, operating with specific paradigms and methodologies that are not per se compatible. Also, values are subject to a large body of experience-based and/or traditional forms of knowledge. Bringing these concepts into a fruitful exchange is a challenge.

A preliminary solution is to explicitly acknowledge that value descriptions or value estimates are 'constructs', i.e. efforts to express value, rather than measurements. In simple words, measuring value is more similar to measuring intelligence than to measuring temperature: With different approaches, the concept of intelligence (or value) evolves and takes on a different shape, emphasis, or focus. And: multiple values co-exist.

There are various attempts to bring these multiple values of nature and their diverse conceptualisation into a coherent and encompassing framework.

The current thinking within IPBES is expressed in its conceptual framework (see left side panel of Figure 2). This conceptual framework allows the explicit consideration of multiple values (i.e. intrinsic, instrumental and relational) and how they change across individuals, contexts and scales (see right side panel of Figure 2). Nevertheless, the IPBES approach to unravelling such diversity of values is neither exhaustive nor prescriptive.

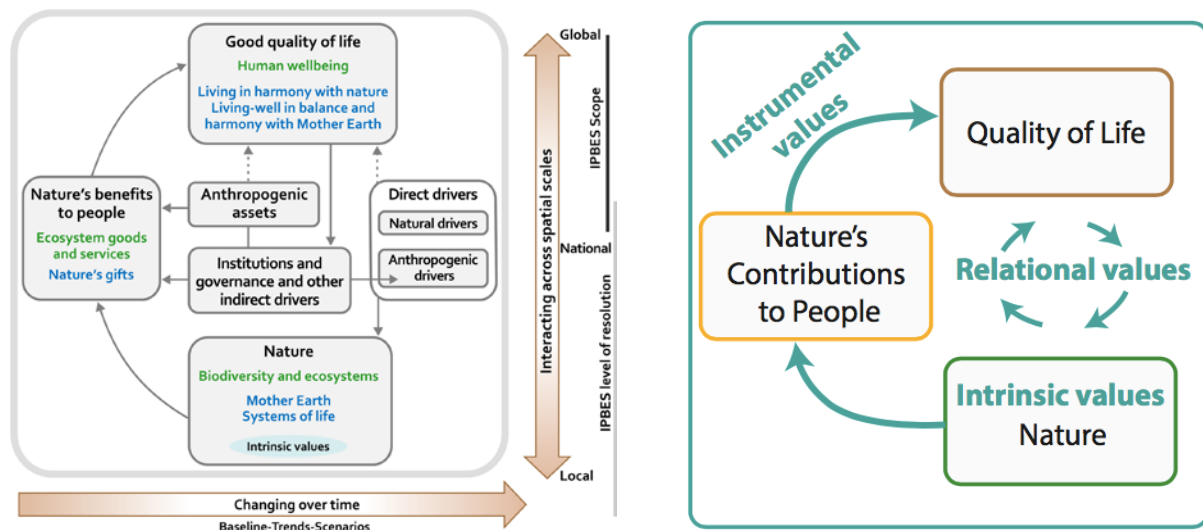


Figure 2. The IPBES conceptual framework on the left side of the figure expresses the relationships between nature and good quality of life. On the right, the figure is focused on the links between nature, nature's contributions to people and quality of life to identify how intrinsic, instrumental and relational values play a role in understanding the interactions between nature and people. IPBES Conceptual Framework, Source: Diaz et al. 2015 and IPBES 2018.

Example 3. Policy responses to multiple values of nature: New Zealand establishes legal personality for a river

In March 2017, the New Zealand Parliament passed an historic act, in which the Whanganui River was granted legal personality. This is the first such attribution of legal rights to a river worldwide. This was decided on as part of legal settlements for the local Maori *iwi* (tribe) who up till then had been subject to a long legacy of resource appropriation, initially by the British Crown and subsequently by the national government. Under the former regime, the river and surrounding lands had been fragmented, sold and exploited. This had also eroded the river's value for the identity and culture of the Whanganui *iwi*.

The new act gained international attention for bridging (post-)colonial and indigenous world views. Among the views of nature as a resource and nature as a universal heritage, it acknowledged the specific importance and identity of the river in the context of Maori culture.

Only a few months after the legislation passed, New Zealand granted legal personality to Mount Taranaki on similar grounds. Both cases demonstrate the legal feasibility of alternative approaches to environmental management, which recognize multiple values of nature. This is particularly relevant in places with histories of colonization (Roy 2017 a/b).

