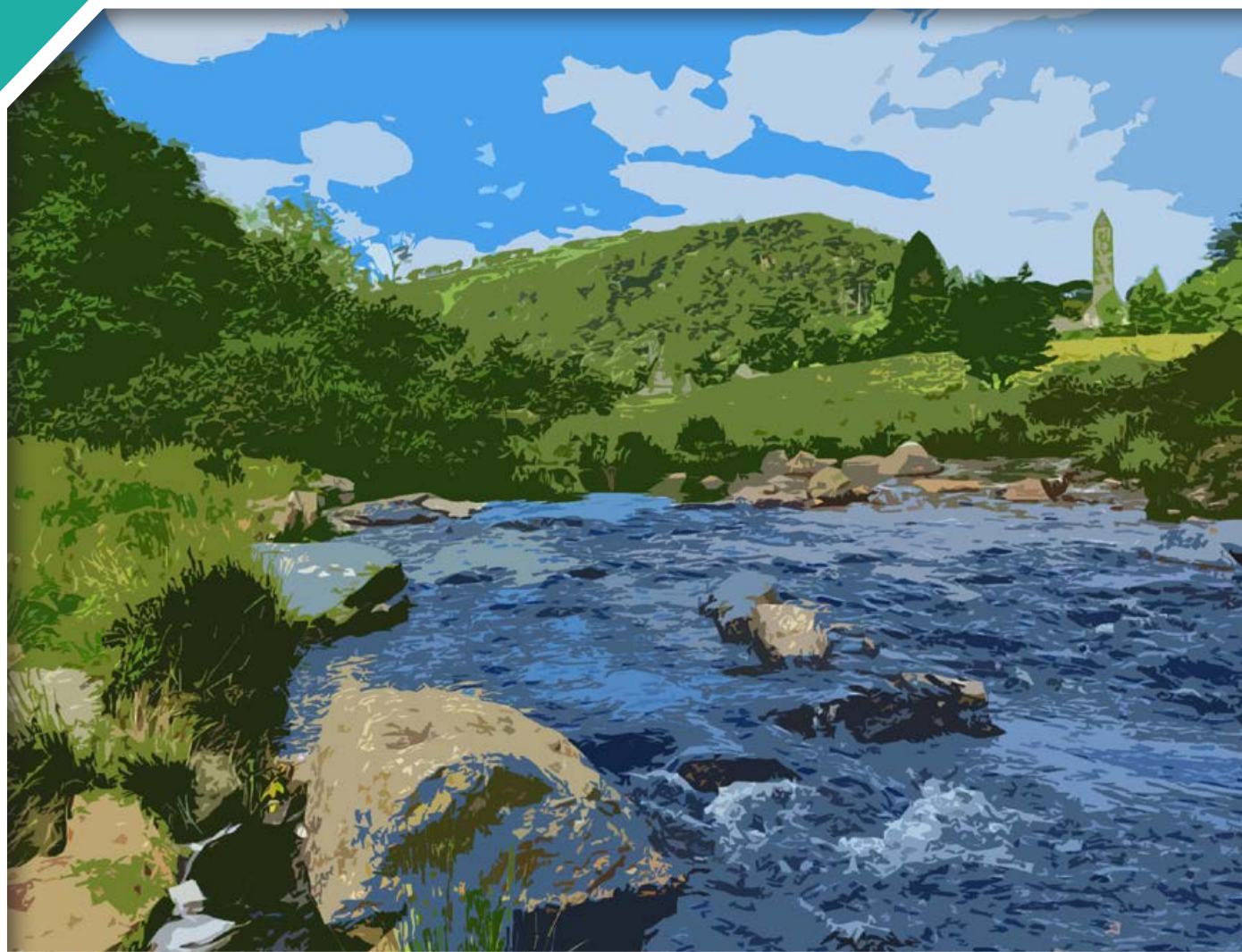epaResearch

Evaluating the Multiple Values of Nature – ESDecide: from an Ecosystem Services Framework to Application for Integrated Freshwater Resources Management

Authors: Mike Christie, Jasper Kenter, Craig Bullock, Michael Bruen, Marcin Penk, Christian Feld and Mary Kelly-Quinn

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Rialtas na hÉireann
Government of Ireland

ENVIRONMENTAL PROTECTION AGENCY

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The work of the EPA can be divided into three main areas:

Regulation: *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

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We regulate the following activities so that they do not endanger human health or harm the environment:
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- sources of ionising radiation *(e.g. x-ray and radiotherapy equipment, industrial sources)*;
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The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:
- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.

Evaluating the Multiple Values of Nature – ESDecide: from an Ecosystem Services Framework to Application for Integrated Freshwater Resources Management

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EPA Research Report

Prepared for the Environmental Protection Agency

by

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DISCLAIMER

This report is based on research carried out/data from March 2019 to February 2021. More recent data may have become available since the research was completed.

The EPA Research Programme addresses the need for research in Ireland to inform policymakers and other stakeholders on a range of questions in relation to environmental protection. These reports are intended as contributions to the necessary debate on the protection of the environment.

