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Chapter 27

Ecosystems

Ecosystem services and the commodification of nature

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Abstract

This chapter examines the way commodification processes are playing out in the domain of human-nature relationships. More specifically, it looks at how and to what extent this phenomenon has been facilitated by the concept of ecosystem services, a generic term of wide use in the environmental science and policy to denote the tangible and intangible benefits humans obtain from nature. The chapter explores the connection between the underlying tenets of the ecosystem services framework and the commodification process and discusses its most salient formulation in the form of Payments for Ecosystem Services. The chapter places this phenomenon in the context of the broader trend of neoliberalization of nature conservation and discusses its potential risks. The chapter finally discusses the idea of de-commodification and explores options through which a harmful expansion of markets into human-nature relationships may be contained or reversed.

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Introduction

This chapter examines the way commodification processes are playing out in the domain of human-nature relationships. More specifically, we look at how and to what extent this phenomenon has been facilitated by the concept of ecosystem services, a generic term of wide use in the environmental science and policy to denote the tangible and intangible benefits humans obtain from nature, including for instance food, air and water regulation, energy recreation, and cultural and spiritual fulfilment. The chapter explores the connection between the underlying tenets of the ecosystem services framework and the commodification process and discusses its most salient formulation in the form of Payments for Ecosystem Services. It places this phenomenon in the context of the broader trend of neoliberalization of nature conservation and discusses its potential risks. The chapter finally discusses the idea of de-commodification and explores options through which a harmful expansion of markets into human-nature relationships may be contained or reversed

Ecosystem services as a way of framing human-nature relationships

The ecosystem services framework is one of the many ways of conceptualizing the relationship between humans and nature. Ecosystem services are defined as the benefits humans derive from natural ecosystems and are often classified in four main categories (Millennium Ecosystem Assessment, 2005): i) *provisioning services*, referring to goods produced by nature, such as timber, fibre, food and medicines; ii) *cultural services*, referring to the intangible benefits humans derive from their interaction with non-human nature, such as aesthetic values, recreation, and sense of place and belonging or spiritual connection with nature, iii) *regulating services*, which include the indirect benefits humans obtain from an ecosystem's regulatory processes, such as clean air and clean water, and iv) *supporting* or *habitat services*, that sustain all other ecosystem services, such as soil formation, nutrient cycling and primary production¹.

Conceptualizing and valuing ecosystem services

The notion of ecosystem services emerged in the late 1960s with the aim of raising awareness on the social and economic impacts of biodiversity loss. Attention to the notion increased through the 1990s, notably through Daily's influential book *Nature's Services: Societal Dependence on Natural Ecosystems* (1997), which defined ecosystem services as 'the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life' (p3). She also highlighted that failure to foster the delivery of ecosystem services undermines economic prosperity, forecloses options, and diminishes other aspects of human well-being.

Proponents of the notion of ecosystem services argued that as most of those services that nature provides are not exchanged in markets, their values are not properly considered in public or private economic decision-making. 'Correcting' for this 'structural' economic under-valuation of ecosystem services was seen as critical to reversing the decline of biodiversity and environmental degradation. Those benefits that nature gives to humans needed to be accounted for in decision-making, connecting in this way the notion of ecosystem services to environmental economics and monetary valuation.

Environmental economics assumes that values and benefits derived from nature can ultimately be expressed as "change[s] in human well-being arising from the provision of [an environmental] good or service" (Bateman et al, 2002, p.1). Under this paradigm, rooted in neoclassical economic theory, values are expressed as changes in well-being that can be conveyed in monetary terms. These can be determined through formal economic valuation exercises that estimate relative values through people's willingness to exchange money to secure a certain level of provision of the ecosystem service. Benefits of ecosystem services calculated in this way can then be internalized in public or private decision-making. Like this, the 'undervaluation' of ecosystem services can be 'corrected' through e.g., the incorporation of monetised values into cost-benefit analysis. Using a basic example: the cost-benefit analysis supporting the decision of building or not a road through a forest would need to include not only the construction costs of the road, but also the costs associated with the loss of ecosystem services resulting from the damage to the forest

(e.g. habitat loss, damage to climate and water regulating functions and lessening of recreational or spiritual fulfilment possibilities), measured against the benefits that the road would bring to society.

