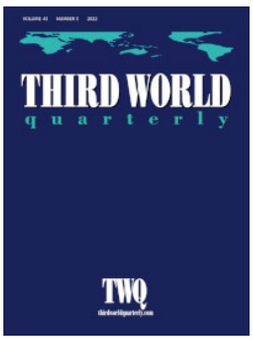

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Procedural rights for nature – a pathway to sustainable decarbonisation?

Andrea Schapper[a], Clemens Hoffmann[b] and Phyllis Lee[b]

[a]Division of History, Heritage and Politics, University of Stirling, Scotland, UK; [b]Psychology, Faculty of Natural Sciences, University of Stirling, Scotland, UK

ABSTRACT

Resource conflicts and human–environment conflicts are active around the globe. As planetary, carbon-induced climate change necessitates new responses, the policies and practices of decarbonisation add new dimensions to existing conflicts. Using examples from two nations with ambitious aims for the decarbonisation of their economies, Ethiopia and Morocco, we illustrate how unintended conflicts and adverse ecosystem impacts arise when nature cannot participate in decision-making processes. Transition to low-carbon economies, we argue, generates and exacerbates multi-dimensional conflicts of interest between state and society, as well as between society and ecosystems. Taking an interdisciplinary perspective, we suggest establishing procedural rights of nature via (1) stronger consideration of scientific expertise, (2) an enhancement of environmental safeguards and (3) making funding linked to Sustainable Development Goals (SDG) conditional upon participation of nature in decision-making processes through legal guardians. We use counterfactuals as a method to demonstrate how procedural rights of nature, in the cases of Ethiopia and Morocco, could change green economy and climate mitigation projects, making them less conflict-prone and more sustainable.

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Introduction

Global environmental change and multi-dimensional conflicts

In this interdisciplinary article, we argue that to prevent and manage conflicts in green economy transitions, we need to strengthen procedural rights of nature, in particular participation of non-human animals, natural environments and natural objects, in decision-making processes, through stronger consideration of scientific expertise, environmental safeguards and ecosystem guardians. We use two illustrative examples, renewable energy transition and infrastructure development in Ethiopia and Morocco, to highlight how the transition to low-carbon economies exacerbates conflicts between state, society and ecosystems. We claim that procedural justice mechanisms, including the right to participation, need to be observed for stakeholders from both the human and nonhuman worlds if we

CONTACT Phyllis Lee phyllis.lee@stir.ac.uk

aim to prevent transition conflicts and make decarbonisation policies more sustainable. Thus, procedural rights of nature should play a prominent role in international funding mechanisms that are relevant for realising green economy projects.

In addition to *substantial rights of nature*, we suggest the need to establish *procedural rights of nature*, including access to information (eg for ecosystem guardians), equal opportunities to participate in decision-making (eg by considering scientific expertise on nature) and access to administrative and judicial remedies (eg for legal representatives of natural objects). We explicitly integrate perspectives from the social sciences and humanities, such as political economy, law and political philosophy, and from the natural sciences, such as conservation studies. Although we do not have definitive answers to the challenges of establishing procedural rights of nature and equal participation for ecosystems, our aim is to encourage further debate across disciplines to realise this and thus make green economy transitions less destructive of biodiversity and more sustainable.

Without having to fundamentally change the socio-economic system (ie capitalism), decarbonisation policies claim to maintain and increase wealth and prosperity while reducing the amount of damaging greenhouse gas emissions. Green economy concepts thus emphasise initiatives that promise economic growth, are ecosystem-friendly and contribute to poverty alleviation at the same time (UNDESA et al. 2012, 4). The concept of green economy can be understood as consistent with our understanding of sustainable development (UNEP 2011); protection of the environment and economic and social development are recognised as its three basic pillars (Khor 2012, 70).

Ocampo (2012, 25) views green economic growth as a structural transformation with major implications. The state is the central actor in this transformative process and usually invites investments by the private sector. International organisations assume functions of coordination, cooperation and public finance. Eventually, transformation involves major changes not only in production but also in consumption. These must be initiated with a view to meeting the needs of present and future generations and to promoting equity between developed and developing countries as well as among societal groups (Khor 2012).

More critical voices emphasise that green economy is an oxymoron with the intention to accommodate different, partly contradictory, interests (Brand 2012). Green economy and green growth have been unmasked as attempts at 'greenwashing' (eg Wilkinson 2014) while operating in the same economic institutional framework, ie the capitalist market, that incentivises profit-driven technology developments, which are not sustainable and are often harmful to biodiversity. Recent studies also emphasise the role of energy cultures, highlighting how national decarbonisation ambitions depend on domestic perceptions of energy, policies and actions that lead to varying responses to climate challenges (Stephenson, Sovacool, and Inderberg 2021).

Despite frequently suggesting only 'minor' forms of social transformation, decarbonisation policies nevertheless carry their own conflict potential. Fundamental conflicting positions remain almost unconsidered in transitional economies: all renewable forms of electricity production require high land use. Renewables consume resources, from hydrocarbons needed for infrastructure development to rare earths for photovoltaic production to the water for reservoir storage. Especially damaging are the frequent instances of forced migration of populations and the transformation of livelihoods when land use shifts to renewables (eg dams) or from subsistence pastoralism to wage labour.