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Executive Summary

People benefit from nature in many different ways, which contributes to their quality of life. These benefits (and sometimes costs) are called "ecosystem services" or more recently "nature's contributions to people" (NCPs). This report provides a synthesis of the multiple ways in which people value nature and associated ecosystem services/NCPs, and explores how an understanding of this could feed into catchment management decision support tools.

People value nature in many different ways. For example, people derive *instrumental* value (e.g. from catching a fish from a river)*, relational* value (e.g. from having an irreplaceable connection with nature such as childhood memories of a particular section of river) and *intrinsic* value (e.g. from the value that a particular species has, without deriving any direct benefit) from nature. People may also have more deeply held *transcendental* values that feed into their overarching principles and life goals (e.g. to maintain good water quality in rivers). Value indicators are measures of value and may include monetary, non-monetary (e.g. rankings) and biophysical (e.g. number of invertebrate species) measures, or qualitative indicators (e.g. a "verdict" from a citizens' jury). Values may be incorporated into policy decisions as *individual* values, or aggregated to *social* values, or reconciled as *shared* values.

Many methods are available to capture these different dimensions of value and feed them into decision-making. Here we highlight deliberative processes that can be used to identify both individual values and group-based values that can transcend individual concerns and better incorporate broader shared values. Accounting for the multiple values of a wide range of stakeholders in decision-making is likely to promote equity in resulting policy.

1   Introduction

There is growing academic and policy interest in assessing the environmental, economic and social benefits and costs derived from natural systems and their associated "ecosystem services" or "nature's contributions to people" (NCPs). The ways in which we consider and express values of nature have also expanded and now incorporate *instrumental, relational* and *intrinsic* values, as well as deeply held *transcendental* values. Values may also be considered as *individual* values, or be aggregated to give *social* values or reconciled to give *shared* values. This report explores these multiple dimensions of value. Finally, we outline deliberative valuation approaches that may be used to uncover these multiple values of nature.

This report originates from work undertaken as part of two projects funded by the Irish Environmental Protection Agency (EPA):

- **ESManage**: the original project, ESManage (Kelly-Quinn *et al*., 2020), developed a methodological framework to link river and catchment management options with economic valuations of the resulting changes in the delivery of selected ecosystem services. The valuation element of ESManage was based on the ecosystem services approach of The Economics of Ecosystems and Biodiversity (TEEB) initiative (2010), valuing (in monetary terms) changes in the river ecosystem service benefits associated with alternative

catchment management options (Kelly-Quinn *et al*., 2020).
- **ESDecide**: this follow-on project aimed to develop an evidence-based decision support tool for managing Ireland's freshwater systems and their associated catchment services. An important development of the ESDecide project was to explore wider conceptualisations of how people value Irish rivers and feed this evidence into the decision support tool.

In this report, we draw on the insights from these two projects to explore the multiple ways in which people value nature and how these values can be captured and fed into policy decisions.

This report is structured as follows. In Chapter 2, we first compare the concepts of ecosystem services and NCPs, and then summarise alternative classification frameworks for ecosystem services/NCPs. We then provide a more detailed discussion of how the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES) defines NCPs. Chapter 3 provides a synthesis of the multiple conceptualisations of the values of nature. We then explore approaches used to identify and appraise these values, including the Life Framework of Values (O'Connor and Kenter, 2019) and deliberative methodologies.

2   Ecosystem Services versus Nature's Contributions to People

People benefit from nature in many different ways. These benefits (and sometimes costs) are called "ecosystem services" (MEA, 2005; TEEB, 2010) or more recently "nature's contributions to people" (NCPs) (IPBES, 2015). In the following sections, we provide an overview of key classification systems before providing more detail on how IPBES conceptualises the concept of NCPs.

Key definitions

Ecosystem services: the benefits that people obtain from ecosystems. They include provisioning, regulating and cultural services that directly affect people and the supporting services needed to maintain other services (MEA, 2005).

NCPs: all the contributions, both positive and negative, of living nature (i.e. diversity of organisms and ecosystems and their associated ecological and evolutionary processes) to the quality of life for people. Beneficial contributions from nature include such things as food provision, water purification, flood control and artistic inspiration, whereas detrimental contributions include disease transmission and predation that damage people or their assets. Many NCPs may be perceived as beneficial or detrimental depending on the cultural, temporal or spatial context (IPBES, 2019).

2.1   Classification Frameworks for Ecosystem Services/Nature's Contributions to People

There have been several attempts to categorise and classify ecosystem services/NCPs, so that individual goods and services can be identified, quantified and valued. The merits of key classification systems are summarised in Table 2.1. As can be seen from Table 2.1, the more contemporary classification systems aim to incorporate a wider range of ecosystem service/NCP values than earlier systems.

