



Living in harmony with nature is achievable only as a non-ideal vision

C. Patrick Doncaster^{a,*}, James M. Bullock^b

^a School of Biological Sciences, University of Southampton, Southampton SO17 1BJ, UK

^b UK Centre for Ecology & Hydrology, Wallingford OX10 8BB, UK

ARTICLE INFO

Keywords:

Convention on biological diversity
IPBES
Rights of nature
United Nations
Value of nature

ABSTRACT

The UN Global Biodiversity Framework aligns with previous UN visions in equating human wellbeing with living in harmony with nature, setting goals for achieving it by 2050. The UN has yet to articulate fully what we can look forward to when we aspire to this vision. Living in harmony invokes an ideal state of being, yet nature embodies a perpetual struggle for existence. Here we argue that harmony with nature can engage only as a non-ideal vision, insofar as wellbeing requires an endlessly evolving relationship with nature. As an ideal model, the UN vision forces an unhelpful focus on current distance from the ideal state, which distracts from contemporary challenges. As a non-ideal progressive integration with nature's processes and cycles, harmony serves as attribute not state. The non-ideal vision underpins engagement with restoring sustainable levels of natural capital, it accommodates a plurality of approaches to conserving nature, and it aligns with Earth-centred governance that embeds economies in nature, and with the principle of enforceable rights of nature. To date, this dynamic relationship with nature is a constitutional right for citizens of only four countries: Ecuador, Bolivia, São Tomé and Príncipe, and the Philippines. For other countries, essential elements of the relationship of people with nature remain bound to political ideologies. The eventual success of the UN in enabling collective action sufficient for planetary wellbeing depends on it having an achievable vision for harmony with nature's processes and cycles, capable of functioning as a constitutional right.

1. Introduction

The United Nations' (UN) vision of living in harmony with nature declares the purpose of its initiatives and actions concerning humanity's relationship with the natural world. This vision has expanded over the last 40 years in its reach, certainty and purpose. A total of 111 countries voted for the UN (1982) UN World Charter for Nature, with only the USA voting against. This foundational charter expressed awareness that "living in harmony with nature gives man the best opportunities for the development of his creativity, and for rest and recreation." By 2009, the UN General Assembly of 192 member countries was "convinced that humanity can and should live in harmony with nature," in the first of nine Resolutions on Harmony with Nature which all sought to promote a non-anthropocentric relationship between people and their natural environment. The Sustainable Development Agenda (UN, 2015), underpinning the UN Sustainable Development Goals (SDGs) for 2030 adopted by 193 countries, has a vision for a unified planet in which "humanity lives in harmony with nature and in which wildlife and other living species are protected." Sustainable goals are aspirational

endpoints, offering a blueprint for action agendas, although their implementation will depend on issues of interpretation about the goals and even about what success looks like. The conceptual framework of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES, 2015) also explicitly equates human wellbeing with living in harmony with nature. The 'Nature Futures Framework' is being developed by IPBES to explore scenarios of positive futures for nature (Pereira et al., 2020). This Framework includes the 'Nature as Culture' perspective, which links "living in harmony" with people being "at one with nature". The post-2020 Global Biodiversity Framework (GBF, UNEP, 2022, ratified by 193 countries) uses the same wording as the Aichi Biodiversity Targets for 2020, in envisioning a world "living in harmony with nature" where "by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people". These various statements all refer to or imply the possibility of a target state of harmony.

Here we argue that statements linking human wellbeing to harmony with nature will serve as achievable visions only by evoking a dynamic

* Corresponding author.

E-mail address: cpd@soton.ac.uk (C.P. Doncaster).

<https://doi.org/10.1016/j.envsci.2023.103658>

Received 24 September 2022; Received in revised form 28 November 2023; Accepted 14 December 2023

Available online 21 December 2023

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understanding of harmony as an attribute not an outcome, as a progressive integration with nature's processes and cycles not as the target of an ideal state. As an ideal state, we argue that harmony with nature has little scope for translation into rational or achievable policy; as attribute, however, it is consistent with Earth-centred legislation, which prioritises planetary health and increasingly recognises rights of nature. Our aim is to critique, clarify and expand the concept of living in harmony with nature, and to examine its current usage in governance concerning the right to live in a healthy environment, including its potential for uptake in national constitutions. We hope thereby to facilitate engagement with this vision as an essential component of reframing political systems to include human wellbeing based on respecting nature.

