CitiesWithNature GUIDE

CitiesWithNature

CONTENT

01 Overview

Why is this Guide useful to cities?

By understanding values regarding nature held by the citizens in your city, you can better respond to the needs and the values of your citizens in your governance, planning and investments.

What can you expect from this Guide?

This guide will help you:
1. understand the diverse values of nature,
2. measure and make visible the values of nature,
3. leverage the diverse values of nature for transformative change, and
4. embed the values of nature in decision-making. It is directly derived from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Methodological Assessment Report on the Diverse Values and Valuation of Nature, and tailored to suit a city-context perspective.

What do values mean for cities?

Cities are home to a high density and diversity of people. These people also hold a range of values in terms of preferences and principles. This variety of values is part of what makes cities vibrant, dynamic, and interesting places to live. However, this diversity can also present challenges when clashes and conflicts in values arise. For example, some people might value a forest for the opportunity to harvest timber, while others might enjoy it as a place of recreation. Being able to discern the array of values that different urban dwellers hold is important so that they can be brought into conversation and negotiation together, and conflicts can be navigated.

Despite humanity's reliance on nature, rapid and devastating loss of biodiversity is pervasive across our planet. The causes of the global biodiversity crisis and the opportunities to address them are tightly linked to the ways in which nature is in political and economic decisions at all levels. Despite the diversity of nature's values, most policymaking approaches have prioritized a narrow set of values (for example, nature's material contributions to people that are traded in markets, such as food, fibre and energy) at the expense of both nature and society, as well as of future generations, and have often ignored values associated with Indigenous Peoples' and local communities' worldviews.

What are values?

The term 'values' has diverse meanings across disciplines, reflecting different ways people understand and relate to nature. It can signify principles tied to cultural or worldview contexts, preferences for certain states of the world, the importance of something for itself or others, or even a measurable attribute.

Values of nature, as defined in the IPBES Values Assessment, represent what individuals and societies care about and deem significant in their relationship with nature. These values can be intrinsic (nature's worth in itself), instrumental (nature's benefits to people), or relational (how nature contributes to a good quality of life). Recognizing and integrating this diversity of values is key to fostering equitable and sustainable interactions with nature.

What is valuation?

According to the IPBES Values Assessment, 'valuation' is the process of intentionally assessing the values of nature to determine its importance and for whom, thereby enabling better governance. It involves using agreed-upon procedures rooted in specific knowledge systems or disciplines. Valuation methods are the techniques used to gather, analyze, and communicate this information, while valuation approaches provide the guiding principles and frameworks. For example, a focus group discussion can serve as a method within a participatory approach. **This guide introduces a typology of valuation methods and highlights their diverse applications.**

02 Understanding the diverse values of nature

There are many ways of understanding and connecting with nature, of values of nature and nature and its contributions to people. Gaining an increased understanding of this diversity of values of nature can help decision-makers better manage conflict and deliberations among values.

The many ways that people relate to nature can be classified into generalized **modes** or **life frames**:

Living from nature:

Emphasizing nature's capacity to provide resources for sustaining livelihoods, needs and wants.

Example: A river is valued for the fish it provides for people's consumption.

Living in nature:

Referring to the importance of places as settings for people's lives, practices, and cultures.

Example: A riverine landscape is valued as territory that contributes to people's sense of place and identity.

Living with nature:

Valuing its life-supporting processes in connection with "other-than-humans".

Example: The fish in a river are seen as having the right to thrive independently of people's needs.

Living as nature:

Perceiving themselves as part of nature or perceiving nature as a physical, mental, and spiritual part of themselves.
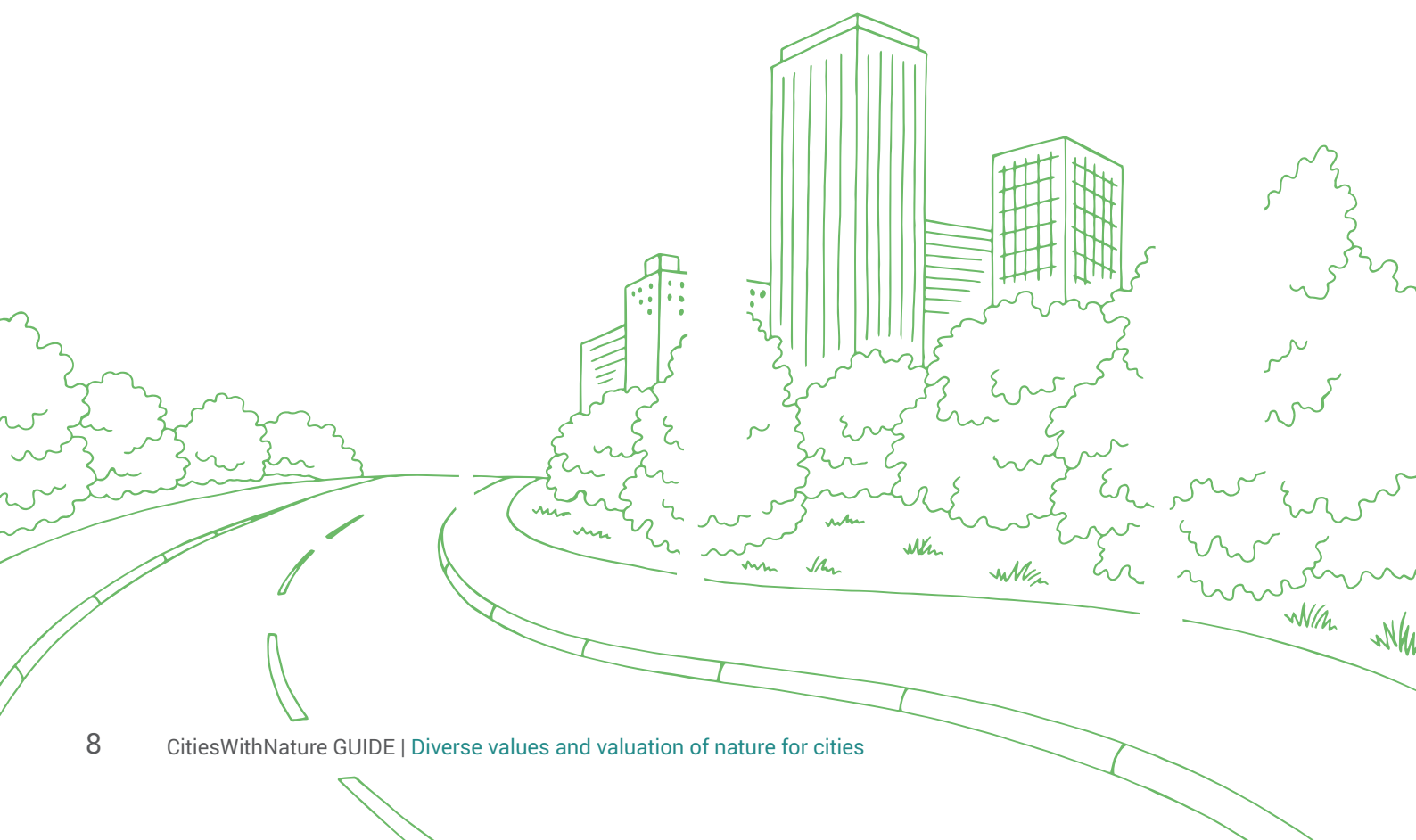
Example: A river is valued as sacred or family because it supports relations of kinship and interdependence.

These interpretations of nature are not mutually exclusive, and one mode is not inherently better than another. Instead, they may be expressed together in varying combinations over different times and contexts. For example, a forest may be valued as a sacred place (living *as*) but it may also provide timber for fuel (living *from*).

The *living from nature* frame has been privileged in environmental research and policy, driving unsustainable outcomes. A more balanced representation provides multiple levers for sustainability transformations, including different sets of sustainability-aligned values.

Using a typology of values of nature can provide guidance to decision-makers on understanding and engaging with the diverse ways in which people relate to and value nature. The typology includes the concepts of worldviews, knowledge systems, broad values, specific values, and value indicators (Figure SPM2). Decision-makers can use this typology to examine points of convergence or overlap between value types, understand when values can be directly compared, overlaid, or used in parallel, make visible neglected contributions from nature, and build common ground across stakeholders.The values assessment typology highlights key concepts and their interrelationships to understand the diverse values of nature.

The figure centres on potential foci of value (e.g., agroecosystems, biodiversity, cities, rivers) and concentric circles illustrate different value types and dimensions (worldviews, broad and specific values, nature's contributions to people and value indicators). Life frames are not mutually exclusive; individuals or groups can hold multiple frames. Examples are highlighted of some values that might be given prominence in the context of a freshwater ecosystem.