An array of methodologies has been developed to calculate the monetary value of ecosystem services. These include conventional market-based methods; for example, the flood-protecting value of an upstream forest could be monetised through the avoided costs of property loss if a flood were to occur in an inhabited area downstream. Other methods attempt to reveal the value of ecosystem services by looking into associated markets (representing *revealed* preferences). For example, the value of cleaner air could be revealed through the housing market by comparing the prices of houses subject to different levels (or lack) of nearby air pollution. For ecosystem services whose values cannot be associated with current markets (for example, the value of biodiversity, or for certain forms of regulating and spiritual services), stated valuation techniques have been developed. These techniques are survey-based and consist in asking the public how much they would be willing to pay for such services in hypothetical markets (representing here their *stated* preferences).

In a milestone publication from 1997, Costanza *et al.* assigned a monetary value to the world's ecosystems and estimated an aggregated value of the entire biosphere of \$33 trillion USD per year. While criticized at the time, Costanza *et al.*'s work contributed significantly to placing the valuation of ecosystem services high on the research and policy agenda. Since then, application of monetary valuation techniques has continued to expand in a multiplicity of environmental domains within and beyond the academic realm.

In this way, what started as an attempt to raise awareness about the benefits that humans obtain 'freely' from nature, moved into conceptualising those benefits as changes in well-being that could be monetised through a measure of the public's willingness to pay for them. The purpose of economic valuation is not necessarily to get the public to pay for the provision of ecosystem services (either in existing or hypothetical markets), but to use their willingness to pay as an indication of how much they value them.

The turning point in the world's environmental policy agenda

From the late 1990s onwards, the literature on ecosystem services grew rapidly (see Martin-Ortega *et al.* 2015 for a review). These publications provided the foundation for the Millennium Ecosystem Assessment, which is undoubtedly the turning point in the popularisation of the ecosystem services concept. In 2000, the Secretary-General of the United Nations called for this worldwide initiative to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainability of those systems. The Millennium Ecosystem Assessment (2005), emphasised the need to incorporate the value of ecosystem services into decision-making to reverse the increasing degradation of ecosystems and explicitly promoted using the notion of ecosystem services for decision-makers across the globe.

An explosion of academic work on the conceptualisation and application of the ecosystem services followed, including various frameworks to understand, classify, quantify, and operationalise the impacts of ecosystem change on human well-being. Several international and national assessments were published, such as e.g. The Economics of Ecosystem Services and Biodiversity (TEEB, Kumar, 2010) and the UK National Ecosystem Assessment (UK NEA, 2011); all attempting to provide a current snapshot and vision for the future state of ecosystems, including monetised ways of representing the value that such ecosystems have for humans and the value loss that their degradation would bring if existing trends were not reversed. Policy interest on the notion grew rapidly and extensively.

Beyond academia and the policy domain, businesses and corporations have also engaged with the notion of ecosystem services. Growing pressure on businesses to consider ecosystems was reflected in the official petition for the business community to contribute to the Convention on Biological Diversity in 2006, highlighting the need for businesses to develop best practice guidelines to reduce the impact of their activities on biodiversity. Initiatives highlighting the opportunities for businesses to engage in ecosystem services management is also growing. For example, the United Nations Climate Change Conference of the Parties (COP26, in 2021) reflected the increasing efforts to demonstrate the value of ecosystem services to activate private investments in ecosystem services restoration.

Ecosystem services in markets and payment schemes

One of the clearest ways in which ecosystem services and their monetary valuation has entered environmental governance has been through the promotion of so-called market-based instruments (MBIs) to address environmental challenges. The term MBI has been used to refer to a broad array of policies, including fiscal policies (e.g., carbon taxes or agri-environmental subsidies), certification schemes, carbon markets, tradable rights or permits such as cap-and-trade systems for green gas emissions or Individual Transfer Quotas for fisheries (see chapter by Berta in this volume).