In the face of global climate and ecological emergencies of anthropogenic origin, humanity needs to share a collective vision now more than at any time in human history, otherwise we pull in different directions. The UN and its affiliates have developed a vision that is remarkably consistent in describing its ambition. While the UN avoids a precise definition of 'living in harmony with nature', it links the concept to ideas that "humanity's wellbeing [is] derived from the wellbeing of the Earth" (UN Secretary-General, 2017), and "devising a new world will require a new relationship with the Earth and with humankind's own existence" (UN, 2021). Maron et al. (2021) evaluate the achievability of the goals and targets that underpin the CBD 2050 vision for living in harmony with nature, stopping short of critiquing the ideal itself. We have not found any critical evaluation of this concept as a vision, despite its appearance in 68 research-article abstracts since its first use in 1980 (Web of Science, August 2022).

Living in harmony may be understood as living in "a state of peaceful existence and agreement" (Oxford Advanced Learner's Dictionary). Harmony is here a state of being within the inherently dynamic activity of living. As a state, harmony invokes an ideal endpoint in its concept of achieving a goal by finding inner peace. Nature, in contrast, expresses itself through dynamic processes and cycles of ecosystems. In the perpetual struggle of its biotic components for productive existence through resource capture and reproduction, nature does not itself do harmony as a state. The history of life on Earth has seen continual change over time and space without ever breaking continuity – life having persisted on Earth (and nowhere else in the Universe as far as we know) through all of the last quarter of the existence of the Universe. Indeed this continuum of spatio-temporal complexity defines the resilience of life itself, resulting from continuous (phenotypic or genetic) adaptations to new biotic and abiotic conditions, or behavioural responses to avoid them.

In Section 2, we explore the differences in character and ambition of alternative visions for harmony with nature, as a state or an attribute. Section 3 addresses the relative merits of the latter in guiding self-, private- and public-sector governance, and in Section 4, approaches to nature conservation. Section 5 assesses how visions of living in harmonious relation with nature are being built into Earth-centred regional and national governance, including the pioneering constitutions of Ecuador (2008) and Bolivia (2009). Section 6 reviews terminology relating to engagement with nature in the 193 national constitutions currently in force. Our analysis shows few constitutions envisioning harmony with nature either as state or attribute, and little space afforded to environmental protection. We conclude by calling for more countries to recognise a constitutional right for their citizens to live in dynamic harmony with nature, and for the UN to take a lead in developing this dynamic vision.

2. Harmony with nature as ideal state or non-ideal integration?

As the modern world begins to transition away from fossil fuels and degradation of ecosystems, what do people look forward to when they aspire to live in harmony with nature? If it is a state of harmony for themselves amongst restored biodiversity and protected wildlife 30 years hence, the result of achieving regional goals and targets, then they

have an ideal vision. Alternatively, if it is transformative shifts in livelihoods towards sustainable use of biodiversity and ecosystem services, then they have engaged with a dynamic vision of harmony insofar as they live in step with nature. This is a non-ideal vision, in the sense that it has no endpoint, only a perpetual progression towards harmonious integration with nature's processes and cycles, with differences from an ideal vision summarised in Table 1.

The difference between ideal and non-ideal visions has been thoroughly explored in political theory, in the context of alternative visions for cosmopolitan societies in the USA, between an ideal endpoint of assimilated ethnic groups, and a non-ideal progression towards spatial and social integration (Table 1 rows 1–3, 8–9). Assimilation, by simply assigning resources to communities, results in affinity groups with little equality of opportunity, relations or power. Spatial and social integration, in contrast, prioritises mixing on the basis of equality of opportunity (Anderson, 2010, 2014; Knight, 2014). The concept of harmony with nature likewise has alternative visions of assimilated nature as an endpoint, or integration with nature as an endless progression. The former prioritises wellbeing through economic productivity that engineers nature's processes and cycles to meet human needs; the latter stabilizes humanity's life support systems by actively embedding economies within nature (Dasgupta, 2021).

The ideal and non-ideal visions motivate mutually incompatible approaches to normative questions about human wellbeing, yet the UN-led vision statements allow a dual interpretation. Their statements confound alternative ideas of wellbeing, as a final destination and as a work in progress. Wellbeing has to involve a ceaselessly evolving relationship with nature, insofar as nature is itself an endlessly evolving phenomenon. In this sense, people can aspire only to progressive wellbeing, not to arrival at a finite state of wellbeing. The difference is conceptualised in Fig. 1. The static vision in (a) ultimately fails, when biotic processes resist assimilation because of their inherent interconnectedness with each other and with abiotic phenomena (Moranta et al., 2022). Drawdown of natural capital to sustain offtake then precipitates local and biosphere instability, resulting in tipping points into self-amplifying collapse of capital and consequently also offtake (Armstrong McKay et al., 2022), effectively reversing time in Fig. 1 (a), with increasing instability causing eventual collapse. In contrast, the dynamic vision in (b) foregoes a target offtake to prioritise maintenance of natural capital by balanced harvesting (Law and Plank, 2023) that recognises virtue in nature's interconnectedness (Jordan and Kristjánsson, 2016).