Value indicators

Specific values

Broad values

World-views and knowledge systems

Living as
river as part of us

Living with
riverine species and habitats

Living in
riverine landscape

Living from
river resources

Illustrative examples of how aspects of the values typology are highlighted by certain life frames

Values typology

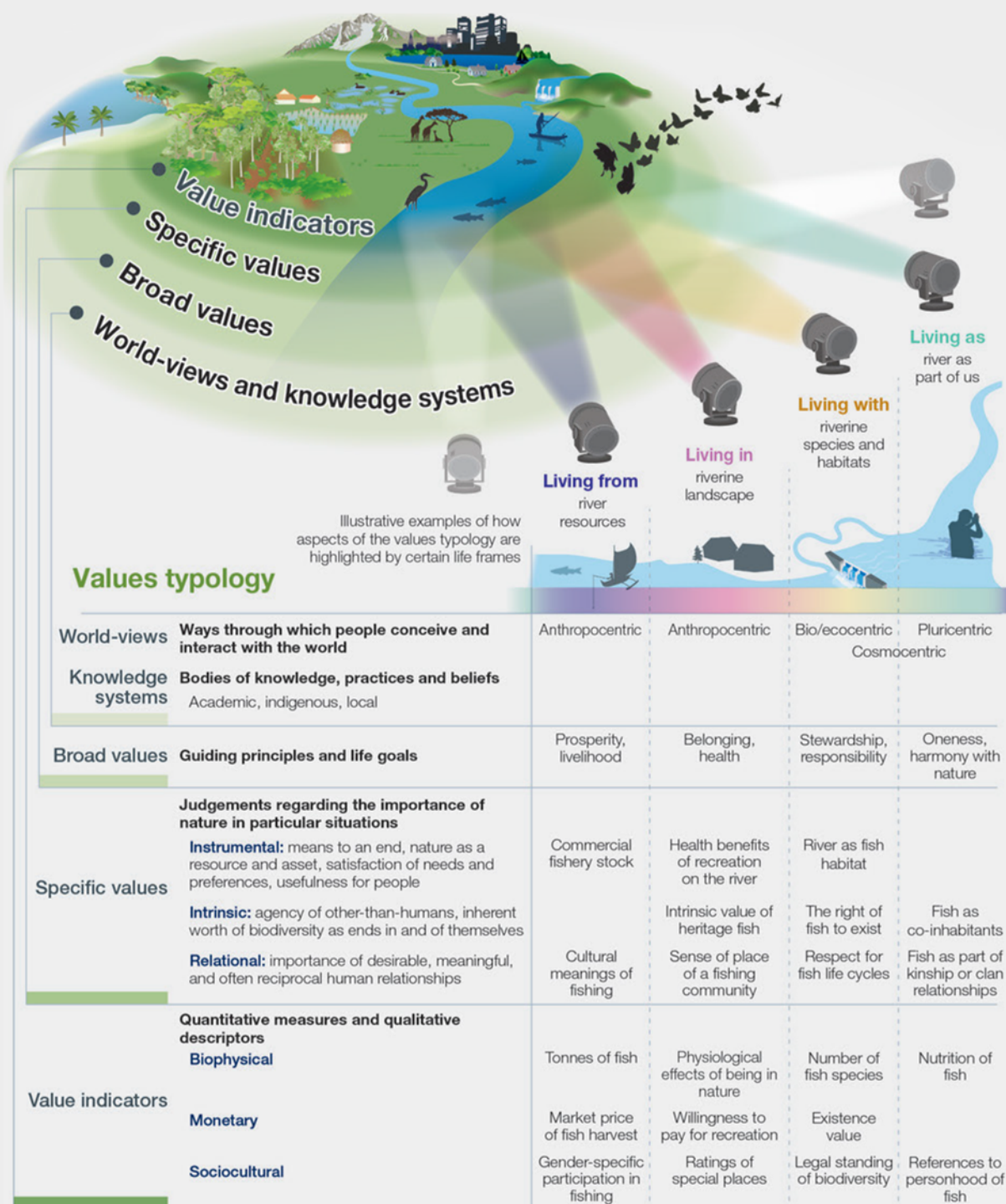|		Living from (river resources)	Living in (riverine landscape)	Living with (riverine species and habitats)	Living as (river as part of us)
World-views	Ways through which people conceive and interact with the world	Anthropocentric	Anthropocentric	Bio/ecocentric Cosmocentric	Pluricentric
Knowledge systems	Bodies of knowledge, practices and beliefs — Academic, indigenous, local				
Broad values	Guiding principles and life goals	Prosperity, livelihood	Belonging, health	Stewardship, responsibility	Oneness, harmony with nature
Specific values	**Judgements regarding the importance of nature in particular situations**				
	Instrumental: means to an end, nature as a resource and asset, satisfaction of needs and preferences, usefulness for people	Commercial fishery stock	Health benefits of recreation on the river	River as fish habitat	
	Intrinsic: agency of other-than-humans, inherent worth of biodiversity as ends in and of themselves		Intrinsic value of heritage fish	The right of fish to exist	Fish as co-inhabitants
	Relational: importance of desirable, meaningful, and often reciprocal human relationships	Cultural meanings of fishing	Sense of place of a fishing community	Respect for fish life cycles	Fish as part of kinship or clan relationships
Value indicators	**Quantitative measures and qualitative descriptors**				
	Biophysical	Tonnes of fish	Physiological effects of being in nature	Number of fish species	Nutrition of fish
	Monetary	Market price of fish harvest	Willingness to pay for recreation	Existence value	
	Sociocultural	Gender-specific participation in fishing	Ratings of special places	Legal standing of biodiversity	References to personhood of fish

Figure SPM 2 The values assessment typology highlights key concepts and their interrelationships to understand the diverse values of nature.

The figure centres on potential foci of value (e.g., agroecosystems, biodiversity, cities, rivers) and concentric circles illustrate different value types and dimensions (world-views, broad and specific values, nature's contributions to people and value indicators). Life frames are not mutually exclusive; individuals or groups can hold multiple frames. Metaphorically, they are light beams that cut across value categories. Examples are highlighted of some values that might be given prominence in the context of a freshwater ecosystem {2.2; 2.3}.

Incorporation of the diverse values of nature in decisions requires consideration of whether and how values can be directly compared, made compatible, or be considered in parallel.

Directly comparable values:

When they are measured using the same metric.

Example: Biophysical measures may be used to compare hectares of habitat lost due to a development project versus hectares restored to offset the loss.

Compatible values:

Share features that allow them to be considered together and reveal trade-offs, even when they were measured through different indicators.

Example: Spatially overlaying different bundles of nature's contributions to people measured with biophysical, monetary and sociocultural indicators.

Incommensurable values:

Cannot be brought together because they are neither comparable nor compatible.

Example: While a development project may be assessed on the basis of societal benefits (e.g., in terms of economic benefits, including jobs), it may also affect values associated with the loss of

Decision-making based on shared values seeks to have people express their values collectively. Shared values can be formed through long-term communication and socialization processes or through group deliberations.

Shared value formation approaches can enhance the legitimacy of decisions in complex, highly uncertain and contested decision-making situations, and where values held at the individual scale cannot be aggregated.

In addition, while values influence individual and collective decisions, other factors like knowledge, beliefs, opportunities, and skills also affect behaviour. The inability to fully explain behaviour based on values is known as the "value-action gap," which is important to consider when crafting policy.

Institutions (i.e., informal social conventions and norms, and formal legal rules) are underpinned by and support certain values in ways that strongly influence whose values count in decisions. Promoting changes in any institution can reconfigure how nature's values are considered in different types of political, economic and sociocultural decision-making.

The role of institutions in prioritizing certain (broad and specific) values of nature is evident through locally- and nationally-defined rules, and international trade and environmental agreements. For example, the Convention on Biological Diversity's Kunming-Montreal Global Biodiversity Framework highlights the relational and intrinsic value of nature for indigenous peoples. Many international trade agreements recognize the instrumental values of nature as commodities that can be bought, sold, and traded.

Predominant economic and political decisions have prioritized certain values of nature, particularly market-based **instrumental** values, often at the expense of non-market instrumental, **relational** and intrinsic values.

- **Instrumental values:** means to an end, nature as a resource and asset, satisfaction of needs and preferences, usefulness for people

- **Relational values:** importance of desirable, meaningful and often reciprocal human relationships

- **Intrinsic values:** agency of other-than-humans, inherent worth of biodiversity as ends in and of themselves.

Globally, economic decisions have generally prioritized a narrow suite of instrumental values, particularly those of nature's material contributions to people that are traded in markets (e.g., food, fibre, energy). These decisions have often ignored the externalities associated with the negative impacts on biodiversity and ecosystems.

Did you know?

Policymakers have the potential to ensure a more balanced consideration of nature's diverse values, but success in this regard has been limited. Designing institutions that integrate economic, social and environmental policies to foster values inherent in sustainability and justice, that focus up-front on avoiding serious future impacts on nature and nature's contributions to people and that make people less dependent on economic development may be important strategies to handle the challenges the world faces, taking into account the needs of developing countries to raise living standards.

Case study:

Conflicting values about mining: 👆
Niyamgiri mountain in Odisha, India

In 2004, Vedanta Resources sought permission to mine Niyamgiri mountain, citing a cost-benefit analysis emphasizing instrumental values like profits and infrastructure. However, the mountain is sacred to the Dongria Kondh and Kutia Kondh indigenous peoples, whose survival depends on its ecosystem. Conservationists, advocating for intrinsic ecological values and indigenous relational values, challenged the permit in court.

The Indian Supreme Court initially approved the mine, prioritizing economic development ("living from" frame). Protests followed, highlighting indigenous cultural and biodiversity values. In 2013, the court reversed its decision, recognizing the tribes' rights to worship and requiring their inclusion in decision-making. Referenda held by affected villages ultimately rejected the mining project.

This case illustrates how differing valuation approaches (instrumental, intrinsic, and relational) represent diverse life frames and values. While conservationists highlighted ecological and cultural intersections, their methods couldn't fully capture the indigenous peoples' spiritual and territorial connections, which proved decisive in halting the mining.

# Hypothetical case study:

Managing ocean crayfish populations off an urban coast

Different perspectives on crayfish values:

- **Living from nature:** Commercial fishers view crayfish primarily as a food commodity with monetary value.

- **Living with nature:** Ecologists value crayfish intrinsically as keystone species within ecosystems.

- **Living as nature:** Indigenous and local communities see crayfish as sacred and integral to their community, valuing both their cultural significance and the camaraderie they foster among fishers.