2.2   IPBES and Nature's Contributions to People

In 2018, IPBES adopted the concept of NCPs into its conceptual framework (Figure 2.1), to replace the widely used term "ecosystem services" (Díaz *et al*., 2018; IPBES, 2018). IPBES changed the terminology because it wanted to explicitly acknowledge the recent academic and policy debates that argue for a move beyond a focus on *instrumental* and predominantly economic values of ecosystem services to a focus that also examines more diverse conceptualisations of values, valuation and world views (Kenter *et al*., 2015; Costanza *et al*., 2017; Arias-Arevalo *et al*., 2018; Braat, 2018; Christie *et al*., 2019), such as *relational* values (the importance of nature in fostering a desirable relationship between people and nature) and *intrinsic* values (the value of nature itself) (Pascual *et al*., 2017; Díaz *et al*., 2018; IPBES, 2018). In addition, IPBES aimed to address concerns that previous ecosystem services frameworks focused predominantly on Western concepts of ecosystem services and often failed to account for other preferences and values associated with, for instance, indigenous people and local communities (Díaz *et al*., 2018; Kirchhoff, 2019).

To reflect these advancements, the IPBES conceptual framework coined the notion of NCPs, which includes ecosystem services and other conceptualisations of the benefits of nature to people, such as "nature's gifts" (Figure 2.1). The NCP framework considers NCPs from two complementary perspectives (Díaz *et al*., 2015, 2018): the generalising and the context-specific perspectives. The generalising perspective includes 17 NCPs, organised into three higher level categories (Figure 2.2): regulating, material and non-material contributions, which largely correspond to the Millennium Ecosystem Assessment's regulating, provisioning and cultural services (MEA, 2005). Importantly, the IPBES framework shows NCPs as overlapping between groups, reflecting the observation that there is often fluidity within NCPs, e.g. fishing could be considered both a material and non-material NCP. The second, context-specific

Table 2.1. Main classification systems for categorising ecosystems services

Classification system	Main service categories	Economic value	Socio-cultural values	Instrumental	Intrinsic	Relational	Comments
Millennium Ecosystem Assessment (MEA)[a]	Provisioning, regulating, cultural, supporting	✗	✗	✓	✓	✗	Links ESs to constituents of well-being
The Economics of Ecosystems and Biodiversity (TEEB)[b]	Provisioning, regulating, habitat	✓	✗	✓	✓	✗	Provides economic estimates of the value of ESs across a wide range of biomes
Common International Classification of Ecosystem Services (CICES)[c]	Provisioning, regulating and maintenance, cultural	✗	✗	✗	✗	✗	Provides a system to categorise ESs into nested hierarchal sub-groups: section, division, group, class, class type, but does not directly address value
UK National Ecosystem Assessment[d]	Provisioning, regulating, cultural, supporting	✓	✗	✓	✓	✗	Provides a comprehensive assessment of the state, condition and value of UK habitats and associated ESs
Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Services (IPBES)[e]	Material, regulating, non-material	✓	✓	✓	✓	✓	IPBES introduced the concept of NCPs, which encompasses ESs and nature's gifts. It also introduced relational values and emphasises socio-cultural values

[a]**MEA (2005).**

[b]**TEEB (2010).**

[c]**Haines-Young and Potschin (2018).**

[d]**UK NEA (2011).**

[e]**IPBES (2015, 2018, 2019).**

ES, ecosystem service.

perspective includes cultural aspects of indigenous and local knowledge and can reflect more holistic conceptualisations of human–nature relationships (Díaz *et al*., 2015).