The most salient formulation of environment related MBIs is Payments for Ecosystem Services (PES). PES schemes, which have been defined in various ways (Martin-Ortega and Waylen, 2018), provide economic incentives for land management practices that are expected to enhance or secure the provision of ecosystem services. One of the most influential framings of PES is based on the Coasean postulate by which negative environmental externalities can be internalised and the social optimum may be attained via bargaining between those producing the service and those benefiting from it.

While the notion of PES and its actual ‘on the ground’ implementation is still very much subject of debate, they have popularised worldwide, with an estimated over 550 active programmes around the globe and an estimated US\$36–42 billion in annual transactions, as per an analysis made by Salzman et al. (2018). The authors identify the watershed PES sector as the most mature in terms of transaction value and geographical distribution (present in 62 countries in 2015). These often includes programmes by which a downstream community pays upstream land managers for changes of practice that mitigate poor water quality or flooding. Another prominent PES sector is that of forest and land-use carbon, where PES have grown exponentially owing to the development of funding mechanisms for climate change mitigation, including REDD+ⁱⁱ, promoting payments for forestry and land use practices that sequester carbon. Other sectors using PES include biodiversity and habitat off-setting to ensure no net loss on development projects. Unlike in water PES, for which the beneficiaries of clean water and flood protection are generally easily identifiable and local, the beneficiaries of biodiversity are widespread and the benefits tend to be indirect or non-material, making it a less developed sector so far.

The ecosystem services concept and its ‘derivatives’ (such as PES) have inspired novel avenues for environmental research and have clearly contributed to placing environmental degradation (and the need to reverse it) more firmly in international agendas, with evidence of cases in which monetary valuation assessments of ecosystem services have led to investments in nature protection.

But the practice of monetary valuation of ecosystem services has also led to the emergence of new debates and criticism. Of direct interest to this book are the concerns that have been raised about ecosystem services reasoning converting nature into a tradable commodity. The remainder of this chapter explores such concerns by first presenting the theoretical basis for it, then discussing the process of nature commodification, and finally presenting some reflections on the de-commodification of nature.

Ecosystem services and nature commodification

Criticism around the notion of ecosystem services can be understood firstly in the light of the philosophical debate about the nature of values, i.e., whether something (in this case nature or the environment) has a value for its own sake (i.e., an intrinsic value), autonomously and independently of any other entity or whether all values are inherently instrumental, and ultimately decided by humans. If nature has an inherent value, rather than an instrumental value, that cannot be captured by price, then assigning it a price or even an instrumental use value, is corruptive of its true value (what Panitch calls ontological corruption in her contribution to this volume).

The notion of ecosystem services stands unequivocally on an anthropocentric and utilitarian view of the relationship between humans and nature, by which nature *serves* humans to fulfil their needs and desires rather than having an inherent value of its own. The environmental ethics literature has long emphasised the inherent value of the natural world. But new developments in this field now show that people articulate the importance of their relationships with non-human others in diverse ways that are not fully captured by the dichotomy between instrumental and intrinsic values. This further leads to the question about whether

these values can and should be expressed as exchange values through monetization and whether this necessarily leads to harmful commodification.

The process of nature commodification

Gómez-Baggethun and Ruiz-Pérez (2011) explain how the economic framing and conceptualization of nature's value as monetized exchange value can lead to the formalization of property rights on specific ecosystem services or the land producing such services. This appropriation can in turn lead to the creation of institutional structures of sale and exchange in the form of markets; a process of commercialization that, it is argued, often involves privatization. Some scholars raise an alarm about the spreading of this phenomenon through the growing trade of previously un-marketed ecosystem functions (e.g., carbon sequestration, watershed regulation, habitat provision) in PES schemes. Gómez-Baggethun et al. (2010) argue that ecosystem service commodification is a gradual process involving various interrelated practices. First, a change in the discursive domain, by which utilitarian and anthropocentric framings of nature are adopted, such as that of ecosystem services – i.e. nature *servicing* humans. Then, in the evaluative domain, where nature's benefits get expressed in monetary terms. And finally, in the institutional domain, such as articulating ecosystem services through markets and payment schemes.