The transformation towards 'green economies' is thus faced with a set of interrelated and contradictory problems: first, the 'climate emergency' caused by the accumulated effects of global carbon emissions requires radical and rapid policies of decarbonisation. Second, as our cases show, the implementation of these policies carries its own potential for various forms of old and new conflicts. Third, the mechanisms of global environmental governance tasked with mediating this transformation and the related conflicts are in crisis along with the liberal world order. Underlying all these problems is a Cartesian understanding of nature as external and inferior to humanity, as the biophysical foundation for endless growth and for humanity's wealth creation, development and competitive survival (Schmelzer 2016). By definition, this understanding excludes all non-humans (but also most humans) from decision-making processes. The necessary inclusion of the non-human voice in green-economy decision-making is still incomplete at best.

We accentuate these decarbonisation problems and highlight the urgent need for participation of the non-human world using two illustrative examples. These are: (1) green economy transition and the Gibe III dam in Ethiopia and (2) renewable energy transition with a focus on solar plants in Morocco. These are typical cases (George and Bennett 2014) of government-led, highly ambitious green economy transformation plans. They demonstrate the extent and nature of conflicts of interests among state, private investors, society and ecosystems that occur in the transition process and how these conflicts have an adverse impact on the sustainability of the transformation outcome. Our selection of examples also displays important variance: electricity generation in the context of the Gibe III dam in Ethiopia has fostered conflicts between state, society and ecosystems, including a transboundary conflict with Indigenous peoples in Kenya. Solar generation in Morocco challenges development visions through the transformation of local livelihoods in relation to conflicts between social energy and extractive capitalism. We relied on documentary analysis of primary and secondary sources (Bowen 2009) to describe the respective cases and illustrate these typical emerging conflicts. In addition, we use counterfactuals as a method (Fearon 1991; Gallo-Rivera, Mancha-Navarro, and Garrido-Yserte 2013) to demonstrate how procedural rights of nature can prevent conflicts among state, society and ecosystems and lead to different, more sustainable, decisions in decarbonisation projects. The purpose of applying counterfactual thought experiments is to ask what would have happened if procedural rights of nature had been observed in green economy policies, like the Ethiopian hydropower and Moroccan solar energy projects.

We introduce scholarly considerations of inter-species justice and green economy transitions, before presenting typical human–ecosystem conflicts in the decarbonisation projects in Ethiopia and Morocco. We then review scholarship on rights of nature and procedural rights. Finally, we argue that procedural rights of nature need to be established to provide an active voice to non-human actors and the affected ecosystems, to prevent conflicts between society and nature, to make green economy decisions more sustainable and to contribute to inter-species justice.

Inter-species justice and green economy transitions

With this article, we add to the evolving perspective of inter-species justice (Nussbaum 2006), multi-species justice (Celermajer et al. 2021) or eco-justice (eg Hessel, 2007), which

can be appreciated as justice in relation to the biosphere: the non-human world including animals, other species and ecosystems. Considerations on inter-species justice have entered politics (Nussbaum 2006; Palmer 2011) and conservation scholarship (Vucetich et al. 2018; Chapron, Epstein, and López-Bao 2019) but practical approaches are still very limited. In this paper, we suggest establishing procedural rights of nature to practise inter-species justice, prevent human–ecosystem conflicts and make green economy transitions more sustainable.

Few authors have, so far, viewed green economy policies in the light of justice (Okereke and Ehresman 2015; Bratman 2015), emphasising the need to systematically investigate the relationship between economic development and socio-environmental justice. Of particular importance is the establishment of 'just transition' strategies (Stevis and Felli 2015). Our argument focuses on the transition process and suggests mechanisms that enable this process to be just, equitable and more sustainable for all participants.

Climate change mitigation and adaptation plans can, in principle, generate and exacerbate multi-dimensional conflicts of interest between state and society, as well as between society and ecosystems. These include conflicts over land rights with Indigenous peoples, access to vital natural resources such as water by (agro)-pastoral communities, differential privilege in resource access by gender, age or other status differentials (Okpara et al. 2019). Conflicts of interest can escalate into direct and dangerous confrontations, including potentially violent ones – pointing to important but understudied relationships between zero carbon growth, development ambitions and human–nature relations.

Colonial legacies, exclusion by ethnicity or gender, and geo-spatial consequences of living in biodiverse areas (eg human–wildlife 'conflict'; Peterson et al. 2010) all impact on people's willingness to change and engage with zero-carbon transitions, whether on land (green economies) or in marine areas (blue economies). Transitions to low-carbon green or blue economies can have targeted detrimental impacts on vulnerable groups, such as those in our example of dam building in Ethiopia (Carr 2012), resettlement away from traditional coastal communities threatened by climate change in Bangladesh (Brouwer et al. 2007), or the loss of land for solar production illustrated in our Moroccan example. Both voice and representation in such decision processes can be biased by vested interests, and thus resolving disputes or conflicts between stakeholders may be more a function of who gets to speak than of the needs of the participants.

Our perspective suggests establishing procedural rights of nature as a practical approach of inter-species justice to prevent conflict and arrive at more sustainable decarbonisation decisions. The earth's resources base (water, air, soil, indigenous flora and fauna) is usually seen as passive, having only a constrained rather than an active voice. It is only relatively recently that non-human animals (see eg Youatt 2014) have been recognised as relevant stakeholders, most prominently in rights of nature discourses.