Although the original IPBES conceptual framework recognises a wider range of values derived from nature than other conceptual frameworks, such as TEEB (2010), IPBES also recognises that there are currently gaps in the knowledge on values and valuation (IPBES, 2015). To address these gaps, IPBES launched, in March 2018, its "values assessment". This assessment aims to explore the "Policy support tools and methodologies regarding the diverse conceptualization of values of biodiversity and nature's benefits to people including ecosystem services". Although the values assessment final report will not be published until 2022, IPBES published its "second order draft" report and the "first order draft" of its summary for policymakers (https://ipbes.net/registration/values-assessment/sod) in 2021. It is expected that the assessment will include proposals to extend the IPBES conceptual framework to account for the plurality of values and valuation methods.
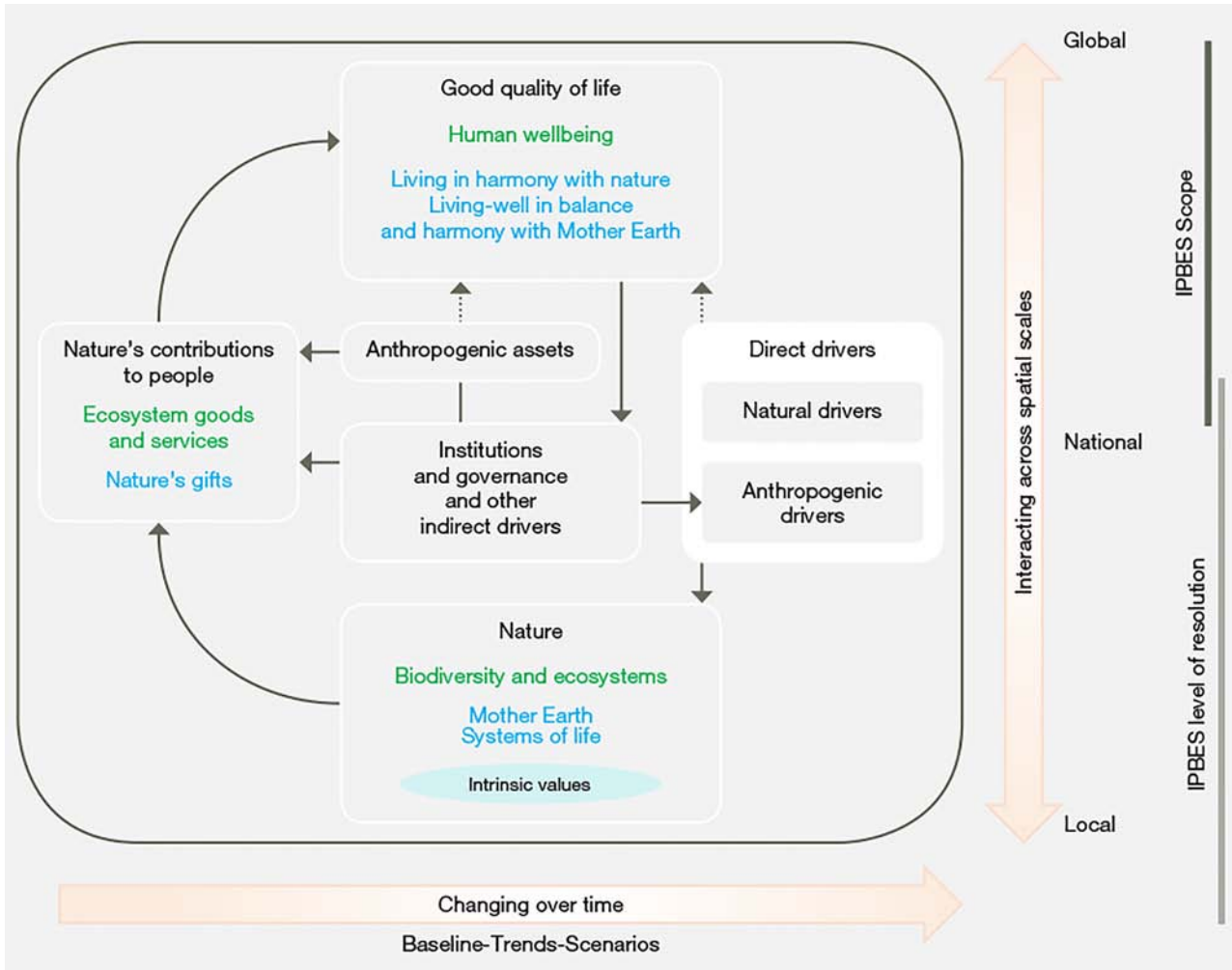
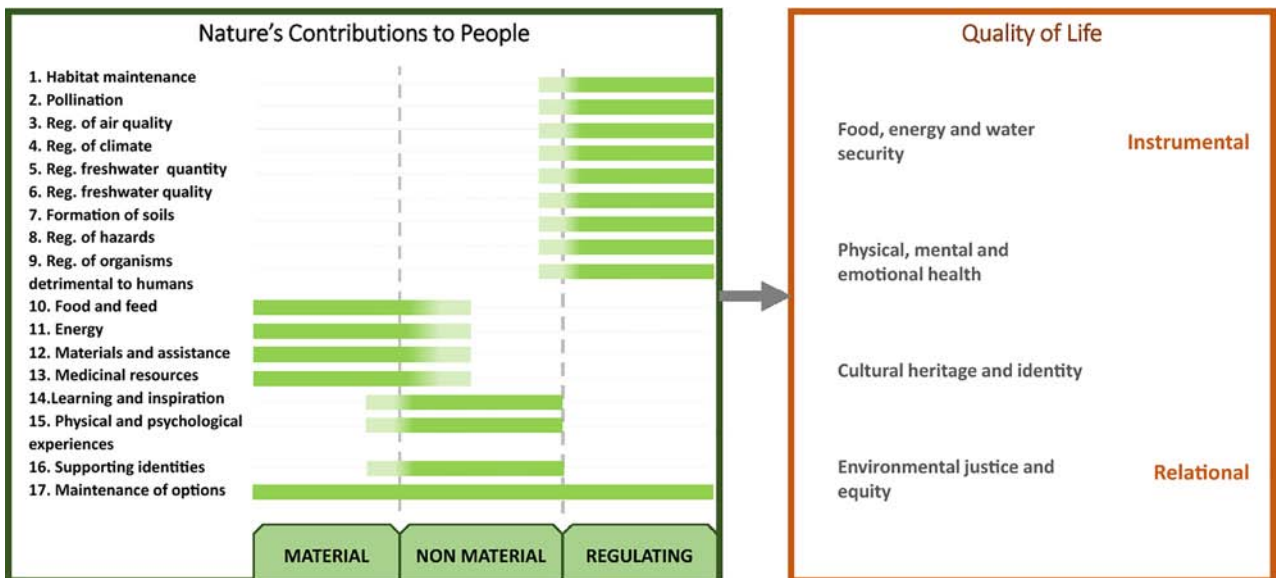**Figure 2.1. The IPBES conceptual framework. Source: IPBES (2018).**

Figure 2.2. NCPs and their relationship to quality of life in terms of instrumental and relational values. Most NCPs straddle the categories of material, non-material and regulating NCPs. Source: adapted from IPBES (2018).