How to consider multiple values in practice?

A stepwise approach by IPBES

In principle, there are always multiple views and corresponding values at stake in any environmental decision situation. However, there are situations in which low awareness of such value diversity is more critical than in others (see box 1).

IPBES explicitly seeks to bridge across different valuation results that reflect different value systems or worldviews (Step 4). The IPBES guide's stepwise approach considers that different valuation methods influence the ways in which a particular component of nature is described and hence, reflect a certain worldview. For instance, while market approaches to valuation may highlight the economic value of ecosystem services, other methods like surveys and questionnaires may enable the identification of certain peoples' preferences regarding elements of nature. The task is to bring such results together into a meaningful interpretation.

The IPBES stepwise approach consists of the following:

Step 1 – Defining the valuation purpose

The purpose of values assessments should be specified and agreed upon among the main stakeholders. This includes developing a shared understanding of the policy issue and its political context as well as identifying and clarifying questions to address. Purposes can include:

- Comparing alternative policies, programmes and projects
- Conveying environmental messages, arguments and evidence
- Resolving environmental conflicts
- Estimating environmental losses and determining compensation requirements
- Identifying livelihood or development opportunities

Step 2 – Defining the scope

Based on the defined purpose and once the need to approach divergent values is confirmed, the next step is to define the scope, considering the following issues:

- Worldviews and the types of values (i.e. intrinsic, instrumental or relational) relevant to the valuation purpose
- Scale of the exercise, including spatial, temporal or social organization scales
- Different knowledge and value holders, and their appropriate representation in the valuation
- Resources needed, including time, personnel, funding and equipment necessary to perform the study/assessment

Box 1. Situations where concern for multiple values and value systems may be critical

- Changes in landscapes (e.g. transitions towards 'modern' agriculture plantations or from highly managed to protected landscapes)
- Competing land users (e.g. pastoral communities and agricultural settlements in the same region)
- Large infrastructure projects (e.g. open mines, tourism projects or hydroelectric dams)
- Conservation conflicts (e.g. within and in the buffer zones of protected areas)
- Rapidly growing urban areas attracting rural dwellers from different ecoregions of a country
- Conflicts between indigenous communities or First Nations, and public administration, or among community members with substantially differing worldviews

Step 3 – Valuation

In this step, it is critical to choose valuation methods appropriate to the study questions, which are in turn shaped by the study's purpose and scope. In case of a review or comparison of existing studies, it is necessary to identify those that applied methods appropriate to the assessment's purpose (see example 4). In both cases, it is important to reflect on who is making the selection of valuation methods or studies and explicitly recognize their strengths and weaknesses.

Example 4. Integrating multiple values in the Sapzurro tropical rainforest in Colombia

In Sapzurro beach, Colombia an integrated valuation exercise took place to strengthen nature based tourism projects, which are part of the integrated conservation and development projects implemented in the country since the 1980s. This experience demonstrates how different valuation methods can reflect multiple values and how they can be further integrated.

Purpose	Scope	Focus of valuation	Associated values	Valuation methods	Value integration methods	Main results
Conveying arguments and evidence: Strengthen Nature Based Tourism Projects	Worldviews and values of: Tourists, locals and experts Scale: Present time, local scale (e.g. Sapzurro beach)	Terrestrial and marine elements related to biodiversity and tourism	Importance	Ecological valuation: Site visits, species	Workshops: To present, explain and integrate results from independent methodologies and define attributes for the choice-experiment Narratives: To present results in an integrated manner	Tourism poses an increased pressure on natural resources
			Preferences	Socio-cultural valuation: Ethnographic methods, participatory methods, cartography, interviews.		Changes in the environment require social adaptation processes Tourism projects should recognize local cultural practices Tourists prefer less infrastructure interventions and more improvements in existing infrastructure
			Measures	Economic valuation: Choice experiment		People are willing to pay for marine activities and trails in secondary forests

Example based on: Villegas-Palacio et al. 2016

Step 4 – Integration, bridging and up-scaling

The different values described and the results from different methods need to be brought together in meaningful ways. This can produce a coherent explanation that considers different particularities, or it can also reflect that different values were taken into account. Values integration can also help to reach compromises, by means of e.g. a multi-criteria decision support tool. The results should flow into specific policy responses without overlooking the multiple values at stake. It may happen that due to absence of information or

resources, we may resort to values elicited at different scales or in different locations and adjust them to the local situation ('benefit transfer'). When this is necessary, we must acknowledge and describe the limitations of such practice.