While some authors have argued that we can monetize ecosystem services for awareness-raising purposes while avoiding their commodification (e.g. Costanza 2006, 2017), the case has been made that these practices are to be seen as interrelated rather than independent processes, where the utilitarian framing of nature paves the way discursively for its monetization, which in turn paves the way for its commodification, in what Gómez-Baggethun and Ruiz-Pérez (2011) have referred to as 'the tragedy of well-intended valuation'.

Degrees of commodification

Some scholars argue that commodification should be looked at from the perspective of its different purposes and degrees. Hahn et al. (2015, p.76) refer to degrees of commodification as 'the extent to which the value of biodiversity or an ecosystem services has become a tradable commodity'. These range from "no commodification" (degree zero), which includes intrinsic appreciation of ecosystems, in which the rationale for protecting nature is nature itself; followed by varying degrees in which commodification arises under the instrumental framing of nature without valuation but with "new property rights and liabilities which involve measurement" (degree 1), and with valuation (degree 2). The third degree involves "deliberate efforts to express or 'demonstrate' the value of nature in monetary terms". Degree 4 involves the use of price signals such as taxes and subsidies to "internalize externalities and evoke behavioural change but do not create markets". Degree 5 comprises the use of market-traded instruments such as biodiversity offsets and other markets resembling cap-and-trade systems, conservation banking and user-financed PES. Finally, degree 6 covers financial instruments referred to as "complete commodification" as a traded commodity is "re-packaged and re-sold as financial instruments (e.g., biodiversity bonds or derivatives)". A study of environmental professionals in Mexico provides an illustration of the presence of all six degrees of commodification in the Mexican environmental policy discourse (Martin-Ortega et al. 2019), ranging from level zero (e.g. natural protected areas), to wildlife management plans (level 1), valuation studies (level 3), a national PES scheme (level 4) and voluntary carbon markets (level 5). Level 6, complete commodification in the form of green bonds and forest carbon bonds in the stock exchange, is considered in the study to be anecdotal, isolated or at early stages of planning, but still present in the debate.

Ecosystem services institutions and commodification

Institutions are important for commodification because they shape the different ways humans relate to and exist in their respective environments. Local and community level-institutions such as pre-existing common property structures and community decision-making organisations shape the way local communities interact with each other and with nature. For example, local institutions and associated class

relations influenced the commons enclosure processes that made industrialisation possible in Europe (see Crétois's chapter on land in this volume).

Institutions at the national level, such as the state, legal systems, and academia, are also key in the process of ecosystem services commodification. Science and economics are 'legitimising institutions' (Corbera and Brown, 2010) that have played a vital role in providing the technical capacity for the identification and measurement of ecosystem services, and have, through their input in large global initiatives such as the Millennium Assessment and The Economics of Ecosystem and Biodiversity (2010), contributed to transmitting "knowledge of market opportunity, assess project feasibility, and perform technical work to bring projects to market" (Kelly and Schmitz, 2016, p. 103).

The state plays a particularly active role in commodification by developing conducive frameworks to enable it. Higgins (2015) analysed this in his examination of UK biodiversity offset development. States develop regulatory frameworks and allocate property rights in close concordance with legal systems that facilitate the functioning of markets. They can also use discursive power to proliferate market-optimistic narratives that legitimise and encourage market participation. For instance, in the context of the regulatory framework for peatland restoration in the UK, the Peatland Code, a voluntary certification standard for projects wishing to market the climate benefits of peatland restoration, is inducing an explosion of interest from private investors, raising concerns over large corporations occupying the space of local communities and not-for-profit nature conservation organisations as nature stewards.