We aim to contribute to scholarship on inter-species justice and rights of nature debates by considering ecosystem components as stakeholders that need to be recognised when developing just procedures not only for climate conflict resolution (ie adaptation) but also for processes of climate change mitigation, notably transformations towards zero-carbon economies. We demonstrate this need in the light of specific cases from Ethiopia and Morocco.

Country examples

Frontrunner with adverse transboundary effects: Ethiopia's green economy strategy

In 2010, the Ethiopian government adopted a five-year Growth and Transformation Plan (GoE 2010) formulating the ambitious objective of becoming a middle-income country between 2020 and 2025. To achieve this, the government launched a green economy strategy in 2011, the Climate Resilient Green Economy (CRGE) initiative (GoE 2011a). The CRGE vision is that Ethiopia not only adapts to climate change but also takes the opportunity to transform its economy, to attract investments and to become an African leader in low-carbon growth and sustainable development (GoE 2011b). To achieve these objectives, different sectors will be transformed, including energy and agriculture but also industry, forestry and transport. With its CRGE strategy, the government focuses on becoming a 'green economy-frontrunner' (GoE 2011a, 1). An illuminating example of the neglect of social but also environmental issues in transforming the energy sector within the framework of the green economy strategy is the Gibe III hydroelectric dam. Focusing on one specific CGRE project, ie Gibe III, will help to unravel the multi-dimensional facets of conflict inherent in Ethiopia's green economy transition.

Gibe III is currently the biggest dam project in Africa.[1] It is meant to deliver electricity to more than 80 million people, even to regions that have not yet had access to electricity (HRW 2012). The dam is located about 300 km south-west of Addis Ababa at the Omo River and became operational at the end of 2016. The dam more than doubles Ethiopia's current capacity, so it will be able to sell energy to neighbouring Sudan, Kenya and Djibouti.

The establishment of the Gibe III dam has led to multi-dimensional conflicts of interest among state, society and ecosystems. In addition, a transboundary conflict between the government of Ethiopia and affected Indigenous peoples in Turkana County, Kenya, has emerged. Lake Turkana in Kenya receives 90% of its water from the Omo River. As the volume of water flow in the river is substantially reduced by the dam, termination of flooding eliminates water-loving vegetation around the river. Oxygen and nutrient levels in the river change, leading to a decrease in water quality. The agricultural livelihood of Indigenous peoples in the Omo delta is being destroyed and fish habitat of the Omo River and Lake Turkana is being eliminated due to the lack of oxygen and nutrients. Major changes in water quantity and quality result in the drying of grazing lands, accelerated desertification processes and decreases in soil quality, increasing livestock mortality and dependence on cultivation. Riverine forests are destroyed, including woodland-based subsistence food production (Carr 2012, 2017). What we can observe here is an environmental conflict, a conflict between ambitious anthropocentric economic development plans and an intact ecosystem.

This massive interference with a delicate ecosystem not only leads to biodiversity loss but also comes with severe socio-economic consequences for Indigenous peoples (Carr 2012, 2017). About 200,000 residents of the Lower Omo Valley in Ethiopia and another 300,000 people living around Lake Turkana in Kenya are affected by the dam and by plans for irrigated agricultural development. Indigenous communities, like the Mursi and Bodi, living alongside the Omo River have been evicted from their ancestral lands by military force. Harassment, violence and arbitrary arrests were used against those protesting the eviction

(HRW 2012).[2] Prior to establishing Gibe III, neither environmental and social impact assessments nor consultations with local communities were held. Free prior and informed consent has not been obtained, and land losses have not been appropriately compensated (Avery 2017).

Restricted water resources, biodiversity loss, decreasing soil and water quality, and destruction of forests and fish habitat (Carr 2012) have led to ecosystem injustice, ie a situation of injustice among state, society and ecosystems. Adverse effects on agricultural and fishing livelihoods and on grazing lands with livestock mortality, and limited woodland-based subsistence increase intra-societal injustices. Furthermore, a transboundary conflict situation is emerging between the government in Ethiopia and affected local communities in Kenya. These situations of injustice, contestation and emerging conflict hamper sustainability in Ethiopia's green economy transition.

Morocco's ambitious 'Solar Plan'

Since 2009 the Kingdom of Morocco has followed an ambitious 'Solar Plan' not only to produce its domestic electricity from solar-generated energy, but to achieve sustainable development more broadly. All renewable electricity generation and the associated development projects are pooled under the Agency for Solar Energy (MASEN). Solar plants are being developed at the fringes of the Sahara, on-shore wind along the Atlantic and hydro-electric dams in the High Atlas Mountains, with the aim to generate 53% of Morocco's electricity from renewables by 2030 with the final target being 2000 MWh each from wind, solar and hydro developments (MASEN n.d.). Amongst these schemes, solar stands out. MASEN has identified five development sites in Ouarzazate (the first phase of which is already operational and constitutes the main subject of this study), Ain Bni Mathar, Foum Al Oued, Boujdour and Sebkhat Tah. Morocco intends to become a world leader for renewable and especially solar technology, plus developing a sector for export. Local and rural sustainable development are key components of all major projects (Royaume Du Maroc 2009). Unlike the more widely known photovoltaic installations, the Ouarzazate plant uses concentrated solar power (CSP) through large parabolic mirrors which heat a synthetic oil in pipes. The 350 °C oil produces high-pressure water vapour to drive turbines. The advantage of this technology is that it avoids the toxic and energy-intensive production of photovoltaic cells. Given its automation, the plant itself offers only limited employment (Ceurstemont 2016). However, various infrastructure developments and agriculture, healthcare, social and education projects (MASEN n.d., 14) are said to have benefitted 34,000 local inhabitants. Not least due to this developmental dimension of its zero-carbon transition, Morocco has been praised for its leadership. This 'model' of 'synergetic' development for the entire region has attracted global investors, including the Climate Investment Funds ($435 million), the German Bank for Reconstruction and Development ($1 billion), the European Investment Bank ($596 million), the World Bank ($400 million) and the African Development Bank.