Management solution:

Deliberative discussions among stakeholders can uncover these differing perspectives and foster compromises. For example, creating a co-designed marine protected area with regulated fishing locations, seasons, and quotas could balance ecological conservation with commercial and subsistence fishing needs.
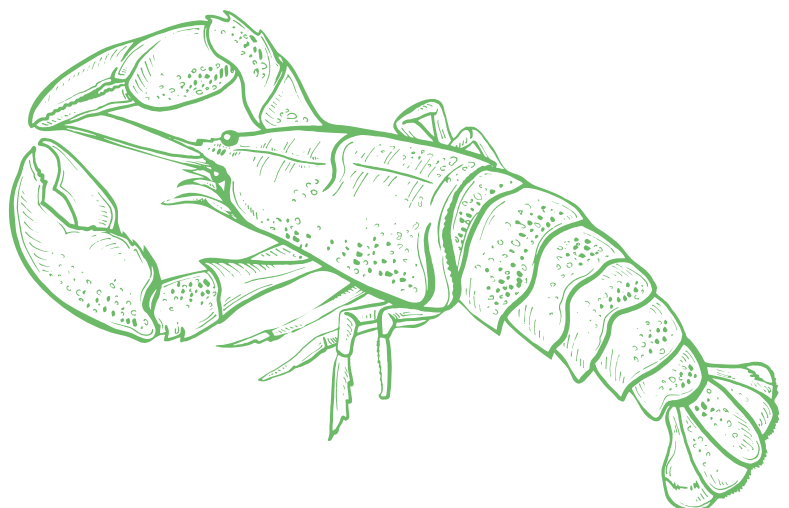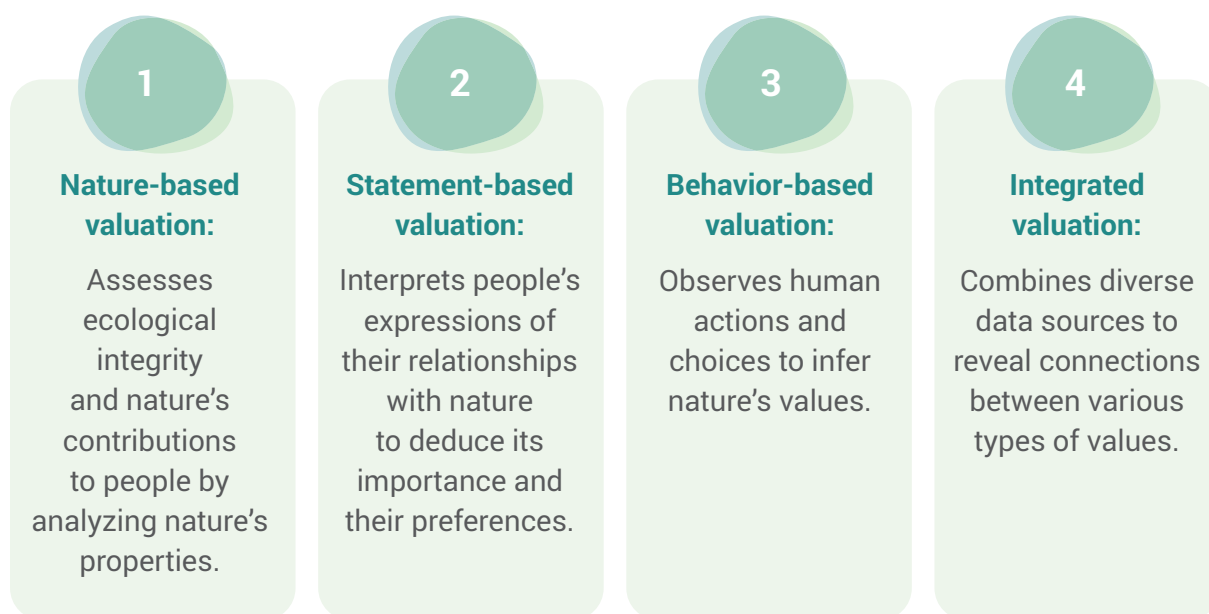
03 Measuring and making visible the values of nature

Over the last four decades, more than 50 methods have been developed across disciplines like anthropology, biology, economics, and indigenous traditions to assess nature's values in diverse socio-ecological contexts. These methods are most frequently applied in regions facing severe biodiversity threats, such as the Americas, Asia-Pacific, and Europe, with fewer studies conducted in Africa. Availability of financial and human resources often influences where valuations are conducted.

Valuation methods are grouped into four "method families," based on their sources of information:

1	2	3	4
Nature-based valuation:	**Statement-based valuation:**	**Behavior-based valuation:**	**Integrated valuation:**
Assesses ecological integrity and nature's contributions to people by analyzing nature's properties.	Interprets people's expressions of their relationships with nature to deduce its importance and their preferences.	Observes human actions and choices to infer nature's values.	Combines diverse data sources to reveal connections between various types of values.

These method families highlight diverse ways to measure and make visible the values of nature, ensuring a holistic understanding. Combining methods across the four valuation method families — nature-based, behavior-based, statement-based, and integrated — provides complementary insights into the diverse values of nature that no single method can achieve. These methods, originating from disciplines and knowledge systems (including those of Indigenous Peoples and local communities), assess various types of nature's values and contributions to people with differing approaches and levels of stakeholder inclusion, each presenting unique opportunities and limitations (see Appendix 1).

Indigenous Peoples and local communities often conduct valuations based on their worldviews and locally established procedures, offering fresh perspectives to enhance valuation processes. For example, they may patrol communal territories to monitor attributes like soil quality, pasture conditions, or wildlife abundance, using the findings to make collective decisions about migration, farming schedules, or hunting quotas.

However, applying Western scientific methods to indigenous valuation practices risks misrepresenting their worldviews, as these practices are inherently tied to communal traditions and cannot be fully decoupled from their cultural context. Recognizing and respecting this integration is essential to advancing meaningful valuation processes.

Did you know?

While stakeholder participation is vital to reflect diverse values in decisions, only 1% of valuation studies include participation at every step. This highlights a significant opportunity for cities to enhance stakeholder involvement throughout the valuation process.

To address trade-offs between relevance, robustness, and resource requirements, valuation processes can follow five iterative steps tailored to the decision-making context:

- **Relevance:** Captures diverse values across social-ecological contexts.
- **Robustness:** Ensures accurate, valid, and fair stakeholder representation.
- **Resources:** Balances affordability and ease of implementation.

By integrating these considerations, cities can achieve more inclusive and effective valuation outcomes.
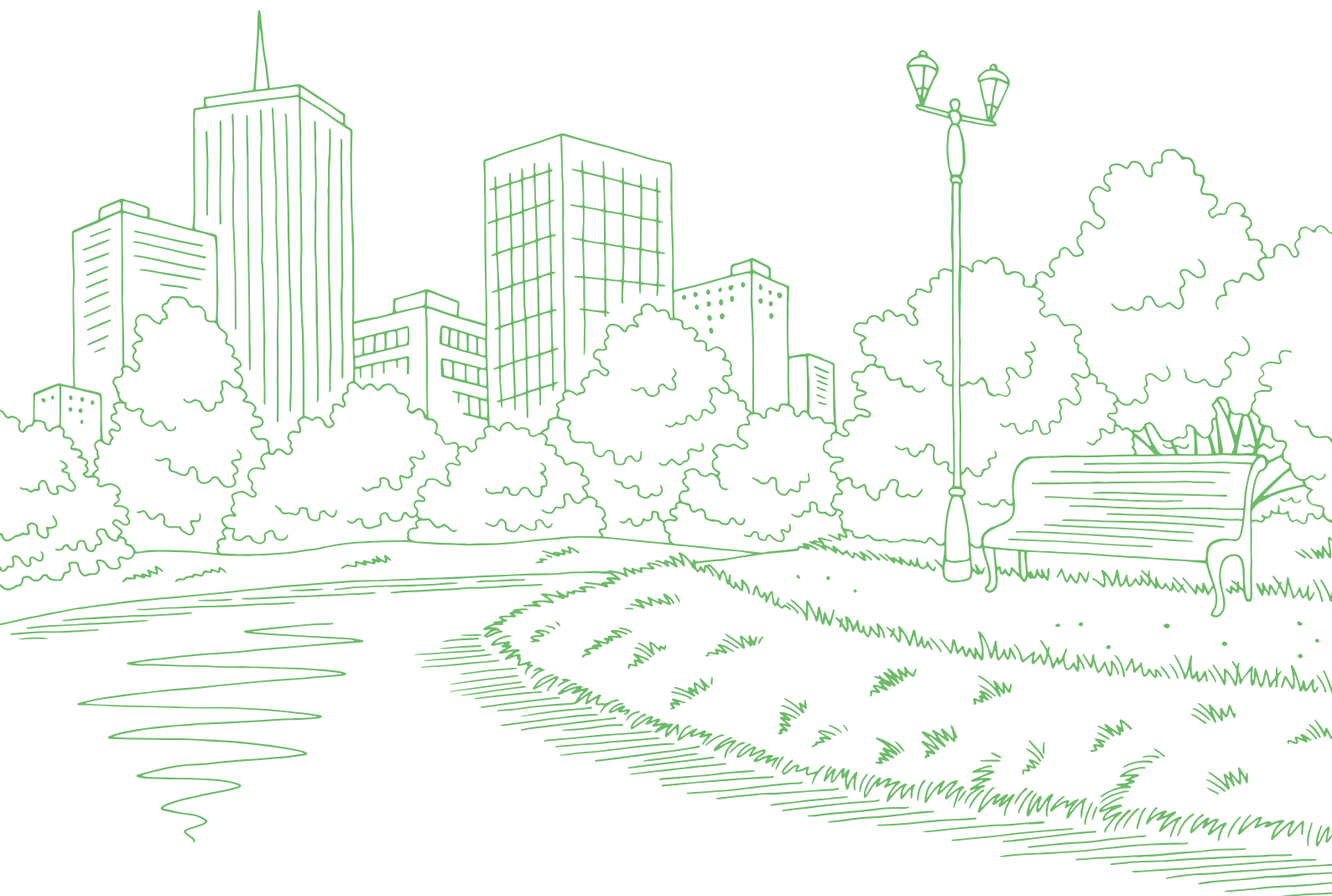
Valuation processes can follow five iterative steps to enhance the quality of valuation outputs for decision-making.

