

Tools and Approaches for Integrating Cultural Ecosystem Services

Measuring, mapping, and integrating what communities value about nature

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Ecosystem Services

Provisioning

*Material goods
provided by nature*

- Food & water
- Timber & fibre
- Genetic resources



Regulating

*Benefits obtained from the regulation of
ecosystem processes*

- Climate regulation
- Flood buffering
- Water purification



Cultural

*Non-material benefits
people derive from nature*

- Recreation & tourism
- Aesthetic experience
- Spiritual & religious
- Sense of place
- Identity & belonging



The Challenges of Evaluating Cultural Ecosystem Services

Cultural ecosystem services are critical for people's quality of life but are often disregarded because non-material benefits people obtain from ecosystems are often difficult to evaluate.



The Economic Metric

Promotes environmental considerations in policy via direct economic valuation (e.g., the timber value of a tree, raw water production).



Limitation: Promotes an anthropocentric, utilitarian perspective that ignores deep human connection.



The Cultural Metric

Captures non-material benefits including spiritual enrichment, cognitive development, reflection, and aesthetic experiences.



Challenge: Frequently overlooked because they defy traditional economic quantification and are highly subjective.

Expanding the Conversation: Nature's Contributions to People

Millennium Ecosystem Assessment →
Ecosystem Services

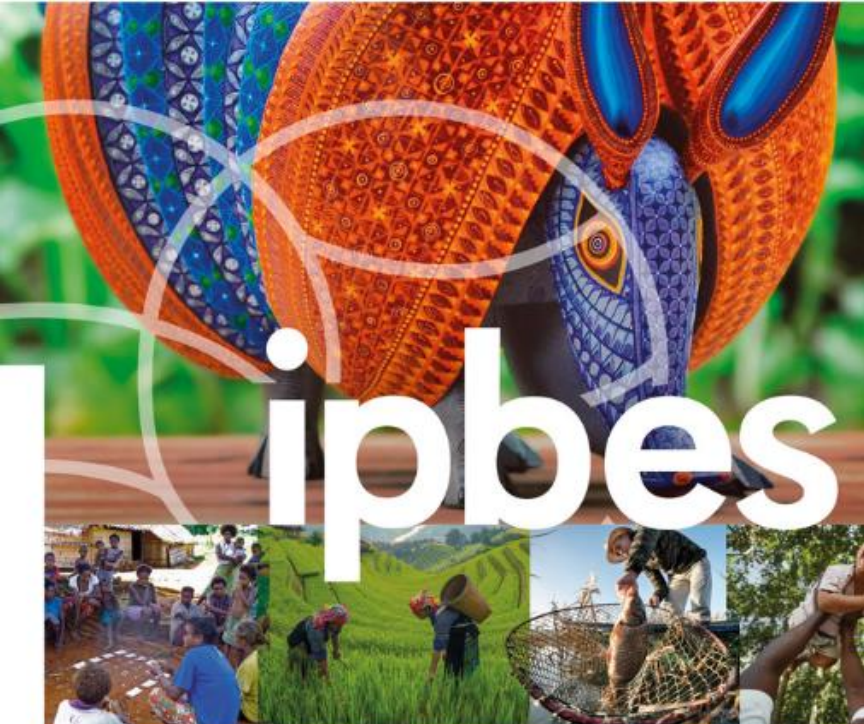


The MEA (2005) introduced ecosystem services as a framework linking ecosystems to human well-being, covering provisioning, regulating, and cultural benefits.

IPBES → Nature's Contributions to
People (NCP)