Despite its lower carbon footprint compared to photovoltaic, CSP technology requires large amounts of land and water for the generation of steam and the cleaning of the large mirrors. As they constantly change their position towards the sun, they are also a noise pollutant. Three conflicts arise: one around land, one around water and one around human labour through the local sustainable development projects.

The first phase of the project occupies 480 ha of land south of the Atlas. In its final design, this will increase to 2500 ha. The conventional environmental orientalist assumption of most developers, including the Moroccan state agencies, remains that this 'empty' desert land sits idle, not used by human or non-human life (Hoffmann 2018). Even if 'usage' is generally accepted, it is characterised as unproductive or even destructive, in line with a legacy French colonial understanding of 'development' (Davis 2005). Although there is no current concrete evidence of violent conflict, a project of this scale is likely to be disruptive, especially in the oases, such as that of the Ait Oukrour Toundout ethnic collectivity (Rignall 2016). Second, abstraction from the El Mansour Eddahbi reservoir led to water shortages downstream of the D'ara River, affecting pastoralists and pomegranate and date farmers (Ceurstemont 2016). This has led to water cuts, sometimes reducing supply to as little as two hours per day (Günay et al. 2018) – which is likely to worsen in the case of increased climate change-related droughts (Johannsen et al. 2016). Third, while formal unemployment figures are high, traditional livelihoods are maintained away from the formal wage economy. Transforming local livelihoods – ie land, water and labour – into commodities for centralised development projects is inevitably disruptive for both intra-human and inter-species social relations. Some go as far as calling Morocco's Solar Plan a colonial practice (Rignall 2016), while the global legitimising narrative of Morocco's leading role in zero-carbon transition obscures these socio-ecological contradictions. The government has yet to fully recognise the project's land and water demand, which contrasts with the claimed development benefits. Despite not openly accepting the criticism, MASEN has agreed to use pressurised air for cleaning and cooling in the next phases of the plant (Ceurstemont 2016). While this will reduce the water demand of future expansions, it remains to be seen whether changing such practices will be sufficient to address all concerns.

In sum, Morocco's 'Solar Plan' understands its implicit socio-ecological contradictions rather poorly, if at all. There is no international opposition due to the lack of transboundary disputes, and the auditing needs of 'green' finance may lead to a neglect of local concerns (Park 2018). As elsewhere, the unmediated abstraction from shared water basins by state-backed, powerful actors leads to unjust distribution of resources. Especially those in the ecosystem with no voice, from local farmers to the river itself, tend to suffer from these power and resource inequalities.

What can we learn from these examples?

In both examples we observe ambitious governmental plans for a transition to zero-carbon economies across different sectors. In each case, the government places emphasis on 'green' economic development. Ethiopia aims to become a middle-income country by 2025, transforming its energy, transport, industry, agriculture and forestry sectors. Morocco intends to become the world leader in solar power technology while offering employment and economic benefits to remote parts of the country.

Yet green economy transitions in our examples have, to a varying extent, had adverse environmental effects: the excessive use of water and land for solar plants in Morocco is disrupting human and nonhuman livelihoods, while decreased water quantity and quality in the Omo River and Lake Turkana in Ethiopia and Kenya severely affect biodiversity. These incidences of ecosystem injustice and disrespect for nature usually also entail detrimental social effects as local communities, Indigenous peoples and pastoralists depend on a robust,

biodiverse environment for their subsistence. Our examples demonstrate how local livelihoods are transformed, disrupting the practices of pastoralists and farmers, and limiting agriculture, woodland-based subsistence or fishing among Indigenous groups.

Environmental and social impacts of green economy projects are often closely linked. By contrast, while procedural rights and justice mechanisms, including access to information, opportunities to participate or legal remedies in relevant green economy policy decisions, are discussed and at least partly practised for affected social groups, this is not yet the case for nature.

The rights of nature debate

The rights of nature debate was inspired by Christopher Stone's groundbreaking book *Should Trees Have Standing? Towards Legal Rights for Natural Objects* (Stone 2010, original publication 1972), in which he argues that natural objects (like trees) and ecosystems (such as forests, oceans and rivers) should have legal standing. Like corporations or charitable trusts that have legal representatives, natural objects and ecosystems should have guardians to protect them (Stone 2010).

Roderick Nash (1989) suggested that granting other species and natural objects rights could be understood as an extension and new application of liberal political theory. He saw parallels between earlier struggles to protect minority rights, for instance through ending slavery in the United States, and efforts to extend legal personhood to nature. Thus, he suggests that oppressed animals and nature need to be freed, a process that may be accompanied by civil disobedience – or even violence (Nash 1989).