At each step, choices need to be made considering the trade-offs in valuation regarding relevance (ensuring that different values can be considered), robustness (reliable and theoretically consistent evidence following a transparent, and socially inclusive and legitimate value elicitation process), and resource requirements (time, financial, technical and human resources).

Choosing appropriate valuation methods involves identifying their comparative strengths and weaknesses, particularly by taking into account their relevance, robustness and resource requirements.
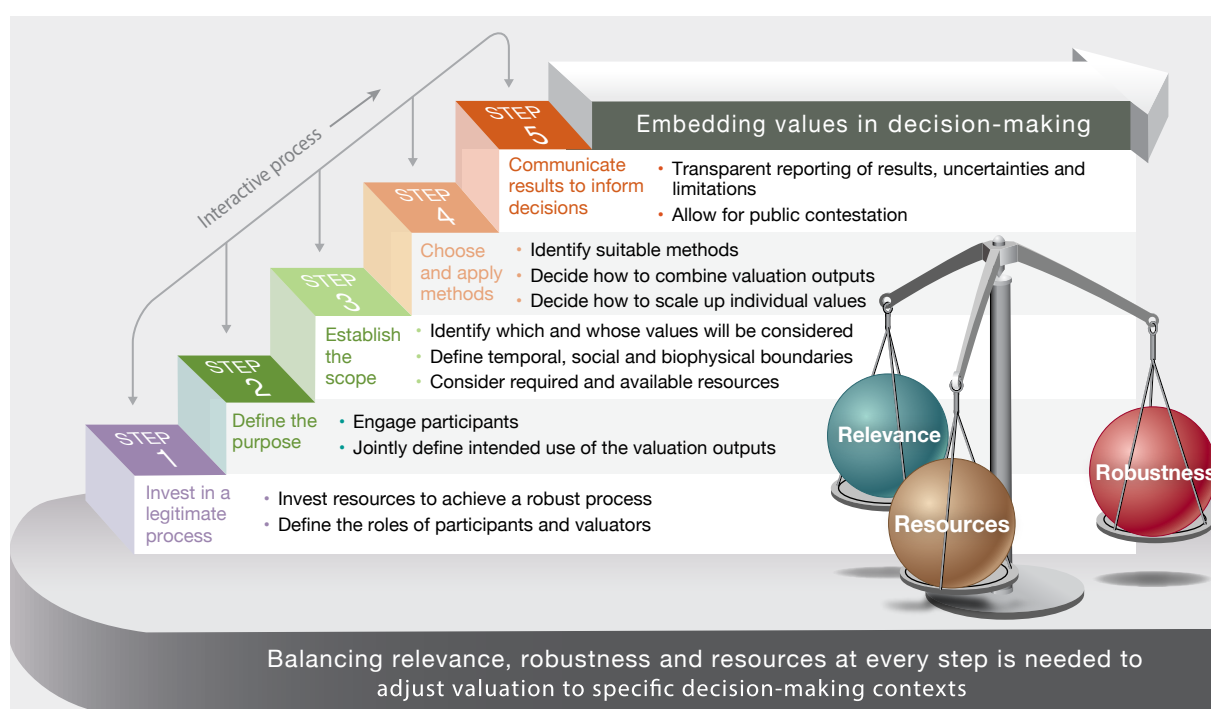

STEP 5 — Embedding values in decision-making

Communicate results to inform decisions
• Transparent reporting of results, uncertainties and limitations
• Allow for public contestation

STEP 4 — Choose and apply methods
• Identify suitable methods
• Decide how to combine valuation outputs
• Decide how to scale up individual values

STEP 3 — Establish the scope
• Identify which and whose values will be considered
• Define temporal, social and biophysical boundaries
• Consider required and available resources

STEP 2 — Define the purpose
• Engage participants
• Jointly define intended use of the valuation outputs

STEP 1 — Invest in a legitimate process
• Invest resources to achieve a robust process
• Define the roles of participants and valuators

Interactive process

Relevance — Resources — Robustness

Balancing relevance, robustness and resources at every step is needed to adjust valuation to specific decision-making contexts

Figure SPM 4 **Valuation processes can follow five iterative steps to enhance the quality of valuation outputs for decision-making.**

At each step, choices need to be made considering the trade-offs in valuation regarding relevance (ensuring that different values can be considered), robustness (reliable and theoretically consistent evidence following a transparent, and socially inclusive and legitimate value elicitation process), and resource requirements (time, financial, technical and human resources) {3.4.1}.
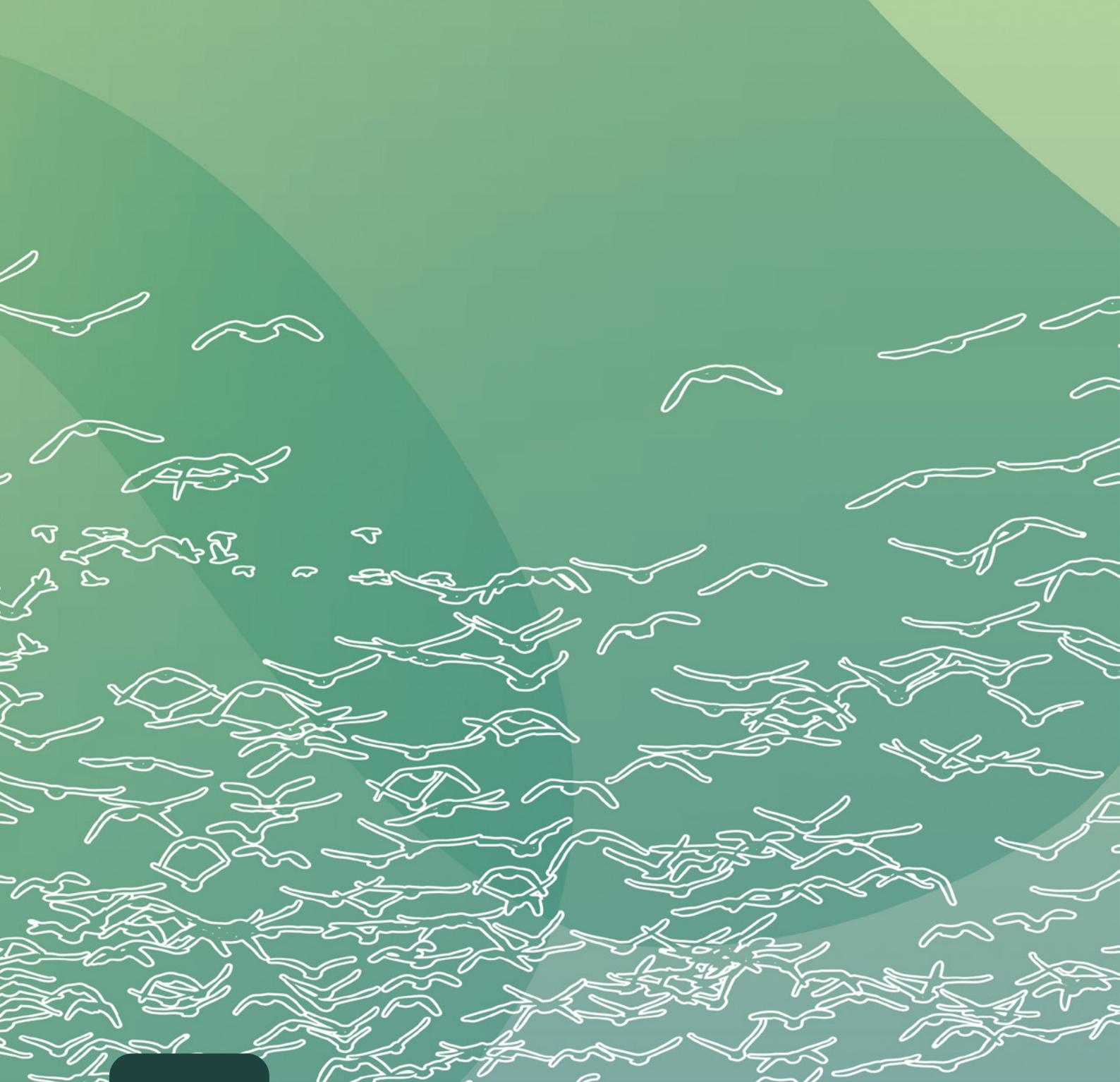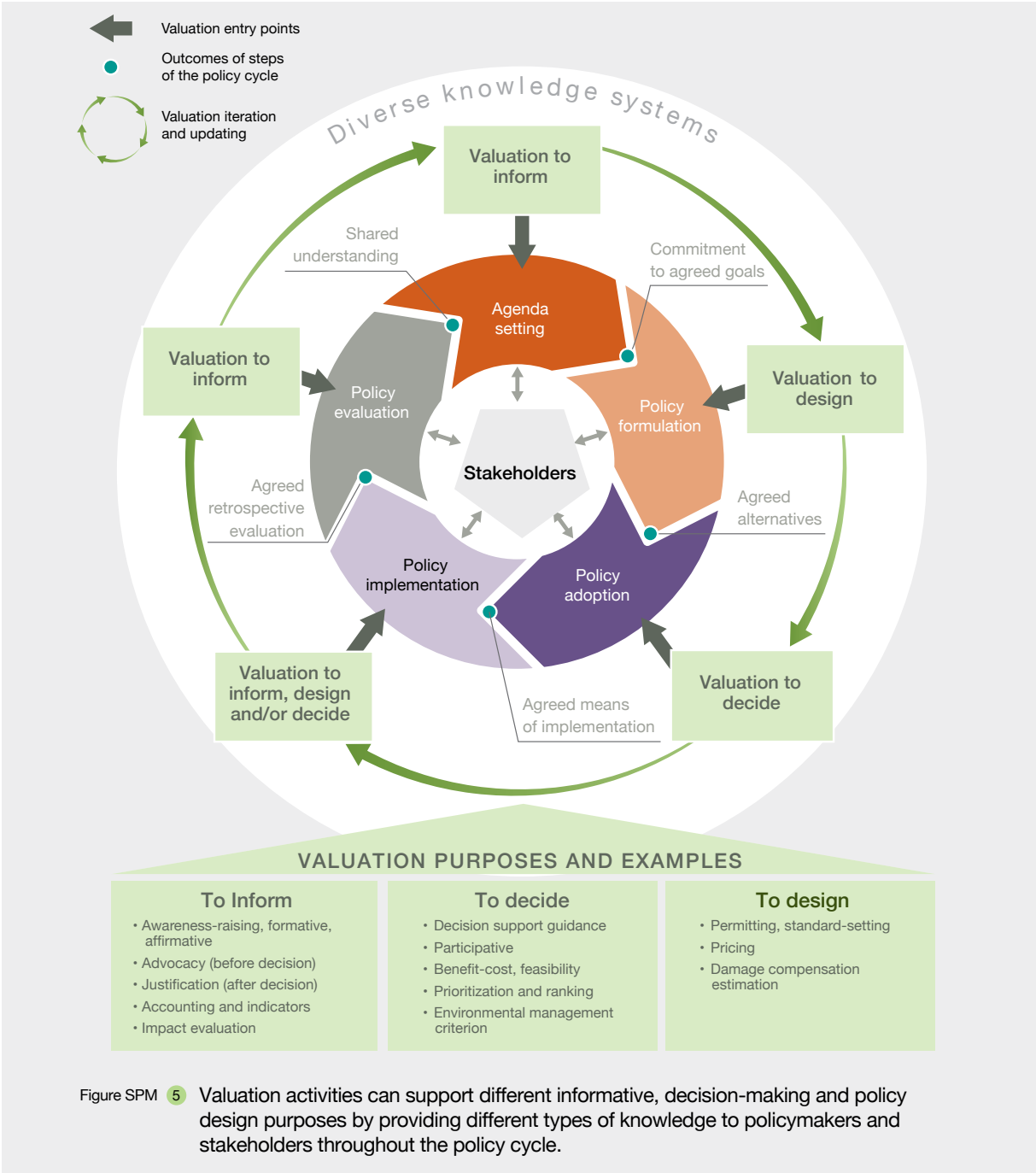
04 Leveraging the diverse values of nature for transformative change towards sustainability