There are also international institutions that are said to have influenced the commodification of nature. In particular, the implementation of market-based governance is often mediated through international initiatives such as REDD+. These often relate to the work of international development agencies and global organisations advocating market-based environmental governance. Private corporations, banks and NGOs can also be important international institutions seeking to implement commodification. For instance, Ni'am et al. (2021) provide an example of the commodification of nature through elephant-based ecotourism promoted by international financial institutions such as the World Bank, NGOs as Fauna and Flora International, donors as United States Fish and Wildlife Service and public-private partnerships. In their study, Ni'am et al. analyse the commodification process through which captive elephants are transformed into lively commodities that embody "encounter value" (here commodification takes place in the encounter and not in the being itself).

Why is nature commodification a problem?

Since some ecosystem services such as food and timber have been already commodified for centuries, controversies around the commodification of nature revolve primarily around where to set the limits of money and markets in environmental governance. Beyond certain limits, commodification can be problematic for a number of reasons.

Firstly, there are equity concerns associated to changes over property rights and access to resources. There is evidence showing that in some cases the implementation of ecosystem services markets has led to increased inequalities (Corbera et al., 2007,). Moreover, they can promote unequal access to ecosystem services by privileging those with ability to pay (Zografos et al., 2014), they may conflict with customary rights of access to land and resources (Ibarra et al., 2011), or benefit primarily landowners and rural elites (Corbera et al., 2007).

Secondly, from a conservationist perspective, there are misgivings that shifting to an economic framing may lead to the crowding out of moral motivations in the long term. That is, monetary payments could erode motivations for conservation that stem from the intrinsic rather than instrumental value of nature (what Panitch refers to as normative corruption in this volume) and result in changes in mind-sets, affecting motivations for environmental protection. It is argued that this could induce changing the conservation logic "from moral obligation or community norms towards conservation for profit" (Rode et al., 2015, p. 273), undermining ethical and moral arguments for conservation.

Furthermore, ecosystem services framing is seen as a risk for marginalizing non-anthropocentric non-Western/utilitarian frameworks for nature conservation. For example, Western dualistic constructions of

human-nature relations have driven the enactment of enclosure-based policies (national parks, protected areas) by legitimising human separation from nature. This worldview often confronted the nature-culture mutualistic beliefs of local and indigenous cultures.

This clash of worldviews was made very evident specifically in relation to the ecosystem services framing during the discussions of the Intergovernmental Panel for Ecosystem Services and Biodiversity (IPBES), an expert advisory institution formed in 2012 aimed at tackling the loss of biodiversity and the degradation of ecosystem services. From the beginning of IPBES, some countries, notably Bolivia and other South American countries, questioned the concept of ecosystem services. They argued that the notion of ecosystem services only represents the views and approaches of modern Western society and does not reflect other traditions and worldviews, such as the indigenous notion of Mother Earth and systems of life, shared by the indigenous peoples of the South American Andes, or expressed in concepts such as *sēnluó-wànxìàng* (vast forest and every manifestation of nature) and *tien-ti* (Heaven and Earth) of Taoism shared by East Asian peoples (Diaz et al. 2015).

In addition, it has been argued that monetary valuation privileges the visible and known (e.g., charismatic species) over what is invisible and unknown (e.g., ecological processes). This can lend itself to the underestimation of values, exposing biodiversity and ecosystems to “the vagaries of the market” (Silvertown et al. (2015), p.645), particularly when used for making the case for conservation initiatives opposing large development projects.

At a more fundamental level there is the argument that the concept of ecosystem services cannot capture all the dimensions of value that are central to human well-being (O’Neill’s contribution to this volume). As mentioned, ecological economists have long debated the incommensurability of ecosystem values (Martinez-Alier et al., 1998), noting that there are multiple ways in which people attribute meaning and importance (value) to nature, and that these cannot be reduced to a single metric. Imposing a monetary logic to the framing of the relationship risks changing the relationship itself. For example, it is noted that when the importance of something is perceived to reside primarily in its symbolic, cultural, or spiritual value or in its ecological or intrinsic value, market valuation can downgrade and demean such values by conveying the notion that they can be replaced by market substitutes with equivalent exchange value (O’Neill in this volume). Some argue that such ethical concerns are not necessarily equally relevant for all ecosystem services (Gomez-Baggethun and Muradian, 2015). For example, the emotional bonds we may develop in relation to wildlife may not be comparable to those we develop with carbon stocks.