Cultural historian Thomas Berry introduced the term 'Earth jurisprudence' for the philosophy of law and governance that prioritises the Earth as a community and not merely for human interests. In his book *The Dream of the Earth* (Berry 1988), he argued that 'The [contemporary] legal system is especially deficient in its inability to deal with questions of human–Earth relations' (160). He criticises the legal system that exclusively serves human purposes as unrealistic and claims that the habitat of all species must be given inviolable legal status (Berry 1999). This deficiency demands a fundamental transformation of law, including a shift from a human-centred to an Earth-centred focus (Berry 2006). Legal scholar and historian Brian Brown considers this transformation to be a law revolution, shifting the focus from legal order to legal justice (Brown 2016, 223).

Cormac Cullinan builds on Berry's work and emphasises that merely changing the law will not be enough. To sustain survival of the community of life on Earth, he argues that our understanding of the nature and purpose of law needs to be fundamentally altered (Cullinan 2011). Kotzé, Du Toit, and French (2020) suggest that international environmental law (IEL) reproduces and sustains (or even exacerbates) environmental and climate injustice. They argue that IEL is based on anthropocentrism, is interwoven with colonial practices, and reinforces the sovereign right to exploit natural resources – and they call for an urgent reform of IEL.

Such a fundamental transformation of law implies that there are legal obligations not only towards human beings but also towards non-human animals, plants and objects of the natural world (Burdon 2015). With legally enforceable rights for nature, humans will have new responsibilities. This means that we can understand evolving Earth

jurisprudence as an instrument that redefines the relationship between humans and nature (Boyd 2017).

LaFollette and Maser (2020) explore how the rights of nature paradigm can restrain damaging human activity and potentially create true sustainability, moving away from unlimited growth to a more careful ecologically sustainable approach (Calzadilla and Kotzé 2018). Establishing and further developing the legal personhood of nature is a way to meet basic human needs for shelter, food and water in relationship with nature rather than in competition with (or extraction from) it (LaFollette and Maser 2020). Earth jurisprudence is based on an ecocentric ontology recognising an Earth community composed of both human and non-human entities, instead of a reproduction of anthropocentrism (Maloney and Burdon 2014). Thus, rights of nature can be grasped as a tool for ecocentric sustainable development necessary for achieving the main goal of the 2030 United Nations (UN) Sustainable Development agenda of living 'in harmony with nature' (Kauffman and Martin 2021).

Rights of nature in practice

The 1982 UN World Charter for Nature was the first international environmental instrument recognising 'harmony with nature', later repeated in subsequent UN declarations, such as the 1992 Rio Declaration on Environment and Development. The World Charter for Nature stipulates that 'Nature shall be respected, and its essential processes shall not be impaired' (United Nations 1982, article 1).

The first nation state to adopt rights of nature in its constitution was Ecuador. According to the Ecuadorian constitution, an individual or a group can take legal action to protect nature's rights, an idea resembling Christopher Stone's suggestions to use legal representatives as guardians of natural objects and ecosystems (Stone 2010). In 2011, the Provincial Justice Court of Loja ruled in favour of the river Vilcabamba in Ecuador that was adversely affected by a road construction project, and this was the first time the constitutional rights of nature were upheld by a court decision (CELDF 2015).

Bolivia's 2009 constitution became the next to include a rights of nature approach. In accordance with their constitution, Bolivian citizens have a duty to 'protect and defend an adequate environment for the development of living beings' (Constitution of the Plurinational State of Bolivia 2009, Article 108.16). The 2010 Law of the Rights of Mother Earth adopted in Bolivia recognises rights of nature, placing an emphasis on the rights to life, regeneration, biodiversity, water, clean air, balance and restoration (Buxton 2021). In addition, Bolivia adopted the (controversial) right of nature 'to not be affected by mega-infrastructure and development projects that affect the balance of ecosystems and the local inhabitant communities' (Vidal 2011). This legislation embraces Indigenous concepts of nature as a sacred home, or Pacha Mama (Mother Earth), that humans intimately depend upon. Public policy concepts guided by Sumaj Kawsay or Vivir Bien (living well) focus on creating life in harmony with people and nature, instead of stimulating consumption and growth (Buxton 2021).

At the national level, we can see rights of nature granted to ecosystems, like the Whanganui River in New Zealand and the Ganges and Yamuna rivers in India from 2017 (Biggs 2017). In the United States of America, several dozen communities at the sub-national level, for example in California, Ohio, New Mexico, Colorado, Virginia, Pennsylvania, New York and New

Hampshire, have adopted legally enforceable rights for ecosystems, including 'the right to exist, flourish, thrive and regenerate' (Levang 2020).

Rights of nature at the international level are clearly recognised in the 2010 Universal Declaration on the Rights of Mother Earth, which stipulate that 'no distinction shall be made between organic and inorganic beings, species, origin, use to human beings, or any other status' (CELDF 2010: Article 5.5). Since 2011, the UN has initiated and established an interactive dialogue on 'harmony with nature' (United Nations 2020), and rights of nature were mentioned in the 'The Future We Want', the outcome document of the UN Conference on Sustainable Development (Rio +20), in the context of sustainable development (United Nations 2012).

In June 2021, a new legal definition of the term 'ecocide' was given by an independent expert panel, as 'unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts' (Stop Ecocide Foundation 2021, II). The purpose of defining ecocide as a crime was to amend the Rome Statute of the International Criminal Court (ICC) to add ecocide as a new crime under international criminal law.