Transformative change towards sustainability requires policies that embed sustainability-aligned values into social norms, conventions, and legal rules shaping human-nature interactions. Currently, political and economic decisions rely on a narrow set of nature's values, often prioritizing short-term economic and political gains. This approach exacerbates the global biodiversity crisis. Broadening the integration of diverse values and perspectives into policy design can mitigate human impacts on nature and promote long-term sustainability.

Valuation plays a critical role in policymaking across all stages of the policy cycle by incorporating diverse knowledge systems. The five valuation steps (Figure SPM.4) enhance policy uptake by informing decision-making and design processes. These activities provide essential knowledge to policymakers and stakeholders, supporting evidence-based and inclusive policies.

Figure SPM 5 Valuation activities can support different informative, decision-making and policy design purposes by providing different types of knowledge to policymakers and stakeholders throughout the policy cycle.

Did you know?

Despite a significant increase in valuation studies over the past 30 years, less than 5% report their uptake in decision-making. Economic-based valuations are not significantly more effective than non-monetary valuations. Studies aimed at supporting decision-making or policy design are more likely to be adopted than those with purely informative purposes. Thus, cities should focus on generating context-appropriate valuation studies and mechanisms to mainstream valuation into policy.

Excluding local values, especially those of Indigenous Peoples and local communities, can lead to socio-environmental conflicts, especially in contexts of power asymmetry. These conflicts can be avoided or resolved when policy goals align with local values. However, when values clash, dialogue and transparent deliberative processes are necessary to reconcile differences and develop shared visions.

Pathways to sustainability and justice depend on including diverse nature values. These pathways include "green economy," "degrowth," "Earth stewardship," and "nature protection," as well as diverse worldviews and philosophies of well-being.

Mobilizing sustainability-aligned values requires empowering civil society and changing societal structures. Holding sustainability-aligned values alone is not enough; people need the capability and opportunity to act. Governance structures should support the integration of diverse values into decision-making, public deliberation, and citizen engagement.

Transformative change towards more sustainable and just futures relies on a combination of actions that target different values-centred leverage points, in particular:

undertaking valuation that recognizes the diverse values of nature;

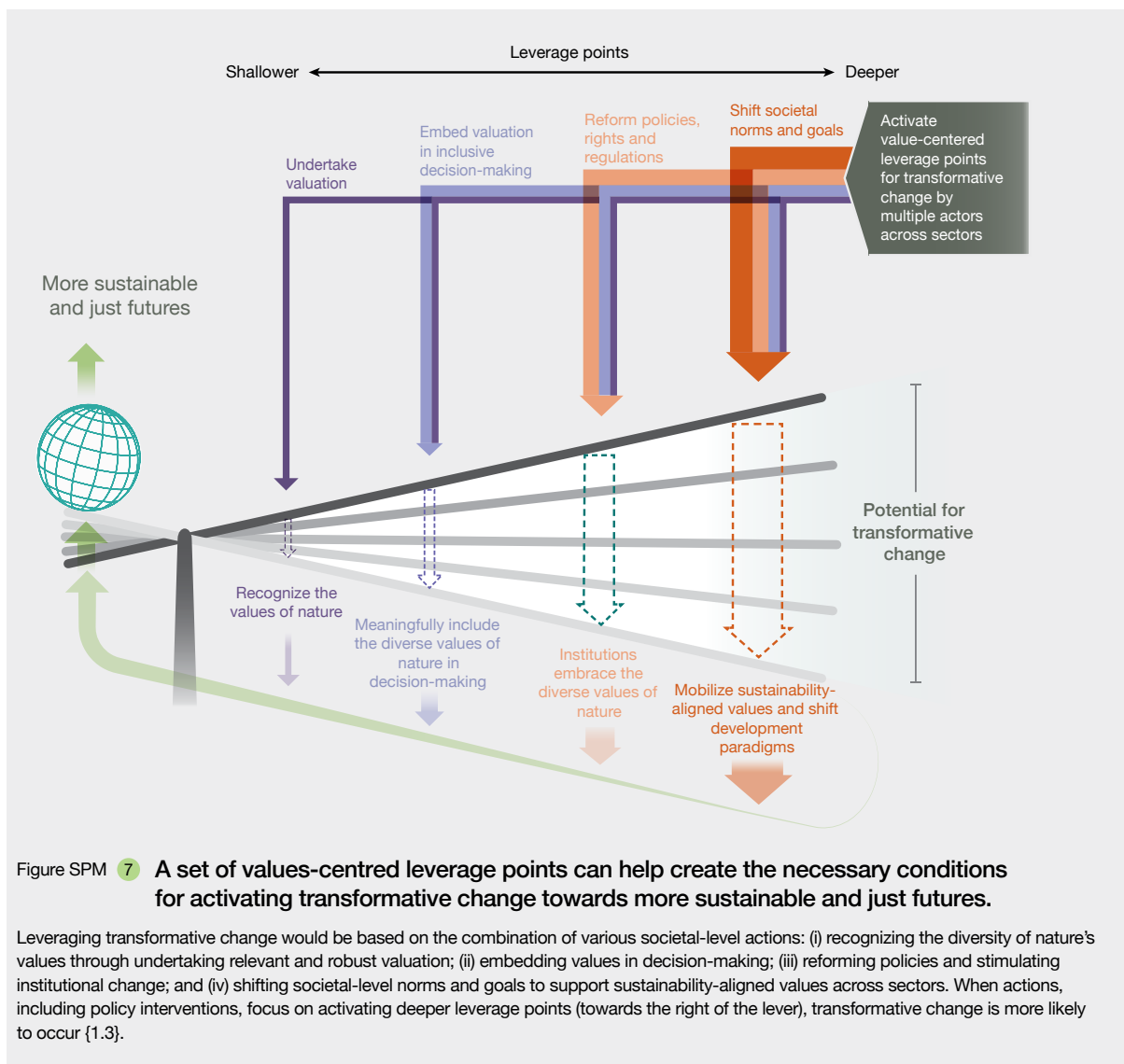embedding valuation into decision-making;

reforming policies and regulations to internalize nature's values; and

shifting underlying societal norms and goals.

These shifts would necessitate changing how society defines a meaningful life, focusing on development that respects nature and human relationships. Such changes require altering social structures and institutional arrangements.

Figure SPM 7 **A set of values-centred leverage points can help create the necessary conditions for activating transformative change towards more sustainable and just futures.**

Leveraging transformative change would be based on the combination of various societal-level actions: (i) recognizing the diversity of nature's values through undertaking relevant and robust valuation; (ii) embedding values in decision-making; (iii) reforming policies and stimulating institutional change; and (iv) shifting societal-level norms and goals to support sustainability-aligned values across sectors. When actions, including policy interventions, focus on activating deeper leverage points (towards the right of the lever), transformative change is more likely to occur {1.3}.