Table 1
Logical framework of policy-relevant components for the alternative ideal and non-ideal visions of living in harmony with nature.

Component of vision	Ideal	Non-ideal	Refs
1. Character	Idyllic state	Pragmatic attribute	1
2. Purpose	Static target	Dynamic attractor	1
3. Approach	Goal driven	Process oriented	2-4
4. Promised reward	Assimilation of nature	Integration with nature	§ 2, 5
5. Means of commitment	International agreement	Rights of nature; constitutional right	§ 5-6
6. Means of verification	Arrival at harmonious end point	Progressive embedding in nature	§ 2-3,5
7. Indicator metrics	Economic health	Ecosystem health	§ 4-5
8. Perceived risks	Future discounting; contempt for promise	Incremental benefits; incessant struggle	1-3, § 3
9. Mitigation of risks	Flag exemplary states	Set milestones	1, § 4

Refs: 1, Anderson (2010); 2, Knight (2014); 3, Anderson (2014); § 2–6, sections of this paper.

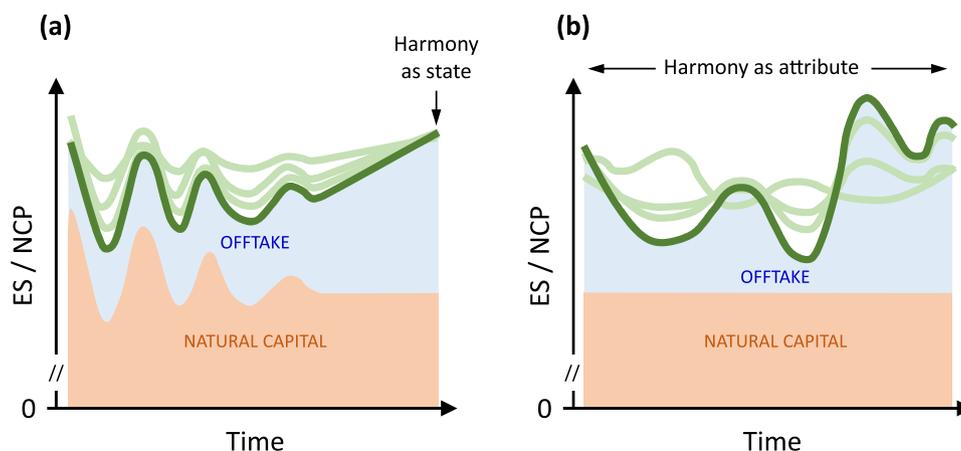


Fig. 1. Graphical conceptualisation of alternative visions for harmony with nature, quantified by ecosystem services and nature's contributions to people (ES / NCP). (a) Harmony as state, following from assimilation of nature's processes (fluctuating green lines, one highlighted) to sustain target growth in exploitation offtake (blue shading) from natural capital (orange shading); nature is bent to human needs for constantly rising demand-driven offtake. (b) Harmony as dynamic attribute, following integration of exploitation offtake with nature's cycles to safeguard stocks of natural capital; human needs diversify in order to sustain constant stocks. Both visions can involve increasing efficiency of exploitation over time. The dynamic vision allows for a low yield in one exploitable process at one time (e.g., dark-green troughs) being offset by higher yields from other exploitable processes (e.g., light green peaks). For example, agricultural assimilation could result from conversion of primary forest to cacao or coffee plantations with beehives; agroforestry integration could result from insertion of cacao or coffee plantations and beehives into primary forest. Relative to agriculture, agroforestry can benefit product value, biodiversity, and ecosystem functions and services (Gómez González, 2016; Rodríguez Suárez et al., 2021; Sekercioglu, 2012), and retained natural forests can additionally function as 'game gardens' (Smith, 2005).

3. Benefits of a non-ideal vision

In developing a new relationship with the natural world, a harmonious equilibrium with nature may act as a powerful attractor for individuals and public- or private-sector institutions, insofar as it is achievable, without them having any expectation of settling on a state of harmony. In the broader context of political non-ideal theory, "knowledge of the better does not require knowledge of the best" (Anderson, 2010). Indeed, perceived political risks of the ideal model include an unhealthy focus on current distance from the supposed ideal, which distracts from analysis of current problems (cf. Table 1, row 8; Anderson, 2014; Knight, 2014). The underlying issue is that having an ideal, be it assimilated ethnic groups or harmony with nature, sets the threshold of standards for declaring success in practice, which is not itself subject to testing in practice. The non-ideal approach, in contrast, allows for imaginative solutions to identified problems by public- or private-sector institutions (Anderson, 2010). The vision for an ideal state may set unrealistic expectations and timeframes, in which case the GBF targets for 2030 and 2050 risk the same lack of success as the Aichi targets for 2020 in bending the curve on biodiversity loss (Obura et al., 2022). In contrast, the non-ideal concept of embedding economies in nature may help engagement with the vital priority of restoring natural capital to safe levels for people and the planet (E. J. Milner-Gulland, in Cuff, 2022).