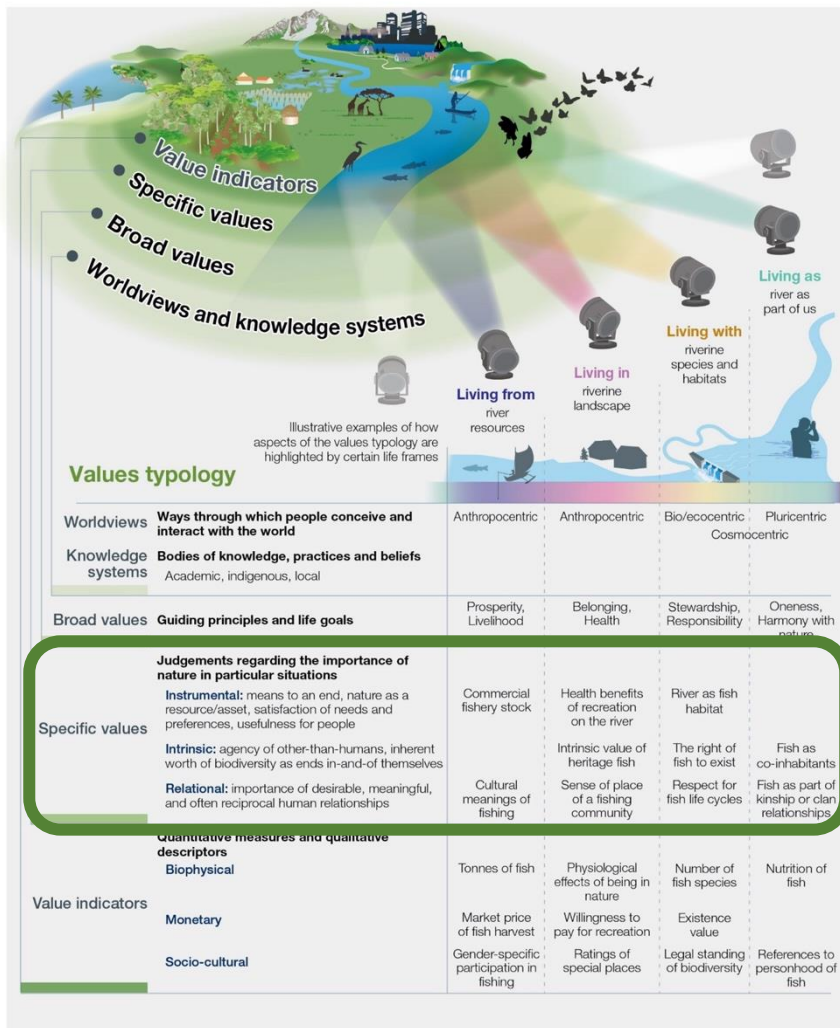
NCP broadens the framing of human-nature relationships, emphasising plural values, diverse worldviews, and cultural contexts. Include material, non-material and regulating NCP



ipbes

The assessment report on THE DIVERSE VALUES AND VALUATION OF NATURE

SUMMARY FOR POLICYMAKERS



What are we still missing?

Despite NCP's broader framing, many socio-cultural processes shaping how people value nature remain implicit or unmeasured:

- ? Culture
- ? Values
- ? Beliefs
- ? Knowledge
- ? Identity

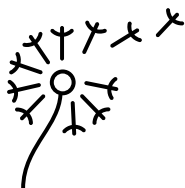
Many of the most meaningful human-nature relationships are shaped by context, worldview, and lived experience, yet these remain underrepresented in current assessments

Socio-cultural processes underpinning non-material contributions are still largely invisible in how we assess nature's value.



The Remaining Challenge

Even when values are measured and mapped, a critical question remains:



Why do people
value nature
differently?



How are
values formed
in the first place?



How do identity,
worldview &
knowledge shape values?

Standard CES and IPBES approaches identify what people value, and where.
They're less equipped to explain the underlying socio-cultural processes - the context, identity, and feedbacks that produce those values.

Integrating CES and NCP

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PERSPECTIVE

OPEN ACCESS



Towards an integrated framework for understanding social-ecological interactions: nature's contributions to people meets cultural ecosystem services

Kim C. Zoeller^{a,b} and Graeme S. Cumming^{a,c}

Proposal of an adapted IPBES framework that makes the socio-cultural processes underpinning non-material NCP explicit. Four key concepts anchor this integrated approach, bridging Cultural Ecosystem Services and NCP to better capture how people experience and value nature.

Mapping cultural ecosystem services onto the IPBES conceptual framework

Co-production



Interaction between social & ecological systems that generates benefits: two-way, not just nature-to-people

Co-construction



Interaction between individuals & their society that shapes the values they hold

Socio-cultural context



Heterogeneity in culture, identity, language & knowledge systems drives differences in how people value nature

Human-nature feedbacks



People shape ecosystems; ecosystems shape people. Recognising this loop is essential for effective governance

Towards Integrated Infrastructure Planning

1

Measure

Understand what communities value

- Quantitative surveys
- Qualitative interviews & focus groups
- Socio-cultural valuation across demographic groups
- Capture plural values: relational, intrinsic, instrumental

Account for diverse values

2

Map

Identify where those values occur

- PPGIS & participatory mapping workshops
- Spatial overlay with infrastructure corridors
- Place attachment & recreation hotspots
- Connect ecological scale (species → landscape) to social context

Make values visible to planners before decisions are locked in

3

Integrate

Embed values in planning & governance

- Use the framework to explain (not just describe) value differences
- Identify feedbacks: how communities steward or degrade ecosystems
- Align governance with community well-being & place attachment
- Support long-term stewardship through culturally grounded decisions

Explicit feedbacks → better conservation outcomes

Take-home message

Cultural values can be measured, mapped, and integrated.

Cultural Ecosystem Services and Nature's Contributions to People provide important ways of understanding the non-material benefits people derive from nature. Measuring and mapping these values reveals how communities experience landscapes. Integrated frameworks like the one presented here explain the socio-cultural processes that underpin those values, not just what people value, but why, and how those differences shape the relationship between communities and their environment.

Together, these approaches can support Nature-Positive infrastructure planning and governance that better reflects community well-being, place attachment, and long-term stewardship of ecological systems.

Community well-being

Place attachment

Long-term stewardship

Nature-Positive governance

Thank you