Exchanging views (and values) from West Africa on the IPBES regional assessment. Picture: MINSIEDD

Step 5 – Communication

Presenting values to different audiences may require specific formats, such as quantitative, narrative, visual, and performative set-ups. Step 1 (defining the purpose) helped to specify the audience for the assessment. For appropriate communication of valuation/assessment results, it is also relevant to document the confidence associated with identified values and their corresponding assumptions. Communication is not only important in terms of presenting studies' results but also along the entire assessment process.

Step 6 – Review

During review, the quality of the valuation process and its results should be reflected. For this, the principles of credibility, legitimacy and relevance can guide the discussion. Review is mainly about learning and adaptation, and less about quality control. Concern for multiple values and their description will regularly result in situations, where results do not fit into a conventional peer review of high scientific standards.

Conclusions

- Acknowledging a diversity of worldviews and multiple values of nature can lead to better policy outcomes. Knowing better about such multiple values permits a more inclusive policy design and a more effective implementation, increasing the legitimacy and acceptance of values assessment efforts.
- Focusing on multiple values can reveal power asymmetries in land use and in decision-making, thereby it can promote more equal and just development-related decisions.
- Recognizing the co-existence of multiple values is a starting point to bridge different value systems, strengthen social interaction and improve negotiations.
- The choice of valuation methods is not only a technical but also a political decision. Underlying worldviews determine which types of value, valuation approaches and methods may be perceived as appropriate in any given context.
- Considering multiple values requires reflecting on what methods are used to elicit values, what questions are asked, what data is collected and what interpretation is given to the results. Making the reasons for such choices explicit and context-specific can help highlight value dimensions more clearly in decision-making.
- Following a stepwise approach for values assessments may improve studies' relevance and appropriateness for a specific issue and context (e.g. as inputs to resolve a conflict).



Rappbode dam, Germany. Picture: A. Künzelmann/UFZ

Further information

- Preliminary guide on the methodological assessment regarding diverse conceptualization of multiple values of nature and its benefits:
http://www.ipbes.net/sites/default/files/downloads/IPBES-4-INF-13_EN.pdf
- Pascual, U., et al. (2017). "Valuing nature's contributions to people: The IPBES approach." *Current Opinion in Environmental Sustainability* 26-27: 7-16.
<https://www.sciencedirect.com/science/article/pii/S1877343517300040>
- ValuES: Methods for integrating ecosystem services into policy, planning, and practice.
www.aboutvalues.net
- IPBES Policy support tools catalogue – Methodological guidance on diverse values and valuation. <https://www.ipbes.net/diverse-values-valuation>
- Villegas-Palacio, C., et al. (2016). "Lessons from integrated valuation of ecosystem services in a developing country: Three case studies on ecological, socio-cultural and economic valuation." *Ecosystem Services* 22: 297-308.
<https://www.sciencedirect.com/science/article/pii/S2212041616304314>
- Piccolo, J., et al. (2017). "Intrinsic values in nature: Objective good or simply half of an unhelpful dichotomy?" *Journal for Nature Conservation* 37: 8-11
<https://www.sciencedirect.com/science/article/pii/S1617138117300742>
- Roy, E. A. (2017). "New Zealand River granted same legal rights as human being". *The Guardian*. Published online 16.03.2017. <https://www.theguardian.com/world/2017/mar/16/new-zealand-river-granted-same-legal-rights-as-human-being>
- Roy, E. A. (2017). "New Zealand gives Mount Taranaki same legal rights as a person." *The Guardian*. Published online 22.12.2017.
<https://www.theguardian.com/world/2017/dec/22/new-zealand-gives-mount-taranaki-same-legal-rights-as-a-person>
- Chan, K. M. A., et al. (2016). "Opinion: Why protect nature? Rethinking values and the environment." *Proceedings of the National Academy of Sciences* 113(6): 1462-1465.
<http://www.pnas.org/content/113/6/1462>

Imprint

The project ValuES ([aboutvalues.net](http://www.aboutvalues.net)) works to disseminate methods and approaches for improving the integration of ecosystem services in policy, planning and practice. The project is being implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), with the support of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), and in collaboration with the Helmholtz Center for Environmental Research (UFZ) and the Conservation Strategy Fund (CSF).