The product of the ideal approach, a state of harmony, is inappropriate to global challenges of biodiversity loss and climate change, insofar as an aspiration to live in harmony with nature may not fit everyone's worldview (Coscieme et al., 2022; Pereira et al., 2020). The non-ideal invocation of harmony as a means to wellbeing is more inclusive of different cultural heritages. This is because, if a happy life is an uncontroversial aspiration for any human being, then "taking care of the planet is nothing special, nothing sacred or holy. It's just like taking care of our own house", and "ecology should be part of our daily life" – (Dalai Lama, 1992; Dalai Lama, 2006). The promised idyll of a land of milk and honey in the Hebrew Bible and the Christian Old Testament (20 verses across seven books) comes with instruction in Genesis 2:15 to "till and keep" the garden of the world, which Pope Francis (2015, 2023) interprets as a relationship of mutual responsibility between humans and nature. These influential interpretations of a fragile balance are backed by a wealth of evidence on current risks at local to biosphere levels of not

respecting nature, and on what to do about mitigating them (IPBES, 2019; IPBES, 2022).

Failing to rule out harmony as an ideal state can only exacerbate the ongoing latency of action on biodiversity loss and climate change (Xu et al., 2020), given the exposure of this interpretation to future discounting and to contempt for its promise (Table 1, row 8). Governments can seek to influence how society interacts with nature, yet few strive for harmony with nature, as we describe in the next section. Private sector industries are important too, as they play a major role in driving ecological degradation; and this is especially true of multinationals which can operate to avoid state control (Ben-David et al., 2021). Furthermore, lobbying on behalf of large private sector companies has been implicated in turning governmental policies away from sustainability (Meng and Rode, 2019). Private sector industries can demonstrate their commitment to the global public good by aligning their activities with UN blueprints, and ultimately by changing their practices while also influencing consumer choices towards more sustainable products. Many companies that would most benefit the common good by respecting nature have committed to UN goals, but not to the UN vision that underpins them. For example, none of the world's ten biggest oil and gas companies (Sinopec, CNPC, PetroChina, Shell, Aramco, BP, ExxonMobil, Total, Chevron, Rosneft, ordered by 2019 revenue) have 'harmony with nature' in their vision statements. They could nevertheless include a pathway towards harmonious integration with nature, and indeed one of them does. The China National Petroleum Corporation (CNPC) has a mission to "strive for harmonious relationships between operations and ... the environment", aligning with President Xi Jinping's Principles to Apply in Protecting the Eco-Environment, to pursue harmonious coexistence between humanity and nature (2018 speech, in Xi, 2020). All ten oil and gas companies have committed at least to aspects of some of the 17 UN SDGs. Given commitments to SDG goals, the often unresolved challenge is then to determine indicators of success in achieving goals (Addison et al., 2018) or of failing to adhere to them (SEI, Climate Analytics, E3G, IISD, and UNEP, 2023).

4. Nature conservation in practice

The non-ideal progression towards harmonious integration with nature's processes and cycles accommodates a plurality of approaches to conserving nature by public and private sectors. Certain conservation

aims seek an ideal state, nevertheless, especially the aim to conserve and restore ecosystems, and bend the curve on biodiversity, towards an historical target. Such targets may be hard to achieve, because they carry implicit assumptions about what the past ecosystems might have been like (Higgs et al., 2014), and because reference baselines are themselves dynamic systems (Maron et al., 2018).

Crucially, even if historical targets seem to have been achieved, they may not ultimately address the conservation problem and can even lead to perverse outcomes. For example, Bullock et al. (2022) argue that ecological restoration to resemble a past state may create ecosystems which are not resilient to ongoing environmental change, resulting in ultimate collapse of the restored system. Perverse outcomes are feared in relation to England's Biodiversity Net Gain approach, which could facilitate the destruction of valuable habitat and its replacement with vegetation that does not support local biota (Gardner et al., 2022).

Approaches that are more in keeping with a non-ideal progression target process over state, in the context of a dynamic vision of nature. These include rewilding and the re-establishment of complex ecologies (Perino et al., 2019), and blurring the borders between nature and culture (Linnell et al., 2015). In contrast to the ideal vision, process-focussed approaches cannot offer the goal of arrival at a final state of harmony. They instead require milestone indicators to sustain enthusiasm for a stepwise progression (Table 1, rows 3 and 9). Suitable milestones need to move from the purely quantitative indicators of success in SDGs and CBD goals, to more qualitative measures for tracking institutional learning from transformative changes in activities and attitudes, and perceptions by those experiencing the changes. Understanding attitudes and perceptions is a prerequisite to bridging the currently large gap between preaching and practice in application of the SDGs (Biermann et al., 2022). As the world approaches Earth system boundaries, nature-positive outcomes will increasingly depend on synergies with people-positive outcomes (Obura et al., 2022). Qualitative indicators for such synergies include the alignment of priority interventions with key leverage points, including law and policy, and pluralities in values of nature and visions for a good life (Martin et al., 2022; Chan et al., 2020).