3   Defining and Measuring the Multiple Values of Nature

As the values of nature increasingly become more mainstream in policy decision-making, so does the academic and policy interest in understanding the multiple ways in which people value nature. In the following sections, we provide a synthesis of key advancements in this debate. This includes a discussion of the different dimensions of the values of nature (section 3.1). We then introduce the "Life Framework of Values" (O'Connor and Kenter, 2019), which is an approach that can be used to help people think about and express the multiple ways in which they value nature (section 3.2). Finally, we discuss the Deliberative Value Formation (DVF) model (Kenter *et al*., 2016), which can be used to help capture and evaluate the multiple values of nature (section 3.3).

3.1   Value Dimensions

Ecosystem services assessments, such as TEEB (2010) and the ESManage project (Kelly-Quinn *et al*., 2020), have predominantly focused on assessing the economic value that individuals place on the instrumental values of nature. The more recent discussions in the valuation literature draw on a wider range of disciplinary backgrounds to extend our understanding of the multiple ways in which people value nature. In an attempt to provide clarity across these wide-ranging perspectives, authors such as Kenter *et al*. (2019) have synthesised this literature

to describe different dimensions that can be used to differentiate the values derived from nature (Table 3.1).

3.1.1   Concepts of value

Kenter *et al*. (2015) defined three concepts of value that can help us to better understand what is meant by the term "value":

- **Transcendental values:** these values are our overarching principles and life goals, e.g. fairness, honesty, harmony with nature, wealth and respect for tradition (Raymond and Kenter, 2016). Such values transcend valuation contexts. For example, maintaining good water quality in rivers may be an overarching value that people have in relation to rivers. In the literature, transcendental values are sometimes referred to as broad or deeply held values.
- **Contextual values:** these are our opinions on the importance of particular objects within a particular context. For example, someone might value seeing a particular bird species (e.g. a dipper) on a particular stretch of river on a particular day. Such values are therefore specific to a particular context but may be different in other contexts. Studies that have evaluated ecosystem services (including our ESManage project – Kelly-Quinn *et al*., 2020) have tended to focus on contextual values.

Table 3.1. Value dimensions

Concepts of value		
Transcendental values	Contextual values	Value indicator
Overarching principles and life goals	Objects valued in a particular context	Measures or indicators of value
Justifications of value		
Instrumental values	Relational values	Intrinsic values
A substitutable means to a human end	A non-substitutable meaningful relationship between nature and people	Something important in and for itself without reference to people
Scales of value		
Individual values	Social values	Shared values
Benefits to an individual	Aggregation of individual values	Values held or assigned through interactions with others that inform narratives of our "common good"

- **Value indicators:** these are measures and other indicators of value. Indicators may include monetary, non-monetary (e.g. rankings) and biophysical (e.g. number of invertebrate species) measures, or qualitative indicators (e.g. a "verdict" from a citizens' jury). Studies such as TEEB (2010) and ESManage (Kelly-Quinn *et al*., 2020) have largely focused on monetary indicators. The IPBES (2018, 2019) has used a wider range of value indicators (Christie *et al*., 2019; Schröter *et al*., 2020).

3.1.2   *Value justifications*

Value justification relates to the way in which values are justified. The literature on ecosystem assessment (including IPBES 2018, 2019) converges on three main justifications of value:

- **Instrumental values:** these relate to an object being considered important as a substitutable means to a human end. For example, a river may be valued for its navigation function or its fish resources for angling. Instrumental values are often associated with an economic lens (e.g. TEEB, 2010).
- **Relational values:** these relate to the non-substitutable meaningful relationships between nature and people. For example, Himes and Muraca (2018) considered values that originate from a relationship between the subject and object of value (e.g. people and rivers), with their relational connection giving rise to the value. In contrast, IPBES (2015) largely followed the definition used by Chan *et al*. (2016, 2018), which simply denotes relational values as expressions of non-substitutable meaningful relationships between people and aspects of nature. For example, if a person has grown up close to a particular river, the contribution of that river to the person's identity may not be replaceable by another river (IPBES, 2018).
- **Intrinsic values:** these relate to something that is considered important in and for itself without reference to people as valuers. Fundamentally, it is possible to distinguish the notions of (1) "objective" intrinsic value, meaning that the value is associated with the objective properties of an object of value (e.g. it is alive or sentient), and (2) "subjective" intrinsic value, where the value is

associated with a subjective valuer, i.e. the value is associated with a person valuing something as an end in itself, reflected in subjective expressions of love, awe, etc. (Callicott, 1992).