A set of values-centred leverage points can help create the necessary conditions for activating transformative change towards more sustainable and just futures. To leverage this change, a combination of societal-level actions is needed:

1. Recognizing the diversity of nature's values by undertaking relevant and robust valuation.

2. Embedding values in decision-making processes across all sectors.

3. Reforming policies and stimulating institutional change to align with sustainability goals.

4. Shifting societal-level norms and goals to support sustainability-aligned values.

When actions, including policy interventions, focus on activating deeper leverage points (towards the right of the lever), transformative change is more likely to occur.
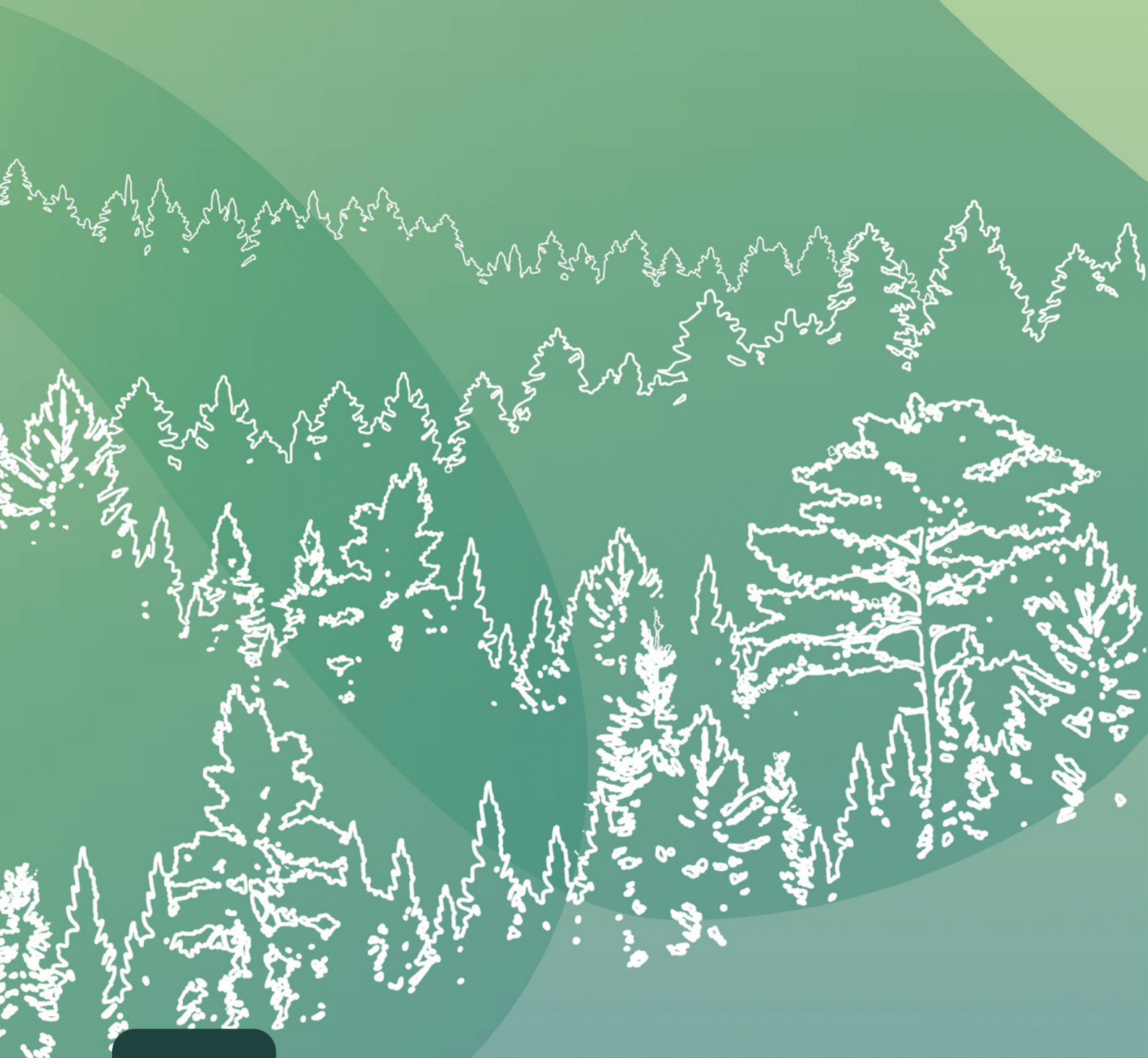
05 Embedding the values of nature in decision-making for sustainability

Decision-making that fosters sustainability transitions can be advanced by following six interrelated values-centred guidelines: ***contextualization, design, representation, engagement, legitimization and reflection***. These guiding principles apply to all the stages of the policy cycle (from setting agendas to evaluating policies) and can be summarized as follows:

1. **Contextualize** the decision-making process by recognizing the diverse worldviews and values of nature that underpin different social-ecological contexts.

2. **Design** decision-making processes considering the conditions and functions of ecosystems and biodiversity, the capacities, knowledge and perspectives of stakeholders through participatory, empowering, deliberative and conflict management approaches.

3. **Represent** meaningfully and respectfully the diverse worldviews, broad and specific values held by stakeholders, rights-holders and knowledge-holders involved in decisions about nature.

4. **Engage** interactively with specific actors to promote dialogue, long-term collaboration and co-creation of solutions to conserve and sustainably use nature.

5. **Legitimize** decisions and their impacts by instilling a sense of co-ownership over the valuation process and its results by all actors who take part in nature management.

6. **Reflect** to ensure that decisions impacting nature and its contributions to people are aligned with the values and actions that can foster transformative change towards sustainability.

Environmental policy instruments and tools

- **Economic and legal-regulatory approaches:**
  While common, only select instruments
  (e.g., eliminating harmful subsidies) can trigger systemic transformations.

- **Sociocultural, customary, and rights-based instruments:**
  Though less frequently used, these hold greater potential for systemic change
  (e.g., locally co-managed fisheries).

Using a mix of policy tools increases the likelihood of diverse value representation and fosters transformative, system-wide change.

Enhancing decision-maker capacities

- Decision-makers can better incorporate diverse nature values into policy by developing:

- **Motivational capacities:** Raising awareness and mobilizing sustainability-aligned attitudes.

- **Analytical capacities:** Selecting tools to synthesize diverse nature values.

- **Bridging capacities:** Encouraging learning and reflection across value perspectives.

- **Negotiation capacities:** Managing trade-offs and compromises effectively.

- **Social networking capacities:** Coordinating across scales and groups adaptively.

- **Governance capacities:** Ensuring accountability, transparency, and participatory decision-making.

Addressing knowledge and operational gaps

Key gaps arise from insufficient:

- **Context-specific knowledge:** For assessing trade-offs among values.

- **Resources:** Financial and technical deficits for valuations.

- **Capacities:** Limited ability to implement context-specific valuations.

Addressing these gaps requires capacity building for stakeholders, leveraging local expertise and worldviews to foster transformative outcomes.

The role of social learning

A cooperative process and its outcome, where partners engage in joint problem-solving and reflection.

Examples of social learning processes:

- Awareness-raising campaigns.

- Environmental education programs.

Impact on decision-making

Social learning creates opportunities for mutual understanding of nature's values. Through participatory and deliberative processes, it fosters collective learning, action, and reflection.

Did you know?

Scientists, policymakers, indigenous peoples and local communities and other societal actors can collaborate in achieving the 2030 Agenda for Sustainable Development (SDGs) and implementing the Kunming-Montreal Global Biodiversity Framework—as well as other relevant multilateral environmental agreements—by ensuring due consideration of the diverse values of nature that stem from different knowledge systems.

Belo Horizonte, Colombia:
Green-Blue Network and the strategic implementation of NbS

As part of the INTERACT-Bio project, Belo Horizonte developed a Mapping Methodology to prioritize Nature-based Solutions (NbS), combining insights from the Green-Blue Network in the Metropolitan Region of Belo Horizonte (RMBH) with other mapping tools. The methodology bridges regional and local scales, using multi-criteria analysis to identify priority areas for enhancing urban ecosystem services in both natural and degraded spaces.

Goals

- **Enhance knowledge:** Deepen understanding of ecosystem services.
- **Foster engagement:** Involve regional actors in planning.
- **Strengthen synergies:** Support agroecological practices and NbS.

Values in action

This approach applies six values-centred guidelines—contextualization, design, representation, engagement, legitimization, and reflection—to guide sustainability transitions through NbS, creating a replicable model for urban resilience.

06 Additional case studies

This section shares relevant case studies of cities that have incorporated values of nature into decision-making for sustainability.

6 model cities: Bucaramanga, Yopal, Monteria, Villavicencio, Pasto and Pereria in Colombia: NaBa: Resilient Nature-Based Cities

This initiative is part of the portfolio of the Colombia−UK PACT programme, which aims to support the country in a transition to a greener and more resilient future. The work focus for the project is the implementation and promotion of Nature-based Solutions to the climate crisis.

A study was developed on Nature's Contributions to people or also known in Colombia as Ecosystem Services (ES) in each of the 6 model cities (Bucaramanga, Yopal, Monteria, Villavicencio, Pasto and Pereria), which has 2 main objectives: (1) Generate base technical information for making decisions on the management of ecosystems in the territories, (2) the preparation of an illustrated map that serves as a tool for dissemination with citizens. In addition, this initiative made a Climate Risk and Vulnerability Analysis with an ecosystem approach and communities for each of the 6 model cities, with the development of maps and recommendations for the city.

The case study integrates nature's diverse values into decision-making by generating context-specific ecosystem data, engaging stakeholders through illustrated maps and vulnerability analyses, and fostering co-ownership of sustainability-aligned values to support transformative urban planning in the six model cities.

Bucaramanga, Colombia: Formulation of the Strategy and Local Action Plan for Biodiversity and Ecosystem Services for the metropolitan area of Bucaramanga

Since the United Nations Conference on Environment and Development (the "Earth Summit" in Rio) in 1992, signatory countries of the Convention on Biological Diversity (CBD) have been obliged to develop their national strategy for conservation of biological diversity. In addition, Decision 15/12 of CBD COP15 encourages CBD Parties to encourage subnational governments, cities and other local authorities to develop biodiversity strategies and action plans in harmony with national biodiversity strategies and action plans.