5. Pragmatic visions motivating governance

Pragmatic vision statements about humanity's relationship to nature can put us on a path to harmonious integration with its changes, processes and cycles. In 2008, Ecuador created the first national constitution to recognise enforceable rights of nature (Kotzé and Villavicencio Calzadilla, 2017). Its constitution formalises an economic system that "tends towards a dynamic, balanced relationship among society, State and the market, in harmony with nature" (Article 283). Ecuador's recognition and implementation of rights of nature led directly to the UN's (2009) first resolution on Harmony with Nature (UN Secretary-General, 2020). The country's Constitutional Court set a global precedent in 2021 by citing rights of nature in ruling against a government-licensed mining project (Guayasamin et al., 2021; Greenfield, 2021).

In Bolivia, the *Law of the rights of Mother Earth* (2010) was the first statutory law granting rights to nature (Villavicencio Calzadilla and Kotzé, 2018). It has a first principle entitled 'Harmony' that obliges the state and society to achieve a dynamic balance with natural processes and cycles (Article 2.1). The subsequent *Framework law of Mother Earth and integral development for living well, 15 October* (2012) operationalises this obligation by establishing the notion of 'integral development', not as an end in itself but as a progression towards wellbeing for all (Article 5.3). These laws came into force shortly after Bolivia rewrote its constitution to replace the previous republic with a plurinational state that recognises 36 indigenous nations. Under the new official name of the 'Plurinational State of Bolivia', the country's 2009 constitution ensures broad participation of indigenous peoples in its Legislative Assembly, and it authorises any person to take legal action in

defence of the right to a healthy, protected and balanced environment that sustains ecological integrity (Villavicencio Calzadilla and Kotzé, 2018).

The principle of enforceable rights of nature precludes rights of individuals or society to its commodification. It thereby rules out the ideal model of a state of harmony, in favour of a non-ideal progression towards harmonious integration (Table 1, rows 4–7). This principle conforms to the view held by many indigenous peoples and local communities, that humans are integral components of nature, living in complex relation to it (Reyes-García et al., 2022). The concept of 'rights of nature' has now grown into a movement, with decentralised legislation established at sub-nation levels in Colombia, Mexico, the USA, New Zealand, Uganda and India, and climate litigation citing rights of nature in the USA, Argentina, Peru and Pakistan (Challe, 2021; Dancer, 2021). The UN Secretary-General's (2020) report on harmony with nature details a total of 35 countries that have either adopted or proposed legislation and policies on the rights of nature, and 23 countries with ongoing Earth-centred legislative processes. Together with developments by five countries in seeking alternatives to GDP as the sole measure of national wellbeing, and new international partnerships on the concepts of degrowth and circular economy, an emerging paradigm shift from human-centred to Earth-centred society is evident in the implementation of the 2030 SDGs (UN Secretary-General, 2020).

Unsurprisingly, transformative changes towards Earth-centred governance have created many and sometimes violent power struggles, associated with a shift of legal rights away from large landowners and towards indigenous peoples. These challenges have been well-documented for Ecuador (Kotzé and Villavicencio Calzadilla, 2017, Guayasamin et al., 2021) and Bolivia (Villavicencio Calzadilla and Kotzé, 2018). In a comprehensive review of conservation dynamics across the wider Amazon rainforest, Pereira and Viola (2021) dissect the vested interests in regional agribusiness lobbies, mining, energy and logging industries and organised crime, and the institutional actions that together are facilitating a catastrophic tipping point, which will have biosphere-level implications (Armstrong McKay et al., 2022). They see a long road ahead for progressive socioenvironmental forces. They call for a wider recognition of the shared best interests of people and nature. These interests ultimately originate in the mutual dependencies of physical, climatological and organic phenomena, first documented by von Humboldt (1849), from which he observed humans escaping by "activity of mind" (ibid., p. 350) to exploit and engineer ecosystems even to the detriment of their functioning (Mohan and Tamma, 2021).

Given the potentially transformative role that national constitutions can have in shaping Earth-centred governance (IPBES, 2022), in the following section, we explore the place of environmental protection in all current constitutions.