Another issue relates to the extent to which a certain ecosystem service is essential to cover a basic human need. For example, whatever the intrinsic value of water is, we need it to survive and if markets disrupt this, that alone might be an argument against commodification (see Walsh’s contribution to this volume).

Ecosystem services as a symptom of a broader trend?

The frame shifting brought by the notion of ecosystem services has been related to a broader process of neoliberalization of nature conservation. Monetizing ecosystem services and related market environmentalism have been advocated as ways to reconcile economic growth, allocation efficiency and environmental conservation, that some associate with the expansion of neoliberal ideology since the 1980s (Igoe and Brockington, 2016).

The fact is that the vast majority of Payments for Ecosystem Services (PES) schemes are run by states under public regulation frameworks. Funds are typically collected through taxes and the level of payments is politically set, mainly based on opportunity costs or negotiations with concerned stakeholders. Many PES schemes operate as green rural subsidies where states pay landholders and communities to either reward their stewardship or compensate opportunity costs of conservation. Despite this, it is argued that they still reflect a *market logic* or *rhetoric*, with some scholars explicitly arguing that the promotion of PES responds to an agenda of global corporate interests (Fletcher and Büscher, 2017).

Some scholars take issue with these views arguing that PES do not *have to* require commodification. For example, arguing that ‘propertization’ of ecosystem services does not have to mean privatization since property rights may still be held collectively; or that nature valuation does not necessarily need to be

orientated to profitability. Others have argued that seeing PES as neoliberal tools neglects the agency of local people in shaping them. Critics, however, insist that PES are *innately* neoliberal, and that they just perpetuate a trend that implicitly accepts neoliberal capitalism as both the problem *and* the solution to the ecological crisis.

Nature de-commodification

Commodification is not an irreversible process and commodities can undergo a process of de-commodification. In this section, we elaborate on the potential modes of action for nature de-commodification, and reflect on the scope of a more fundamental change in the conceptualisation of human-nature relationships possibly serving de-commodification.

Empirical evidence of de-commodification processes

One of the potential routes to de-commodification is found in changes to the property rights structure (e.g., de-privatisation through nationalization). On a basic level, a re-transition to some form of common ownership may present an effective route to de-commodification. For instance, Benjaminsen and Kaarhus (2018) observed objections by local communities to private property exclusion in Zanzibar, as it contradicted their local 'ndugu' relations based around nature-culture mutualism and reciprocity. A useful way to conceptualise this transition in the property rights structure is the distinction between property and possession presented by Heinsohn et al., (2013) in their theory of ownership. While possession can be referred to as the physical control of resources, property can be denoted as the representation of an entity in terms of its non-visible qualities- its representations or title- which allows it to become abstracted from its supporting ecological and social context. A property-oriented system allows for the commodification of entities (including nature). By contrast, in a possession-based system, entities cannot have their social and ecological contexts conceptually extracted. This means that in relation to nature, the processes of abstraction and valuation are unable to bundle and disaggregate ecosystems through commodification. A transition from a property to a possession-based economic system thus presents a potential route to de-commodification. For example, Gerber and Gerber (2017) illustrate how forested land in Switzerland is one of the best examples of de-commodification through a possession-based logic in which 70% of the total forest area belongs to public bodies and everyone has the right to enter public and private forests for recreation and collection of non-timber forest products, thus remaining outside the land market (see Larrere's contribution to this volume).