3.1.3   *Scales of value*

Methodologies used to evaluate ecosystem services/ NCPs have predominantly expressed values as individual values (e.g. how much an ecosystem service benefits an individual). Often in policy decision-making, individual values are aggregated to give a "social" value, e.g. in a cost–benefit analysis. However, such aggregate values often mask the values of marginal groups of individuals. Individuals may also express values as a "shared" value to society (e.g. through deliberative processes, groups may reconcile their individual values to express a "shared" value of the importance of an ecosystem service to society). Recent academic and policy debates have explored the merits of these scales of value, highlighting that they may provide different insights into people's values for nature. Kenter *et al*. (2014) provide further categorisation of shared and social values.

3.2   The Life Framework of Values

In the section above, we highlighted multiple conceptualisations of the values of nature. Navigating such a complex array of value concepts is clearly challenging. The "Life Framework of Values" (O'Connor and Kenter, 2019) provides an approach that can help individuals to think more holistically about the multiple ways in which they connect with nature and allows them to express multiple dimensions of value. The Life Framework can be associated with all three value justifications (instrumental, relational and intrinsic values) and related to various NCP categories (material, regulation and non-material NCPs) (Figure 3.1). Thus, rather than using a single metaphor for how nature is important to people, the Life Framework more comprehensively considers the multiple ways in which nature matters to people. O'Conner and Kenter (2019) identify four "life frames":

1. The **living from** frame points to how we value the world in a provisioning sense but also how it sustains us more broadly. This category spans both the material and non-material contributions
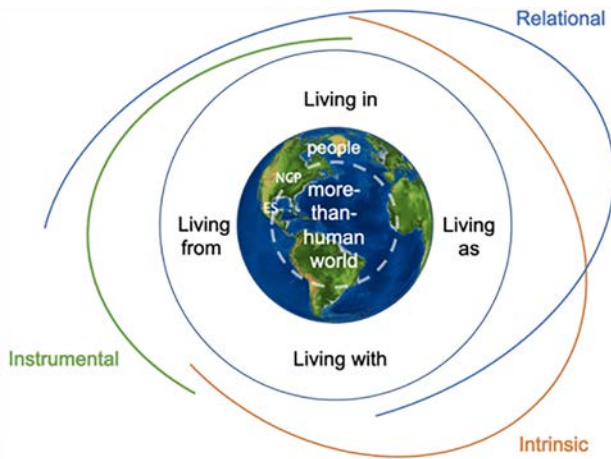
Figure 3.1. The Life Framework of Values and its relationship to the IPBES (2015) categories of instrumental, relational and intrinsic values, ecosystem services and NCPs. Source: reproduced from O'Connor and Kenter (2019) under the terms and conditions of the Creative Commons Attribution license CC-BY-4.0 (https://creativecommons.org/licenses/by/4.0/).

that the world makes to humans' lives. These range from food consumed and energy produced using natural resources to learning taken from the environment. These values are predominantly instrumental and relational. For example, fishermen gain material benefits (e.g. the fish they catch for food) and also non-material benefits (e.g. the joy of fishing).

2. The **living in** frame can be seen to map on to the non-material (cultural) contributions of the land- and seascapes that help shape (either socially or physically) how cultures, communities and individuals relate to place, forming and supporting cultural and personal identities. It also relates to material and regulating contributions, where they help to define the biophysical features contributing to environmental settings. This frame relates particularly to relational values constitutive of well-being, including aesthetic and spiritual dimensions of places, e.g. the aesthetics of a riverscape, but also includes instrumental values associated with benefits gained from place-based activities that are amenable to substitution and trade-offs, such as many forms of recreation and tourism (e.g. the recreational experience of fishing).

3. The **living with** frame expresses the fact that we share our planet with the more-than-human world, and is enacted in us preserving and creating space dedicated to nature, such as a river catchment designated as a Special Area of Conservation. This is also the frame that most explicitly links to biodiversity and species conservation as ends in themselves, rather than as NCPs. The living with frame can also be associated with NCPs that regulate the environment, such as regulating floods and water quality, that humans live within.

4. The **living as** frame reflects notions and experiences of the more-than-human world, rather than non-human nature. It can relate to practices of care, kinship and reciprocal relationships between people and the more-than-human world. In particular, this frame encompasses lived experiences, where activities such as hunting, fishing and outdoor pursuits are experienced as non-separate from nature, and from an embodied perspective (e.g. Ingold, 2011). It also reflects diverse spiritual experiences of oneness. This frame primarily embeds relational and intrinsic values.

The Life Framework of Values thus provides different lenses through which people can explore their relationships with nature, which in turn can help uncover the multiple ways in which they may value, for example, the NCPs of a river.

3.3 Deliberative Approaches to Valuing Nature

Exploring the different concepts, justifications and scales of value can be complex and often requires individuals to consider their deeply held, transcendental values, their broader relational interactions with nature, and any social or shared values that they may have. Some of these values may be pre-formed, while others will be formed through discussions with others.