6. Few constitutional terms of engagement with nature

Almost all countries of the world now have a national constitution, setting out the foundational principles of their nation's governance and the rights of its people. Of the 193 constitutions in force, 156 (81%) address environmental protection (Constitute Project, 2022). They include eight of the 10 countries with the largest predicted economies by 2050 (PwC, 2017), and 33 of the 34 countries that have created new constitutions since Ecuador's in 2008. Only three of the 193 (< 2%) refer explicitly to 'harmony with nature': Ecuador (2008), Bolivia (2009) and Kyrgyzstan (2010). Of these three, only two distinguish dynamic from static harmony, in terms of dynamic equilibria (Ecuador: "equilibrium of ecosystems shall be regulated"; Bolivia: "to guarantee ecological equilibrium, the land must be used in accordance with its capacity"). Two other countries refer to harmony in the context of nature. São Tomé and Príncipe's (1975, revised 1990) seeks to "preserve the harmonious balance of nature and of the environment," and the Philippines' (1987) promises to protect a "balanced and healthful ecology in accord with the rhythm and harmony of nature". Of all 193 constitutions, only Ecuador's

uses the term ‘rights of nature’, although it also appears in the draft constitution of Iceland.

We tested for evidence that the trailblazing constitution of Ecuador (2008) has influenced other national constitutions, by analysing the use of language that aligns with the UN vision in the 34 post-2008 constitutions, as well as the constitutions of the eight top-10 economies. These 44 constitutions were sourced in English from the [Constitute Project \(2022\)](#). For each, we counted the number of sections identified by the Constitute Project as addressing environmental protection, and words devoted to that subject both as a number and a percentage of the total word count of the constitution. For the whole of each constitution, we

counted occurrences of five word-stems: natur*, harmon*, ecolog*, biodivers*, equilib* (ordered from most to least countries using them). The ‘natur*’ stem counts only references to natural phenomena, not ‘the nature of’, ‘natural persons’, etc; the ‘biodivers*’ stem includes five instances of ‘biological diversity’. We additionally counted occurrences of five phrases: (1) ‘natural resource*’; (2) ‘sustainabl* develop* /grow*’; (3) ‘natural disaster* /catastrophe* /calamit*’; (4) ‘ecological* equilib* /balanc* /stab*’ or ‘balanced environ* /ecolog*’; (5) ‘harmon* with natur*’ or ‘harmonious coexistence with natur*’.

Of the eight constitutions with top-10 economies, plus the 33 post-2008 constitutions, that address environmental protection, each has

Table 2

Text pertaining to people and nature in national constitutions of top-10 economies (ordered by size), and those created since 2008 (ordered by recency). Columns show year of enforcement and most recent revision of the constitution; number of sections and words, and % of all words, addressing environmental protection, with grey highlighting including the right to live in a healthy environment; occurrences of five word-stems; occurrences of five phrases defined in the main text. Source: [Constitute Project \(2022\)](#).