Another way to approach de-commodification might be through 'delegitimising commodities'. Market proponents utilise 'win-win' logic or promise coupled economic, social, and environmental outcomes (e.g., sustainable development, market environmentalism) to cloud discourse with morally-charged rhetoric that obscures the negative outcomes of commodification from the international public sphere. This essentially depicts what Tsing (2000) terms an 'economy of appearances', by which market developers and proponents create and establish a reputation that becomes crucial for commodity functioning. Efforts to de-commodify nature could thus centre around challenging the ethical basis upon which commodification is legitimised. An interesting illustration of this is the case of the Atacameño people who, Prieto (2016) argues, have subverted the Chilean pro-water market by relying on their water-related cultural values. The author found that in some Atacameño communities the water market has not operated to ensure that water rights are put to those uses with the highest economic value (e.g., mining or urban water consumption). On the contrary, internal rules of the community forbid the sale of water rights to the mining sector and impose barriers to other transactions (those few who did sell their water rights to mining or other uses have seen themselves delegitimised, outcast, from the communities). These rules, the author argues, form part of an alternative moral economy of water based on shared values and affective connections opposed to market rules. (See also Walsh's contribution in this volume)

A more fundamental de-commodifying change in sight?

Recent international initiatives give cause to consider whether we might be witnessing the beginning of a shift in the hegemony of the ecosystem services paradigm in environmental science and policy.

Partly in response to the commodification criticism, alternative conceptualisations of human-nature relationships have been put forward and are gaining increasing prominence in the global conversation. The Intergovernmental Panel for Ecosystem Services and Biodiversity (IPBES) mentioned earlier initially responded to the challenges made by countries asking that non-Western anthropocentric and instrumental perspectives be considered by putting forward the notion of *Nature's Contribution to People* (NCP) as a (partial) alternative to the term ecosystem services (Diaz et al. 2015). NCP is conceptualised as a broad category that encompasses material and non-material benefits humans derive from nature and that contribute to 'leading to a good life' in a broad sense that may widely differ across cultures (such as living in harmony with Mother Earth (Pascual et al., 2017). Embedded in this proposition is a shift in the focus from exchange values towards *relational values*, defined as ethical and moral principles that guide 'good' human-nature relationships (Chan et al., 2016). Relational values are not 'present in things' [whether intrinsically for their own worth, or instrumentally for people] but are 'derivative of relationships and responsibilities to them' (Chan et al., 2016 p. 1462). Relational values also resonate with the idea put forward by O'Neill in this volume that relations [with nature] are not simply the instrumental means to well-being specified independently of these relations, but rather *constitutive* of well-being. According to Chan et al. (2016), relational notions of values are present in classic Western philosophies (both classical and contemporary), as well as in Indigenous (e.g., Tsawalk, Sumak kawsay) and Eastern philosophies (e.g., Confucian, Buddhist). Notions of a good life rooted in relationships are expressed in diverse worldviews, such as Ubuntu in South Africa, the Gandhian Economy of Permanence in India, Buen Vivir in several Latin American countries, and North American "back to the land" movements (ibid)ⁱⁱⁱ.

Since, the IPBES discourse has continued to evolve and the panel has recently produced a Value Assessment to help policy-makers better understand the different ways in which people conceive and value nature (IPBES 2022). The Value Assessment puts forward a typology of values which is intended to highlight how different worldviews and knowledge systems influence the ways people interact with and value nature. The typology is based on four general perspectives: living from, living with, living in, and living as nature^{iv}. The IPBES value assessment acknowledges more than 50 valuation methods and approaches, originating from diverse disciplines and knowledge systems, including academic, indigenous, and local knowledge systems embodied in different worldviews. It distinguishes between *broad values* – the moral principles and life goals that guide people-nature interactions- and *specific values* - judgements regarding the importance of nature in particular contexts, including *instrumental values* (i.e., means to a desired end, associated with the notion of ecosystem services), *relational values* (i.e., the meaningfulness of human-nature interactions), and *intrinsic values* (i.e., independent of people as valuers). It also acknowledges multiple value indicators as the quantitative measures and qualitative descriptors used to denote nature's importance in terms of biophysical, monetary, or socio-cultural metrics (IPBES, 2022).