Social deliberation is a key mechanism for the formation of complex values. This kind of deliberation can be seen as a group-based process of participation, social exchange, reflection, learning and meaningful debate. In such group-based processes, participants have the opportunity to reflect upon, form, express

and debate their knowledge, perspectives, values and beliefs. Examples of approaches that have integrated deliberation within a structured valuation process include deliberative monetary valuation (Niemeyer and Spash, 2001) or participatory multicriteria analysis (Stirling, 2006). Such deliberative processes can inform individual values, but also lead to group-based values that can transcend individual concerns and better incorporate broader shared values.

3.3.1 The Deliberative Value Formation model

One example of a deliberative approach to valuing nature is the Kenter *et al*. (2016) DVF model (Figure 3.2). This model, based on social-psychological theory and practitioner experience, aims to support transparent goal setting for deliberative valuations and explicitly considers how the outcomes sought will be achieved by managing key factors of

influence through process design and facilitation, which in themselves are considered by the authors as "meta-factors". Kenter *et al*. (2016) present a six-step template for designing deliberative valuations (Figure 3.2). The six steps are (1) establishing the institutional context; (2) eliciting and discussing transcendental values; (3) considering contextual beliefs, broader policy impacts and systemic relations; (4) considering implications for transcendental values; (5) deliberation of norms and contextual values; and (6) expressing values through value indicators (Figure 3.2). The solid lines in Figure 3.2 indicate progress through these steps and factors influencing value formation, while the dashed lines indicate feedback loops that may influence an individual's values. The steps within the DVF model can help individuals to better understand their own deeply held transcendental values, along with the values of others, to develop shared values that account for wider societal needs.
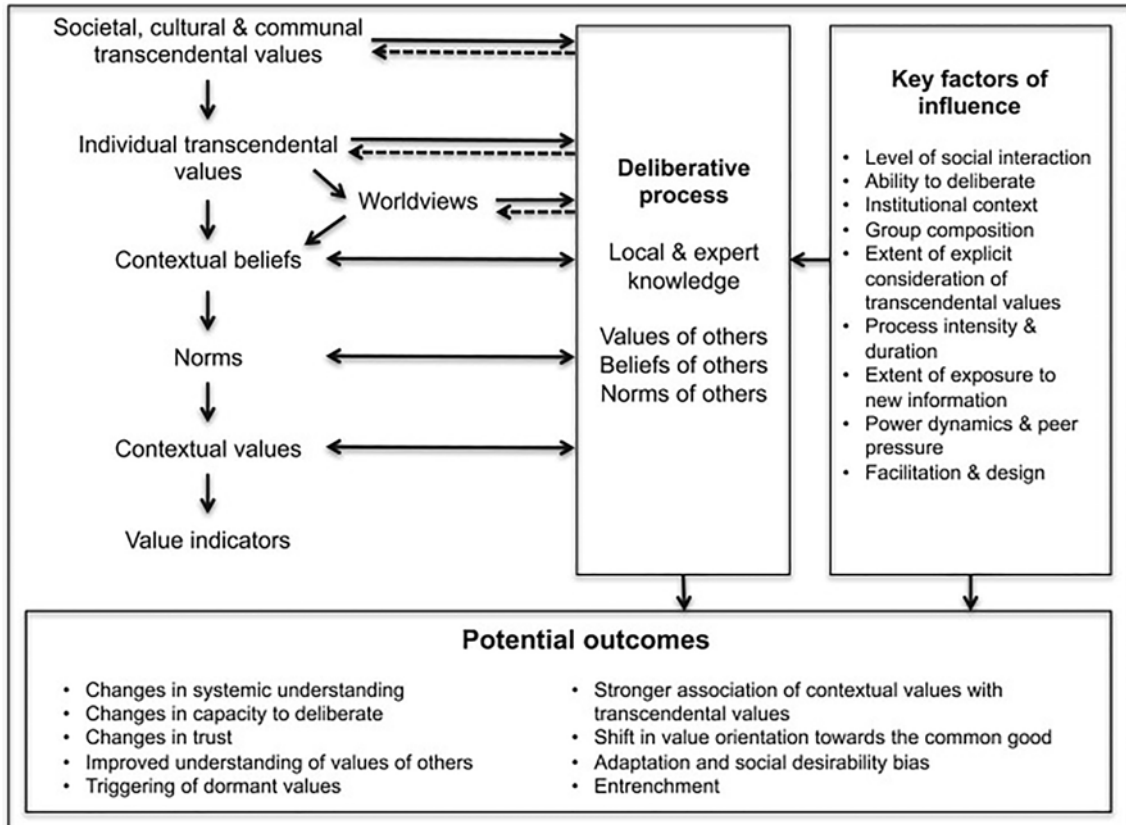

Figure 3.2. The DVF model. Source: reproduced from Kenter *et al*. (2016) under the terms and conditions of the Creative Commons Attribution license CC-BY-4.0 (https://creativecommons.org/licenses/by/4.0/).