Country	Year, revision	Environ. protection			Word-stems					Phrases				
		Sects	Words	% total	natur*	harmon*	ecolog*	biodivers*	equilib*	1	2	3	4	5
Top-10 economies in 2050														
1. China	1982, rev. 2018	2	70	0.5	7	3	3	-	-	6	-	-	-	-
2. India	1949, rev. 2016	3	86	0.1	5	3	1	-	-	3	-	1	-	-
3. USA	1789, rev. 1992	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Indonesia	1945, rev. 2002	1	38	0.5	6	-	-	-	-	5	-	-	-	-
5. Brazil	1988, rev. 2017	9	938	1.2	14	3	5	-	3	7	-	1	2	-
6. Russia	1993, rev. 2014	2	73	0.4	10	-	4	-	-	6	-	1	-	-
7. Mexico	1917, rev. 2015	5	543	0.8	9	4	2	-	1	7	2	-	2	-
8. Japan	1946	-	-	-	-	-	-	-	-	-	-	-	-	-
9. Germany	1949, rev. 2014	4	325	1.0	14	-	-	-	2	3	-	6	-	-
10. UK	1215, rev. 2013	3	448	0.2	8	-	1	1	-	4	11	-	-	-
The 34 constitutions written since 2008														
Algeria	2020	4	239	1.2	7	1	-	-	-	3	5	-	-	-
Cuba	2019	3	312	1.3	10	2	-	-	-	6	3	-	-	-
Sudan	2019	1	51	0.5	2	-	-	1	-	-	2	-	-	-
Burundi	2018	3	76	0.4	3	6	-	-	2	2	1	-	-	-
Chad	2018	5	221	1.4	5	2	-	-	-	4	-	-	-	-
Comoros	2018	2	95	1.0	6	-	1	-	-	4	-	-	1	-
Thailand	2017	7	537	1.1	8	1	-	4	-	8	5	-	-	-
CAR	2016	1	34	0.2	5	3	-	-	3	4	-	1	-	-
Cote d'Ivoire	2016	5	227	1.5	3	5	-	-	-	2	1	-	-	-
Congo, Rep. of	2015	4	183	1.1	5	-	-	-	-	5	1	-	-	-
Dominican Rep.	2015	12	1,158	3.2	19	3	4	3	6	16	3	-	4	-
Nepal	2015, rev. 2016	5	536	0.9	39	12	3	5	-	27	1	4	-	-
Egypt	2014, rev. 2019	7	414	1.5	7	-	-	1	-	5	3	-	1	-
Tunisia	2014	3	139	0.9	5	1	-	-	-	5	3	-	1	-
Fiji	2013	4	320	0.7	3	-	1	-	-	1	-	-	-	-
Zimbabwe	2013, rev. 2017	5	296	0.5	7	5	2	-	-	7	1	-	-	-
Somalia	2012	2	329	1.2	9	6	-	1	-	7	-	1	-	-
Syria	2012	1	66	0.6	3	-	-	-	-	2	1	1	-	-
Hungary	2011, rev. 2016	4	330	1.3	8	-	-	1	-	5	1	2	-	-
Libya	2011, rev. 2012	-	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	2011	3	160	0.8	3	2	-	-	-	2	-	1	-	-
South Sudan	2011, rev. 2013	7	679	2.1	19	5	2	1	-	16	2	1	-	-
Angola	2010	6	348	1.0	15	2	3	-	-	11	3	-	1	-
Kenya	2010	8	565	1.0	16	-	2	3	-	15	2	1	-	-
Kyrgyzstan	2010, rev. 2016	2	134	0.7	5	1	-	-	-	2	-	1	-	1
Madagascar	2010	5	224	1.2	2	8	-	-	3	1	-	-	-	-
Niger	2010, rev. 2017	6	307	1.7	11	5	-	-	2	10	-	1	-	-
Bolivia	2009	20	1,349	2.9	86	12	8	18	5	61	4	2	3	3
Bhutan	2008	2	246	1.4	9	1	3	2	-	5	2	2	1	-
Ecuador	2008, rev. 2021	31	3,840	6.0	83	6	14	24	3	25	2	3	6	4
Kosovo	2008, rev. 2016	3	260	1.0	11	-	1	1	-	7	-	2	-	-
Maldives	2008	3	156	0.5	9	1	5	2	-	2	1	1	3	-
Myanmar	2008, rev. 2015	5	204	0.4	13	-	-	-	-	4	-	2	-	-
Turkmenistan	2008, rev. 2016	3	129	1.3	13	1	-	-	-	5	1	1	-	-
Median value		4	246	1.0	8	3	3	2	3	5	2	1	2	3
Number of countries out of 44		41	41	41	41	27	19	15	10	40	24	21	11	3

one or more general statements committing their citizens or the state to protection of the environment, forests or wildlife; additionally, 27 of them (grey-highlighted in Table 2) assert the right of citizens to live in a healthy environment. The set of statements pertaining to environmental protection usually amounts to a few hundred words (about the length of an abstract to a scientific paper), averaging 0.5% of the total length of the constitution for top-10 economies, and 1.1% for the recent constitutions (Table 2). Ecuador, Bolivia and the Dominican Republic exceptionally devote 3–6% of their constitutions to protection of the environment and rights to live in a healthy environment. Given acceptance of the non-ideal model, of a healthy environment requiring harmonious coexistence with nature's dynamic processes and cycles, then the two top-10 economy and six post-2008 constitutions that afford rights to a healthy environment without specifying sustainable growth or ecological balance (Table 2 grey-shaded rows without phrases 2 and 4), suggest a highly constrained conception of the environment, or otherwise present only a utopian ideal (Table 1).

Of the top-10 economies, only the constitutions of Mexico and the UK mention sustainable development, and only those of Mexico and Brazil mention ecological equilibrium or balance (Table 2, phrases 2 and 4). Of the 34 recent constitutions, more demonstrate a commitment to the process of sustainable development than to its product of harmony with nature, and several of these reference ecological equilibrium or balance (Table 2, phrases 2 and 4). Most employ the concept of harmony, although rarely in the context of nature (Table 2, harmon* word-stem and phrase 5). Of the 27 top-economy and recent constitutions affording their citizens the right to a healthy environment, 19 address the pathway to achieving it through sustainable development or ecological balance (Table 2, phrases 2 and 4). These countries can be said to have a non-ideal vision insofar as they treat health, development and balance as dynamic processes as opposed to static goals.