Parallel to the IPBES conversation, other initiatives have been put forward, further challenging the instrumental and anthropocentric take on human-nature relationships. For example, since 2016 a number of rivers across the world (the Atrato River in Colombia, Ganga and Yamunai rivers in India, Wanganui River in New Zealand, the Muteshekau-shipu in Canada and all rivers in Bangladesh) have been granted personhood as part of an increasing global trend to recognise and grant rights to nature (Eckstein et al., 2019; Hall, 2011; O'Donnell, 2018). Cohen et al. (2022) argue that this marks an important potential starting point for the restoration of a conceptualisation of human-nature relationships in terms of kinship. While with respect to indigenous and non-Western contexts this might simply represent ceasing to marginalise existing views, Cohen et al. (2022) suggest that this proposition might not be quite as strange and improbable as it could first appear also for the Global North. Offering the UK and its rivers as a paradigmatic example, the authors show how animistic (pre)historic representations of water as 'kin' can be seen reflected in place names, and in other cultural memories and practices. Reviving and reinventing these memories and cultural practices, while cultivating other meanings, community relations and well-being through swimming, angling, or simply being near waters in everyday practical ways, can reactivate the notion of water bodies as kin. Cohen et al. (2022) propose the notion of 'riverkin' as the constituents of environments that reciprocally nurture, and contribute to the substance of, one another's life and well-being. This shift in relations is already starting to be visible: in the last two years, Britain has awarded its

first designated bathing sites – in Oxford and Yorkshire – thanks to grassroots campaigns that have put pressure on the government’s environment agency and forcing water companies to address pollution problems. Re-connecting with the river through a safe swimming environment can enable a narrative of change to emerge.

Conclusions

The notion of ecosystem services, which has dominated the environmental governance discourse during the past two decades, reflects a dualistic, anthropocentric and utilitarian way of perceiving and understanding human-nature relations. Such worldview facilitates the process of commodification of the natural environment by emphasising instrumental values measured in monetary units. In this chapter, we have provided an account of the foundations of the concept of ecosystem services, its history and applications in environmental governance, as well as the risks associated with the commodification of nature.

We have argued that commodification is not an irreversible process since it can be both constrained by social mobilization and reversed by policy will. While there has been a significant increase in the use of market-based policy instruments in the socio-environmental field during the past two decades, these might be less consolidated than they appear. For instance, the fact that the actual performance of the so-called market-based environmental policy tools has been, in general, below the high expectations with which they had been promoted as win-win solutions some decades ago might erode their prospects.

Furthermore, alternative conceptualizations of human-nature relationships, acknowledging non-dualistic and plural values and kinship, are gaining prominence. Whether these alternative conceptualizations and ways of approaching valuation are going to penetrate sufficiently in the policy and regulation spheres to reverse or mitigate harmful commodification trends or are going to be co-opted by neoliberal forces, is yet to be seen.

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ⁱ In further references, the category supporting services is often excluded from ecosystem services classifications, particularly in the context of their valuation. It is argued that supporting services are reflected in the other three (provisioning, regulating and cultural) and therefore should not be valued separately to avoid double counting.

ⁱⁱ REDD+ is a United Nations-backed framework that aims to curb climate change by stopping the destruction of forests in developing countries. It stands for "Reducing Emissions from Deforestation and forest Degradation"; the "+" signifies the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. REDD+ is a mechanism through which countries, the private sector, multilateral funds and others can pay developing countries to protect their forests. It can take the form of direct payments or can be in exchange for "carbon credits," which represent reductions in greenhouse gas emissions to compensate for emissions made somewhere else.

ⁱⁱⁱ It is to be noted that upon publication it was still criticised for maintaining the original anthropocentric perspective and for not representing a fundamental improvement on the way we conceptualise human-nature relationships, failing to recognise their non-dualistic nature. Kenter (2018, p.40) voiced this criticism arguing the concept of nature's contribution to people 'ditches the baby (the successful term ecosystem services), whilst keeping the dirty bathwater (the problems with the term)'.

^{iv} Living from nature emphasizes nature's capacity to provide resources for sustaining livelihoods, needs and wants of people, such as food and material goods. Living with nature has a focus on life 'other than human' such as the intrinsic right of fish in a river to thrive independently of human needs. Living in nature refers to the importance of nature as the setting for

people's sense of place and identity. Living as nature sees the natural world as a physical, mental and spiritual part of oneself.