4   Concluding Comments

Nature is essential for human survival and prosperity. Nature provides us with a wide range of ecosystem services/NCPs that contribute to our quality of life. However, humanity is exerting significant pressures on the natural world, which in turn is affecting the Earth's capacity to provide the services that we rely on (IPBES, 2019). To address this ecological crisis, academics and policymakers have been trying to better understand how changes in the natural world impact on people. In this report, we have provided an overview of the state-of-the-art knowledge and practice on valuing nature and its services. As we have demonstrated, research is uncovering ever-increasing complexity in the multiple ways in which people value nature. Although this enhanced understanding can help inform decision-making and improve natural resource policies, it also comes at a cost in terms of the resources required to capture and incorporate this evidence in decision-making. It is not the aim of this report to tell policymakers which values they need to consider in their decision-making, but rather to inform them of the array of values derived from nature that exist and that therefore may be affected by their decisions. Accounting for the values of a wider range of stakeholders in decision-making is likely to promote equity in resulting policy.

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Abbreviations

DVF   Deliberative Value Formation
IPBES   Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services
NCP   Nature's contribution to people
TEEB   The Economics of Ecosystems and Biodiversity

AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL

Tá an Ghníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaol a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaol a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialú: *Déanaimid córais éifeachtacha rialaithe agus comhlíonta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.*

Eolas: *Soláthraímid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírithe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.*

Tacaíocht: *Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaol atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaol inbhuanaithe.*

Ár bhFreagrachtaí

Ceadúnú

Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaol:
- saoráidí dramhaíola *(m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola)*;
- gníomhaíochtaí tionsclaíocha ar scála mór *(m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta)*;
- an diantalmhaíocht *(m.sh. muca, éanlaith)*;
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe *(OGM)*;
- foinsí radaíochta ianúcháin *(m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha)*;
- áiseanna móra stórála peitril;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil
- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdaráis áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhíriú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúchán.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídíonn an ciseal ózóin.
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaol.

Bainistíocht Uisce
- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uiscí idirchriosacha agus cósta na hÉireann, agus screamhuiscí; leibhéil uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaol
- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil *(m.sh. tuairisciú tréimhsiúil ar staid Chomhshaol na hÉireann agus Tuarascálacha ar Tháscairí)*.

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn
- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn.

Taighde agus Forbairt Comhshaoil
- Taighde comhshaoil a chistiú chun brúnna a shainaithint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúnacht Straitéiseach Timpeallachta
- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaol in Éirinn *(m.sh. mórphleananna forbartha)*.

Cosaint Raideolaíoch
- Monatóireacht a dhéanamh ar leibhéil radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíocha.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas
- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaol ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaol *(m.sh. Timpeall an Tí, léarscáileanna radóin)*.
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta
- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil

Tá an ghníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:
- An Oifig um Inmharthanacht Comhshaoil
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Fianaise is Measúnú
- Oifig um Chosaint Radaíochta agus Monatóireachta Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.

Identifying Pressures

The Water Framework Directive requires the EPA to monitor the quality of water in Ireland's rivers and lakes. Evidence from these assessments indicates that only around half of Irish rivers are in satisfactory ecological health and that overall water quality is declining. The main cause of this decline is nutrients (phosphorus and nitrogen) from agriculture and waste water entering rivers, which leads to algal blooms and oxygen depletion. Poor ecological conditions of rivers have impacts on the drinking water we extract, the river biodiversity (birds, fish, invertebrates) we appreciate and our level of enjoyment when using rivers for recreation. Improving the ecological condition of rivers and lakes will benefit both biodiversity and people's well-being. The ESDecide report on the multiple values of nature provides a framework for identifying and evaluating these impacts.

Inform Policy

The Water Framework Directive requires Member States to improve and sustainably manage water quality. Improving the ecological condition of rivers and other freshwater habitats has benefits for both people and nature. These benefits are often termed "ecosystem services" or "nature's contributions to people" (NCPs). Alternative catchment management policy options will deliver different bundles of ecosystem services/NCPs, which will vary in terms of their impacts on different stakeholder groups. Policy options must be developed to maximise benefits and ensure that these benefits are distributed equitably. The ESDecide literature review on the multiple values of nature provides a synthesis of recent research on the multiple ways people value nature and associated ecosystem services/NCPs. Insights from this review can therefore help decision-makers understand and evaluate the impacts of catchment management policies.

Develop Solutions

The ESDecide literature review on the multiple values of nature provides insights into the multiple ways people value rivers and associated ecosystem services/NCPs. These insights can be used develop frameworks that evaluate the benefits and costs associated with alternative river catchment policies. For example, in the ESDecide project, we developed a decision support tool to assess the impacts on ecosystem services/NCPs of alternative river catchment measures. Evidence from the review can be used to provide a framework to then evaluate (using monetary and/or non-monetary indicators) the values that people would attain from the alternative policy options, and to identify potential conflict associated with those options. Such evidence can then be used to select options that deliver best value for money.