As a result of these events, ICLEI Colombia had been formulating the Strategy and Local Action Plan for Biodiversity and ecosystem services for the Metropolitan Area of Bucaramanga, in order to design a strategic guide, complemented with specific actions and adopted by the local government to achieve optimal and realistic governance and management of biodiversity and ecosystem services.

This case study exemplifies the integration of nature's values into governance by aligning local biodiversity strategies with national goals, fostering co-ownership, and promoting sustainable management of ecosystem services in Bucaramanga's metropolitan area.

Bucaramanga, Colombia: Preparation, implementation and review of the biodiversity and ecosystem services assessment process of Bucaramanga´s metropolitan area, using the City Biodiversity Index

In 2023, the City Biodiversity Index (CBI) (i.e., Singapore Index on Cities' Biodiversity (SI)) was calculated through a group of indicators for the components of Native Biodiversity, Ecosystem Services and Governance, taking into account the information that was provided by the Area Metropolitana of Bucaramanga (AMB) and its four municipalities (Girón, Floridablanca, Piedecuesta and Bucaramanga). This exercise showed the importance of both the AMB and the municipalities that comprise it, promoting the strengthening of institutional capacities that allow the generation and/or management of comprehensive information systems associated with the themes of biodiversity and ecosystem services.

The study highlights how the City Biodiversity Index fosters recognition of nature's diverse values, strengthening institutional capacities and enabling informed governance for biodiversity and ecosystem services in Bucaramanga's metropolitan area.

China: Ecological products value achieving pilot cases

In China, there are multiple examples of ecological products value achieving pilot cases. Lishui City, Zhejiang Province, Fuzhou Province and Jiangxi Province have been recommended by the National Development and Reform Commitment of the People's Republic of China. The Ministry of Natural Resources of PRC is carrying out a series of ecological products value achieving mechanism pilots; until 2023, there are 43 cases involving Jiangsu Province, Fujian Province, Shandong Province, Henan Province, Guangdong Province and Chongxing Province. In the files that the Ministry of Natural Resources recommended, there are listed eleven main pathways on ecological products achieving: vertical ecological compensation, horizontal ecological compensation, ecological agriculture, ecological industrials, ecological tourism, wetland indicators trading, carbon credits trading, franchised operation, territorial land consolidation and value-added premiums, mine ecological rehabilitation and value enhancement, and park-orientated development. These pilot cases demonstrate the integration of diverse nature values into decision-making by establishing mechanisms such as ecological compensation, carbon trading, and ecological tourism, aligning economic development with sustainability goals in China.

Kunming, China: Revitalising a lake ecosystem

The Dianchi Lake is a highly biodiverse basin located in Kunming City. In the past, untreated wastewater from industries and farms damaged the water quality and ecosystem of Dianchi Lake, leading to water shortages and ecosystem degradation. The environmental and ecological restoration work of Dianchi Lake has taken around three decades. Since the late 90s, the work has seen the deployment of nature-based solutions for ecological restoration as well as pollution control. As the water quality upgraded, rebuilding the health of the water ecosystem integrated a series of actions in rivers, forests, farmlands, lakes, grasslands, and sandlands. By 2020, most ecological functions were recovered, as demonstrated by long-term biological and ecological monitoring which demonstrates the continuous development of aquatic vegetation communities, the return of several endangered and nearly extinct birds, and the stabilisation of several indicator species populations. The restoration of Dianchi Lake highlights the application of a nature values framework, integrating ecological, sociocultural, and biodiversity values into decision-making to achieve long-term ecosystem recovery and sustainability.

Lishui, China: Accounting the value of ecology

Lishui, working with the Research Center for Eco-Environmental Sciences (CAS), developed a series of standards and methodologies to evaluate the Gross Ecosystem Production (GEP) and established the systems of GDP and GEP accounting, evaluation and assessment. The GEP has been one of the indicators of Lishui's development plan. To manage the ecological-related data precisely and smartly, there is one management platform that has been established. In the future, there will be a standard model that could produce the ecological value of Lishui in a dynamic way.

Based on the GEP accounting results, focusing on building a cross-regional market-oriented trading platform, Lishui actively plans to build a national ecological product trading center, accelerate the operation of East China Forest Exchange, and explore and improve the trading system for ecological rights such as carbon emission rights and energy use rights. The "ecological loan" linked to the value accounting of ecological products has been innovatively launched, and GEP can be pledged, realized and financed. There is also a path that Lishui is implementing on transferring the ecological value into tourist value and agriculture producing value, which is promoting the industries to develop. Lishui's GEP accounting and ecological product trading initiatives exemplify embedding nature's diverse values into decision-making, integrating ecological, economic, and sociocultural dimensions to foster sustainable development and innovative financial mechanisms.

Orlando, Florida's wetland-restoration wastewater treatment plant

Spotlight on clean water: The first large-scale wastewater wetland:

The Orlando Wetlands Park is a man-made wetland designed to provide advanced treatment for reclaimed water from the City of Orlando and neighboring municipalities. Orlando needed a solution for the tons of excess nutrients that would potentially cause eutrophication of local waterways and, ultimately, severe algal blooms. Although many stormwater wetlands exist, at 1,650 acres the Orlando Wetland Park - first envisioned in the 1980s - is perhaps the first large-scale municipal wastewater park in the United States.

"The race was on to find an alternative method," says Mark Sees, Wetlands Manager for the City of Orlando. The system designers looked at existing, small wastewater wetlands that existed around the country at the time, most no larger than 50 acres. "It was a big leap to convince the city and regulatory agencies to construct such a large system." But Orlando made the leap, sculpting an initial 1,200 acres in 1985 and using the dirt to build dams and levees that would compartmentalize 18 cells that would hold and move wastewater as it was cleaned. There was no guarantee the plan would work in the long term.

But it did- and extremely well. Today, Orlando Wetlands Park discharges water with less than a quarter of the allowed 200 parts-per-billion of phosphorus. A total of 2.1 milligrams per liter of nitrogen is allowed to re-enter waterways; last year, the water the park sent downstream contained only 0.66 milligrams per liter. And this level of cleanliness comes at about one-tenth the cost of conventional wastewater treatment. It also provides enormous benefit to both human and nonhuman residents of Orlando. In every square meter of the wetlands' marshes, anywhere from 1,000 to 13,000 macroinvertebrates call the park home and feed 240 species of birds that, in turn, draw between 50,000 and 60,000 human visitors a year to enjoy birding as well as mountain biking, horseback riding, and photography.

"When the land was used as a cattle ranch, biologists observed 27 species of wildlife total," Sees says. "Now the area is an educational facility for public schools because of the biodiversity. All these benefits are coming because people were willing to invest the time and money." The investment is paying off. The Orlando Wetlands Park demonstrates how nature-based solutions, such as large-scale wetland restoration, can integrate ecological values with wastewater treatment, benefiting both environmental health and local communities by improving water quality, enhancing biodiversity, and providing recreational opportunities.

Puerto Princesa City, Province of Palawan, Philippines: iTree tool

The local government built the capacity of their officials on the use of the iTree tool that allowed them to conduct tree inventory exercises, canopy assessments, and gauge the ecosystem services of green spaces. This initiative has led to positive impacts on the conservation of endemic flora in the city, climate mitigation efforts, as well as disaster risk resilience.

The use of the iTree tool in Puerto Princesa City highlights how nature-based solutions, supported by innovative tools, can assess and enhance the value of urban green spaces, promoting biodiversity conservation, climate mitigation, and disaster resilience while embedding ecosystem services into local governance.

San Antonio, Texas, USA: Edwards Aquifer recharge zones

San Antonio is one of the fastest growing cities in the USA. Growth offers the opportunity for economic prosperity in the form of business development, higher-paying jobs, home ownership and other rewards. Yet growth also poses certain challenges for citizens to maintain a high quality of life such as an increased demand for services, the need to provide more recreational opportunities and greater use of vital resources, most notably: water.Cities like San Antonio have been provided with valuable tools to maintain a high quality of life for residents. Through the use of a voter-approved sales tax, San Antonio has created economic development or "venue" funds to support comprehensive plans identified as community priorities. In May 2000, voters first approved venue funds, known as Proposition 3, to support aquifer protection and parks expansion including the development of linear creekways. From 2005 to 2015, voters approved three separate venues, known as Proposition 1, to continue each of those endeavors. Propositions 3 and 1 collected $325 million in total for aquifer protection.

Each venue was supported by an increase and an investment of 1/8 of a cent in the local sales tax. Taxable merchandise includes items most residents buy every day such as clothing, fast food or electronics. It does not include non-taxable goods such as most groceries, medicine or health services. These projects were also supported by visitors from outside of San Antonio who contributed to the local sales tax. The sales tax collected to support the Edwards Aquifer Protection venue in 2015 was set at $100 million with $10 million set aside for water quality protection zones in urban areas of Bexar County.The Edwards Aquifer recharge zones initiative is linked to the nature values framework by recognizing and incorporating the intrinsic value of ecosystem services, particularly the critical water provisioning and filtration functions provided by the Edwards Aquifer, while also fostering a deeper understanding of the economic and social benefits of maintaining these natural assets for current and future generations.

Shanghai, China: Co-creating a community garden in Hongxu

In response to the wider urban regeneration actions in Shanghai, Hongxu's Public Housing department co-created a habitat garden in the neighbourhood with community-based organisations. The co-creation and participatory process of the Hongxu Habitat Garden Initiative brought different actors into the design stage, and continuously promoted communications and exchanges to keep the community engaged in the garden throughout the different steps of implementation. This resulted in residents and community organisations still being actively engaged in the community garden which was completed in 2019.

This initiative emphasizes the social and cultural values of nature, fostering a sense of community and connection to the environment, while also enhancing ecosystem services such as biodiversity support, climate mitigation, and recreational benefits, thus demonstrating how nature-based solutions can promote both environmental and community well-being.