The two Conferences of the Parties (COPs) in 2021/2022 can potentially further advance rights of nature: COP 26 of the United Nations Framework Convention on Climate Change (UNFCCC) in October/November 2021 addressed rights-based social and environmental safeguards to regulate global carbon markets under the Paris Agreement, which were adopted in Article 6 – but their effective implementation remains to be seen.

COP 15 of the UN Convention on Biodiversity (CBD) in April/May 2022 will negotiate the role of rights-based approaches[3] in the Post-2020 Global Biodiversity Framework.

Procedural rights of nature?

Whereas *substantive rights of nature* are further evolving and are increasingly enforced through court decisions and implemented in national and sub-national practices, we argue that transition to low-carbon economies can be improved and become less prone to conflict, more just and more sustainable by introducing *procedural rights of nature*. Procedural rights are also known as access rights; they comprise access to information, participation in the decision-making process and access to remedies (Atapattu and Schapper 2019). To consequently change the relationship between humans and nature, and move away from anthropocentrism to a more sustainable ecocentric approach, we need to *proactively* give voice to nature in decision-making processes concerning low-carbon economies (among others), instead of *reactively* revising decisions in court (as currently done with substantive rights of nature). This means *substantive rights of nature* serve as the basis of transforming human–nature relationships, and *procedural rights of nature* govern the processes that lead to more sustainable and less conflict-ridden environmental and climate policymaking.

Procedural rights have entered the environmental protection discourse through environmental impact assessments (EIAs) but go beyond EIAs by establishing rights-based practices and actively including those affected by environmental or climate programmes in the decision-making process. EIAs have been criticised for lacking scientific rigour, being implemented in a commercially competitive environment and being contracted out to the lowest bidder, weak consideration of cumulative and transboundary impacts, lacking transparency, not prioritising environmental sustainability, public involvement occurring late in the process

leading to affected communities feeling peripheral to decision-making, and not adequately addressing process and outcome fairness (Lawrence 2003; Wright et al. 2013; Schapper 2021).

EIA processes are institutionalised in many countries, but it depends on the respective political system, the stakeholders involved, the quality of the assessment process, scientific rigour and other factors as to whether they are carried out in a meaningful way (see also Schapper and Urban 2021). Procedural rights, however, are not confined to EIAs. They require parties to guarantee access to information and mechanisms for participation, not only in relation to decision-making but also regarding revisions, re-examinations or relevant updates concerning environmental and climate change activities (Atapattu and Schapper 2019). As they can be put into effect through regional and international legal instruments, procedural rights entail stronger enforcement mechanisms and are less prone to vested interests of particular stakeholders, corruption or untransparent decision-making.

One of the first legally binding international human rights instruments, the 1966 International Covenant on Civil and Political Rights (ICPPR), already stipulates participation in public affairs, freedom of information as part of freedom of expression and effective remedies when people's rights are violated – and this covenant has been ratified by an overwhelming majority of UN member states (OHCHR 2021).

Procedural rights in environmental matters are based on principle 10 of the Rio Declaration on Environment and Development, United Nations (1992), which defined the three pillars of environmental democracy as access to information concerning the environment, participation of all citizens affected by environmental decision-making and access to judicial and administrative proceedings, including redress and remedy. These rights also form procedural components of sustainability and are required for sustainable decision-making (Atapattu 2006), including in green economy transition processes. Principle 10 inspired the adoption of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters in 1998 (the Aarhus Convention), which is the first regional treaty (adopted by the UN Economic Commission of Europe) and binding environmental instrument to include procedural rights. In 2018, Latin America and the Caribbean adopted its own legal instrument on procedural rights, closely aligned with the Aarhus Convention, namely the Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean (United Nations Economic Commission for Latin America and the Caribbean 2018). In addition to these regional instruments, procedural rights, especially free prior and informed consent as well as participation in decision-making, play a crucial role in the 1989 International Labour Organization (ILO) Indigenous and Tribal Peoples Convention and the 2007 UN Declaration on the Rights of Indigenous People. The Framework Principles on Human Rights and the Environment introduced by the former UN Special Representative on Human Rights and the Environment, John Knox, in 2018, reiterate the three pillars of environmental democracy but also add other important procedural rights, like freedom of expression, association, and peaceful assembly in environmental matters (Principle 5); education and public awareness on environmental matters (Principle 6); and compliance with obligations to Indigenous peoples and members of traditional communities (Principle 15) (Knox 2018). The resolution that recognises a Human Right to a Healthy Environment adopted by the UN Human Rights Council in October 2021 specifically emphasises respect for biodiversity and ecosystems (Human Rights Council 2021).

So far, procedural rights have only been debated, institutionalised and implemented for human beings. Considering further developing a rights of nature framework and preventing conflict between state and society, as well as between society and ecosystems in green economy transitions, we suggest that procedural rights for nature can be advanced in three important ways:

1. Non-human animals and natural objects can be made equal participants in decision-making processes through considering scientific expertise on the conditions for ecosystems to exist, flourish, thrive, restore and regenerate. In line with Stone's ideas of guardians or representatives, scientific experts would have access to all relevant information regarding planned green economy projects, would participate in decisions pertinent to these projects with an equal voice and would have access to legal remedies if rights of nature should be violated through low-carbon economy endeavours.