The top-10 economy and recent constitutions predominantly consider nature as a phenomenon apart from humanity, in terms of a valuable commodity of natural resources and, for many, a dangerous threat of natural catastrophes (Table 2, phrases 1 and 3). The constitutions of the USA and Japan do not address environmental protection at all, and contain no word-stem or phrase relating to nature and its use by people (Table 2). The uncodified constitution of the UK refers to environmental protection, ecological systems, biodiversity, and sustainable development, specifically and only in respect of the country of Wales, comprising 5% of the UK population. As a consequence, for the top-10 global economies, and for many other countries, transformative change towards sustainable development and a balanced ecology will be a party-political decision, not a constitutional right. The USA does have a bedrock conservation law: the National Environmental Policy Act (NEPA, 1970), with a stated purpose "to declare national policy which will encourage productive and enjoyable harmony between man and his environment". The vulnerability of this Act to party politics was exposed by the 2020 Republican administration of then President Trump, which substantially weakened the law for the purpose of facilitating new infrastructure projects (Chemnick, 2020). In contrast, the constitutional right of US citizens to bear arms continues to resist all attempts at moderation, despite firearm-related injuries becoming the leading cause of death in US children and adolescents (Goldstick et al., 2022).

The insurmountable hurdle for the US remains cross-party agreement on constitutional reform that would enshrine citizens' rights to live in a healthy environment. This has also proved a step too far for France, where the parliamentary upper house blocked its Prime Minister's recent attempt to expand Article 1 of the French constitution. The new clause would have guaranteed preservation of the environment and of biological diversity, and committed the nation to fight climate change (Guillot, 2021). In Chile, a new constitution drafted by a Constitutional Convention of elected members, including scientists and indigenous representatives, and emphasising actions against climate change, has recently been rejected in a referendum of the people; nevertheless, the process of working with civil society to agree a new constitution remains

on the table (Rodríguez Mega, 2022).

Many countries have managed to reform their constitutions to include sustainable development. Of the 74 constitutions either written or revised since the 2015 UN agreement on SDGs, 31 mention sustainable development in the context of natural resources, although only seven of these also mention ecological equilibrium or balance. China's 2018 revision commits to the "coordinated development of ecological civilizations," addressing environmental degradation by coupling together ecological and economic development (Meng et al., 2021). The constitution of the UK comprises a bundling together of legal arrangements without codification into a single document, which avoids entrenchment of terms. Its provisions for biodiversity and sustainable development were added in 2015 for Wales, setting a precedent for other countries of the UK likewise to enshrine environmental protection in the constitution.

Our review of national constitutions has found that a dynamic relationship with nature is a constitutional right for citizens of only four countries: Ecuador, Bolivia, São Tomé and Príncipe, and the Philippines. For other countries, the relationship of people with nature remains bound to political ideologies, limiting the scope for Earth-centred governance.

7. Conclusion

As an existential state, harmony fails to connect with global stakeholders and will fail to materialise for humanity. An aspiration for harmony can nevertheless motivate engagement with collective targets and goals, as an attribute rather than a thing in itself. A person who aspires to a harmonious life, or an organization that aspires to harmonious relationships, seeks to approach dynamic equilibrium with all of the processes and cycles of the systems in which they are rooted. We call for clarity about the aspirations of vision statements on harmony with nature, to encourage deeper reflection on who will engage with the vision and how it can motivate environmental policies. The UN has a pivotal role in disseminating the ample evidence that all aspects of everyone's personal and professional lives are embedded in nature, as a framework for enabling international agreement on the governance of common goods that transcend national borders. Its vision of harmony must herald a vital integration with nature's processes and cycles and not an ideal outcome, realised by countries prioritising development of processes over goals and targets. Yet this kind of dynamic harmony is mentioned in the constitutions of only four of the 193 countries with constitutions currently in force. We further call on governments to reach beyond their current terms of office to shift Earth-centred governance from an aspirational party-political issue to a foundational principle through constitutional reforms with policy implications. Although 161 countries have now resolved to recognise the human right to a clean, healthy and sustainable environment (UNGA, 2022), less than half of the 44 top-economy and recent constitutions mention citizens' rights to a healthy environment perpetuated by sustainable development or ecological balance. Given the inherently spatial biogeography of nature's processes, achieving this right could be facilitated by decentralising the role of the state in nature protection to ensure a voice for local communities, even to the extent of building plural nations that empower indigenous peoples.

CRedit authorship contribution statement

C. Patrick Doncaster: Conceptualization, Data curation, Funding acquisition, Investigation, Methodology, Project administration, Validation, Visualization, Writing – original draft, Writing – review & editing. **James M. Bullock:** Conceptualization, Investigation, Methodology, Writing – original draft, Writing – review & editing

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

The analysed data are all contained in Table 2.

Acknowledgements

We thank Ian H. Townend, Becks Spake, Evelyn Piña-Covarrubias and Stephanie Jones for discussions, and J. Baird Callicott and five reviewers for constructive criticism of earlier drafts. The work was supported by grant 521900106 from the University of Southampton Interdisciplinary Research Pump Priming Fund.

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