Yeoncheon County, South Korea: Urban biotope map demonstrates the valuation of diverse ecosystem services

Integrated management suite of the UNESCO Biosphere Reserve and Geopark site in Yeoncheon County:

Yeoncheon County, in Gyeonggi Province, Republic of Korea, is an ecological hub of the Korean Peninsula as the county is adjacent to the border of Democratic People's Republic of Korea where the DMZ lies. In the UNESCO Multi-designated sites (Yeoncheon Imjin River Biosphere Reserve and Hantangang Global Geopark), Yeoncheon proactively conducts biodiversity monitoring and utilises monitoring/valuation data as a basis for the suite of nature-based policies such as the management of Bioblitz with local people, the establishment of urban biotope maps (supported by Korean National Institute of Ecology) and Crane Village ecotourism projects. Urban biotope map demonstrates the valuation of diverse ecosystem services that can be deployed in policymaking processes in Yeoncheon and the UNESCO designated sites. Yeoncheon also held a series of art exhibitions collaborating with local artists to deliver cultural and natural values of biosphere reserves, in which the local people are embedded within their everyday lives.

This case study illustrates the integration of ecological, cultural, and socio-economic values of nature, as the urban biotope map not only informs biodiversity conservation and ecosystem service valuation but also incorporates local community engagement through participatory monitoring and cultural activities, demonstrating the role of nature in fostering both environmental stewardship and cultural identity.

07 About IPBES

What is IPBES?

The [Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)](#) is an independent intergovernmental body established by States Members of the United Nations to strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development. It was established in Panama City, on 21 April 2012 by 94 Governments. It is not a United Nations body. However, at the request of the IPBES Plenary and with the authorization of the UNEP Governing Council in 2013, the United Nations Environment Programme (UNEP) provides secretariat services to IPBES. [IPBES](#) was created to assess existing knowledge and inform governments about the magnitude, dimensions, consequences and options for action related to the biodiversity crisis. It has produced a number of outputs and reports, including the *[Methodological Assessment Report on the Diverse Values and Valuation of Nature.](#)*

What does IPBES do?

The work of IPBES can be broadly grouped into four complementary areas:

Assessments:
On specific themes (e.g. "Pollinators, Pollination and Food Production"); methodological issues (e.g. "Scenarios and Modelling); and at both the regional and global levels (e.g. "Global Assessment of Biodiversity and Ecosystem Services").

Policy support:
Identifying policy-relevant tools and methodologies, facilitating their use, and catalyzing their further development.

Building capacity & knowledge:
Identifying and meeting the priority capacity, knowledge and data needs of our member States, experts and stakeholders.

Communications & outreach:
Ensuring the widest reach and impact of IPBES work.

Additional resources:

- [IPBES Methodological Assessment Report on the Diverse Values and Valuation of Nature](#)
- [The Economics of Ecosystems & Biodiversity (TEEB)](#)
- [The Economics of Biodiversity: The Dasgupta Review](#)
- [System of Environmental-Economic Accounting – Ecosystem Accounting (SEEA−EA)](#)

08 Appendices

Appendix 1: Overview of the four main valuation method families and their distinctive characteristics.

A sample of methods from the different method families that can be used in cities can be found below. Further information on each method can be found in the links provided:

Method Family	Examples of methods in method family
Nature-based valuation	• Species' lists & inventory • Vegetation surveys • Species distribution & biodiversity hotspot mapping • Participatory mapping of different attributes of nature and ecosystems • Forest cover estimation and forest structure analysis • Vulnerability, resilience and adaptation assessment • Hydrological/climate modelling
Value stating methods	Individual-based: Survey-based: Questionnaires and interviews • Contingent valuation • Choice experiments • Ethnographic interviews/ methods • Individual-based participatory assessment process • Individual-based Q-methodology • Mental mapping Group-based: Discussion-based: Facilitator-moderated group interaction • Public good games • Deliberative valuation (including monetary) • Focus groups • Scenario assessments/ visioning exercises • Photo-voice
Behavior-based evaluation methods	• Market methods (Market price) • Livelihood dependence • Travel cost method • Recreational choice method • Time spent analysis • Hedonic pricing method – amenity value • Replacement cost method • Opportunity cost method • Participant observation • Document analysis • Photo series analysis method • Citizen science method / Participatory action research
Integrated valuation methods	• Participatory mapping • Integrated modelling • Cost-benefit analysis CBA • Multi-criteria decision analysis MCDA • Participatory Rural Appraisal PRA • Deliberative decision-making processes

Glossary of terms

Behaviour-based valuation

Relies on observing what people do and the choices they make.

Broad values

They refer to life goals, general guiding principles and orientations towards the world that are informed by people's beliefs and worldviews. Broad values include moral principles, such as justice, belonging, freedom, but also life goals, like enjoyment, health, prosperity. Broad values influence specific values and provide them with a general context and meaning.

Compatible values

Share features that allow them to be considered together and reveal trade-offs, even when they were measured through different indicators.

Cultural ecosystem service

The nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences.

Degrowth

A policy of reducing levels of production and consumption within an economy in order to conserve natural resources and minimize environmental damage.

Deliberative approach

A process allowing a group of actors to receive and exchange information, to critically examine an issue, and to come to an agreement which will inform decision-making.

Earth stewardship

Earth stewardship involves shaping trajectories of social-ecological change at local-to-global scales to enhance ecosystem resilience and human well-being.

Directly comparable values

When values are measured using the same metric.

Green economy

An economic system or sector that is based on or guided by environmentalist principles.

Incommensurable values

Cannot be brought together because they are neither comparable nor compatible.

Institutions

Informal social conventions and norms, and formal legal rule.

Instrumental values

Means to an end, nature as a resource and asset, satisfaction of needs and preferences, usefulness for people.

Integrated valuation

Combines different sources of information on nature's values and helps elucidate connections between different types of values.

Intrinsic values

Agency of other-than-humans, inherent worth of biodiversity as ends in and of themselves.

Knowledge systems

A body of propositions that are adhered to, whether formally or informally, and are routinely used to claim truth. They are organised structures and dynamic processes: generating and representing content, components, classes, or types of knowledge, that are, domain-specific or characterised by domain-relevant features as defined by the user or consumer, reinforced by a set of logical relationships that connect the content of knowledge to its value (utility), enhanced by a set of iterative processes that enable the evolution, revision, adaptation, and advances, and, subject to criteria of relevance, reliability, and quality.

Nature-based valuation

Gathers, measures or analyses information about the properties of nature and its contributions to people, and may be used to assess ecological integrity and to identify and quantify nature's contributions to people.

Nature's contribution to people

Nature's contributions to people (NCP) are all the contributions, both positive and negative, of living nature (i.e. all organisms, ecosystems, and their associated ecological and evolutionary processes) to people's quality of life.

Nature protection

Precautionary actions, procedures or installations undertaken to prevent or reduce harm to the elements of the material world that exist independently of human activity.

Provisioning ecosystem service

The products people obtain from ecosystems, such as food, fuel, fiber, fresh water, and genetic resources.

Regulating ecosystem service

The benefits people obtain from the regulation of ecosystem processes, including air quality maintenance, climate regulation, erosion control, regulation of human diseases, and water purification.

Relational values

Importance of desirable, meaningful and often reciprocal human relationships.

Relevance (of a valuation method)

Ability to elicit diverse values in multiple social-ecological contexts.

Resources (of/required for a valuation method)

Affordability and ease of use.

Robustness (of a valuation method)

Ability to ensure reliable (accurate and valid) and fair representation of stakeholders.

Social learning

Both the cooperation of partners and the outcome of this cooperation that occurs most efficiently through joint problem solving and reflection within learning networks can be reinforced by experiences.

Specific values

Specific values of nature are opinions or judgments regarding the importance of nature in a particular situation or context. Specific values can be grouped into three types: instrumental, intrinsic and relational values.

Statement-based valuation

Uses people's expressions of their relations to nature to deduce the importance of nature for people as well as their preferences.

Supporting ecosystem service

Those benefits that are necessary for the production of all other ecosystem services, such as primary production, production of oxygen, and soil formation.

Valuation approaches

Are sets of principles and theoretical frameworks that guide how the valuation is conducted and what rules inform a given method.

Valuation methods

Are the specific techniques or procedures that are used to gather, analyse and make explicit information related to the importance of nature to people.

Value

Has different meanings. It has interrelated but distinct dimensions and is understood and analysed differently in the biophysical sciences, social sciences, economics, and indigenous and local knowledge. It can refer to a principle associated with a given worldview or cultural context, a preference someone has for something/a particular state of the world, the importance of something for itself or for others, or simply a measure. Multiple and plural values may be formed and elicited within different cultural, social and institutional frameworks. In the IPBES Values Assessment, the values of nature are representations of what people and society care about and what they consider important in relation to nature.

Valuing

The act of assigning a value to something. In the IPBES Values Assessment, valuation is considered as an exercise that is undertaken to intentionally determine the values of nature, often to understand the values at play and to inform decisions.

The ultimate goal of conducting valuations of nature is to determine in which ways nature is valuable and for whom, in order to enable better governance. Valuation generally entails the use of agreed-upon procedures for assessing the value of nature that stem from a given knowledge system, tradition or discipline. Valuation provides key knowledge about the values of biodiversity, species, ecosystems and landscapes, as well as on their contributions to people.

Value action gap

The inability to fully explain behaviour based on values. While values influence individual and collective decisions, other factors like knowledge, beliefs, opportunities, and skills also affect behaviour.

Value indicators

Indicators of value are quantitative and qualitative measures of the importance of nature to people. Indicators used to express the value of nature can be biophysical, economic and socio-cultural.

Worldviews

Worldviews defined by the connections between networks of concepts and systems of knowledge, values, norms and beliefs. Individual person's worldviews are moulded by the community the person belongs to. Practices are embedded in worldviews and are intrinsically part of them (e.g. through rituals, institutional regimes, social organization, but also in environmental policies, in development choices, etc.).

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