   Previous projects from the natural sciences have already initiated such a stakeholder approach, giving voice to the bio-behavioural needs of elephants for space, free movement, and access to food and water in southern Kenya in collaboration with Maasai landowners (Croze, Moss, and Lindsay 2011), but whether this will be successful in sustaining elephant populations or managing conflicts of interest over grazing and water remain unknown, given ongoing changes to land use (Boult et al. 2019). We argue that these interdisciplinary approaches, consideration of scientific expertise and a proactive and equal inclusion of nature's voice in green economy decisions needs to be further developed to prevent conflict arising and to advance sustainable transition processes.

2. Advanced network-building, inter-sectoral collaboration (in so-called super-networks) and advocacy activities of Indigenous people's movements, environmental and social activists (including gender groups, human rights networks, youth organisations and faith-based activists) has led to an increased adoption of environmental and social safeguards in climate policies (Schapper 2020). Environmental safeguards can be considered a stepping stone to procedural rights of nature, as they proactively consider possible adverse environmental impacts of green economy projects that need to be avoided. Civil society pressure led to the adoption of safeguards in the Cancun Agreements 2010, the outcome document of COP 16 in Mexico. These procedural human rights, including respect for the knowledge and rights of Indigenous peoples as well as participation of relevant stakeholders and local communities, have been installed for forest protection and management programmes called *Reducing Emissions from Deforestation and Forest Degradation* (REDD+). Rights-based social and environmental safeguards to regulate global carbon markets under the Paris Agreement (Paris Rule Book) were adopted at the UNFCCC COP 26 in Glasgow, Scotland (Article 6 negotiations) in November 2021. Rights-based approaches to nature will be debated and possibly further developed at the CBD COP in Kunming, China, in April/May 2022. The two COPs have the potential to cross-fertilise each other to strengthen environmental safeguards and rights of nature.
3. To make green economy and other climate mitigation projects more sustainable and less prone to conflicts among state, society and ecosystems, procedural rights of nature

could become conditional for funding from the international community with links to the Sustainable Development Goals (SDGs). Forms of environmental and social safeguards already exist, eg conditionality to receive World Bank funding under the Environmental and Social Safeguard Policies. However, making SDG funding conditional upon the observance of procedural rights of nature, such as equal participation in decision-making via guardians or legal representatives, would be truly innovative and would lead to more coherent policy approaches aligned with UN Sustainability Goals, instead of merely prioritising economic development and growth.

Counterfactuals

Returning to our examples introduced above can strengthen our argument. What would have happened if procedural rights for nature had been meaningfully implemented in green economy transitions in Ethiopia and Morocco?

If the Omo River as an ecosystem in Ethiopia had access to information and had been able to participate in decisions (via scientific experts and legal guardians) in relation to the Gibe III, it would have opted for a smaller scale and locally inspired green economy project with less severe effects on its water flow. This would have mitigated biodiversity destruction and prevented changes in oxygen and nutrient levels reducing water quality. A smaller hydropower project with fewer consequences for water flow in the Omo River would have also reduced adverse transboundary effects on Lake Turkana – which should have also been able to participate in decision-making via a guardian. Protecting fish habitats, woodlands and grazing lands through more sustainable decisions would have prevented human–ecosystem conflicts and severe socio-economic consequences for Indigenous peoples relying on these ecosystems for subsistence. In addition, conflicts between Indigenous groups and the Ethiopian government, but also between Kenya and Ethiopia, could have been prevented. If procedural rights for nature (and society), like access to judicial remedies, were in place, Indigenous peoples in conjunction with the Omo River and Lake Turkana as ecosystems could have addressed the African Court for Human Rights to revoke green economy decisions that violate the 'right to a general satisfactory environment favourable to their development' as stipulated in the African Charter on Human and Peoples' Rights (ACHPR 1981, Art. 24).

A smaller scale hydropower project would certainly not have had the same national economic benefits as that of Gibe III. Ethiopia is currently profiting from about 1870 MW electricity generation, which makes Ethiopia self-sufficient in energy production and enables it to export energy to neighbouring countries (International Rivers 2011). To meaningfully implement procedural rights of nature, including participation of ecosystems via scientific experts and legal guardians, would have established more costly processes and reduced revenues leading to alterations in initial green economy plans. But these revenues would be sustainable and conflict-free.

If procedural rights of nature had been considered in the planning of the solar plant in Morocco, first, the land it was built on would not be believed to be 'empty', 'idle' and 'unproductive'. Through access to information, observation and dialogue, a careful consideration would determine which humans and ecosystems inhabit the land, and how they use

it. For example, herders need daily freedom of movement from one riverbed to another to find enough high-quality feed for their stock (Ryser 2019). The plant's highly secured infrastructure prevents movement and increases impacts (overgrazing) on constrained habitats. Migratory routes of animals and humans need mapping, with the layout of the plant ideally planned around these to prevent human–ecosystem conflicts. Given the technology of concentrated solar power, this may have led to efficiency losses. Securing routes through the plant would also mean significantly increased costs. This, in turn, means that the implementation of procedural rights would also require a political will to finance them. Second, water abstraction from the El Mansour Eddahbi reservoir would have to be limited to maintain at least current levels of downstream water demand to allow for the regeneration of natural vegetation and the growth of subsistence produce, and to maintain pastures. If the ecosystems related to the reservoir had participated in decision-making (eg via scientific experts and legal guardians), they would have opted to preserve water levels to protect all ecosystem components depending on the water. Ideally, access to relevant information and pertinent calculations would factor in climate change adaptation to allow for a fair distribution even in dry years. Again, restricting water use would constrain the solar plant's operational capacities and, with it, the project's profitability. Third, the rural development element of MASEN would have to be based on more direct consultations with the local inhabitants and their wishes for a social transformation – or, in fact, the lack thereof. Land acquisitions would have to be strictly consensual. The implementation of procedural rights, especially access to information in environmental matters and participation in decision-making, would imply a 'bottom-up' approach, rather than conventional forms of 'sustainable', but not inclusive, development. Respecting these safeguards would have prevented conflicts arising among the state, society and ecosystems. This could have included discussions around various forms of subsistence beyond wage labour relations and inclusion in the formal economy that the plan currently envisages.

These thought experiments or counterfactuals demonstrate that implementing procedural rights of nature would probably lead to more costly green economy projects that do not prioritise short-term economic growth but balance out different SDGs, such as no poverty (Goal 1), clean water and sanitation (Goal 6), affordable and clean energy (Goal 7), reduced inequalities (Goal 10), climate action (Goal 13), and protecting life below water and on land (Goals 14 and 15), among others. Realising procedural rights of nature would lead to truly transformative processes, less human–ecosystem conflict, more inter-species justice and sustainable decarbonisation. UNFCCC COP 26 in Glasgow led to the adoption of rights-based social and environmental safeguards to regulate global carbon markets, and CBD COP 15 in Kunming will show whether rights-based approaches to biodiversity protection will be recognised as first steps towards establishing procedural rights for nature.

Procedural rights for human beings and particular social groups, like Indigenous peoples and local communities, have often been difficult to realise, as evidence from REDD + projects demonstrates (Steudtner 2012; Dehm 2016). However, there are also positive examples from REDD + programmes (Ituarte-Lima and McDermott 2017) and policies under the Clean Development Mechanism involving adherence to the World Bank's social and environmental safeguards (Schade and Obergassel 2014) that have strengthened the participation of excluded groups, have guarded the protection of substantial rights and have advanced

national legislation and domestic rights frameworks. Therefore, we argue that, if properly developed and implemented, procedural rights of nature can also become meaningful as an important step towards achieving harmony with nature.

Conclusion

We argue that green economy policies often exacerbate multi-dimensional conflicts of interests between governments, society, private-sector investors and the environment. The focus of these zero-carbon growth policies is usually on economic development, prompting governments to build a strong alliance with private investors at the expense of marginal social communities and an adversely affected environment lacking a voice. We introduced two cases from Africa, (1) green economy transition and the Gibe III dam in Ethiopia and (2) renewable energy transition with a focus on solar plants in Morocco, demonstrating the different facets of socio-ecological contradictions and conflicts inherent in these policies, which constrain sustainable development.

Building upon this empirical perspective, we argue that procedural rights for nature need to be established to prevent human–ecosystem conflict and make green economy transitions sustainable. We discuss the development of procedural rights of nature via (1) stronger consideration of scientific expertise, (2) an enhancement of environmental safeguards and (3) making funding linked to the SDGs conditional upon the participation of nature in decision-making processes through legal guardians. Realising this ecosystem voice requires re-thinking and re-balancing green economy approaches by strengthening environmental (and social) dimensions in relation to economic growth. Although we are aware of the practical challenges this entails, we encourage more inter-disciplinary research, including in the environmental sciences, legal and social research and development studies, to make this happen. Without an active environmental voice, green economy transitions will remain unsustainable.

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Notes on contributors

Andrea Schapper is Senior Lecturer in international politics at the University of Stirling. She is particularly interested in inter- and transdisciplinary research advancing environmental sustainability. Her research focuses on the relationship between climate change, the environment and

human rights, rights of nature, social movements and state–society relations in international negotiations. She is Co-Director of the Centre for Policy, Conflict and Cooperation at the University of Stirling.

Clemens Hoffmann is Lecturer in international politics at the University of Stirling. His work develops the concept of geo-political ecology, analysing the geopolitical economy and ecology of the wider social transformations associated with decarbonisation in the Middle East. This work builds on the critique of conventional understandings of environmental security and resource conflicts, suggesting a focus on the historical processes of state formation and development. He is the co-director of the Centre for Environment, Heritage and Policy at the University of Stirling.

Phyllis Lee is an evolutionary ecologist who studies animal behaviour and life history, as well as working with community conservation practices and human–wildlife interaction. Her studies have included primates in Brazil, East and Central Africa and Indonesia, plus African elephants in East and Central Africa, and Asian elephants in India and Sri Lanka. She acts as an unpaid Director of Science to a Kenyan NGO (Amboseli Trust for Elephants) that aims to promote elephant conservation and welfare.

Notes

1. Once the Grand Renaissance Dam is in operation, this will be the largest dam in Ethiopia.
2. Changes can be expected after political and economic reforms have been introduced by the new government under leadership of Abiy Ahmed since mid-2018. The focus of this case description, however, is on early CRGE decision-making and planning/constructing Gibe III.
3. At the end of July 2021, a text reference to rights of nature was removed from the draft of the Post-2020 Global Biodiversity Framework and replaced by a reference to rights-based approaches (Bustamante 2021).

ORCID

Andrea Schapper http://orcid.org/0000-0001-6235-6879
Clemens Hoffmann http://orcid.org/0000-0001-8476-8102
Phyllis Lee http://orcid.org/0000-0002-4296-3513

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