

Rawls in the mangrove: Perceptions of justice in nature-based solutions projects

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Funding information

International Development Research Centre, Grant/Award Number: 109238-001

Handling Editor: Román Carrasco

Abstract

1. Adapting to and mitigating against climate change requires the protection and expansion of natural carbon sinks, especially ecosystems with exceptional carbon density such as mangrove forests (an example of 'blue carbon'). Projects that do this are called 'nature-based solutions' (NbS).
2. International norms regulating NbS stipulate the importance of justice, in contrast with some of the history and practice in wider conservation. However, what justice means and how it manifests in practice remain contentious.
3. Selling carbon credits on the voluntary market is a growing source of funding for NbS. A large literature examines the ethics, economics, science and politics of such payments for ecosystem services (PES), including for blue carbon. The interpretations of justice in this context are particularly contentious, but operational blue carbon projects have not been examined from a justice perspective.
4. Here we report on a case study involving the first blue carbon project, Mikoko Pamoja, and its sister project Vanga Blue Forest, both based in Kenya. We consider how justice is conceived by local participants and beneficiaries, using interviews, focus groups and participant observation to collect data, as well as by international stakeholders and in relevant governing documents and policy. We compare these perceptions with expectations and critiques derived a priori from the literature, including a classic thought experiment that influential justice philosopher John Rawls called the 'original position'.
5. In contrast to high-level policy and much of the literature, but in common with Rawls, local stakeholders emphasised distributional aspects of justice. Locally situated interpretations of contentious issues such as elite capture and commodification differed markedly from common interpretations in the literature.

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6. Our work emphasises the importance of situating abstract concepts in their local contexts when evaluating justice in NbS projects. It shows how narratives advocating technical precision and economic efficiency in NbS can militate against transparency and agency at a local level and emphasises the critical importance of benefit sharing that is perceived to be fair.

KEYWORDS

blue carbon, climate change, community, distribution, empirical justice, offsetting

1 | INTRODUCTION

Where should justice stand among the virtues that motivate conservation? John Rawls gave an uncompromising answer: 'Justice is the first virtue of social institutions' (Rawls, 1999). For Rawls, and the many theorists and activists informed by his influential work, justice would be a standing item on conservationists' agendas, since all those involved in creating or changing social institutions (which include those governing conservation) need to position it as a central concern. The reality is very different. Critiques of 'fortress conservation' as an insult to local and indigenous concerns reach back to the origins of the conservation movement. In America, for example, a woeful legacy of colonialism is written into the geography of national parks with racist place names (McGill et al., 2022). Despite the rise of the community-based management (CBM) paradigm (Berkes, 2007), a fierce debate persists between those who continue to emphasise protection, and who are criticised for ignoring justice and those who emphasise sustainable use and are criticised for naivety (Buscher & Fletcher, 2020).

Even when justice is recognised as a core virtue, exactly what it means, who gets to define it and how trade-offs between justice and other aspects of conservation (such as requirements for scientific precision) should be made remain hotly contested. Rawls' major contribution was to derive a thought experiment that promises to cool such disagreements. If all parties can only agree what justice looks like behind a 'veil of ignorance', which hides their own social positions in the putative arrangements, then consensus can be reached. Rawls described this dis-embodied state as 'the original position'. Whilst participants know the sorts of differences, such as gender, class and ability, that might influence society, they do not know what roles, positions or bodies they themselves will inhabit. The experiment is designed to demonstrate how rational stakeholders could, at least in outline and in principle, reach an agreement on matters of justice, despite their different positions and perspectives; it presents a universalizing vision of justice based on a social contract. If correct, Rawls' ideas present a framework that should be useful whenever people consider matters of justice, regardless of their cultural and social contexts. One critique of this position, articulated most prominently by Sen (2009), argues that the notion of justice is ineradicably plural and therefore that such theoretical consensus will always be illusory. To demonstrate this, Sen offers a thought experiment of his

own. Consider three children, each of whom claims they should be given a flute. One is the poorest, without other toys. One can play the instrument, unlike the other two. One has made the flute herself. Each child has a legitimate claim, and it is not clear how any impartial a priori principles would resolve the issue (Sen, 2009, p. 15). Instead, Sen emphasises the importance of 'social realisations'—or what actually happens—over universalizing institutional theories. This position implies that instantiating justice will always require a comparative perspective that understands the 'insider view'.

This debate, held on the broad stage of political philosophy, informs a related discussion within the CBM literature, and in particular research on payments for ecosystem services (PES) projects. Here the focus is on agency and voice for indigenous people and the global South. If clumsily applied, the universal perspective linked with Rawls can lead to variance between justice norms imposed or expected by those implementing interventions and perceived by those affected. This has motivated calls for research on 'empirical justice', in which justice is assessed in the context of the beliefs and judgement held by the individuals concerned (e.g. Fisher et al., 2018; Liebig & Sauer, 2016; Sikor et al., 2014). Elsewhere, the same concept is referred to as a 'sense of justice' (Svarstad & Benjaminsen, 2020). Here, we recognise and respond to Sikor's suggestion that researchers should be wary of the 'wishful thinking' that has characterised much of the conceptual literature; rather they should focus on 'what actually is and might be' (Sikor, 2013).

PES projects explicitly aim to monetize aspects of natural functions, such as carbon capture, to help pay for their delivery. Scholars worry that such commodification may encourage two specific insults to justice. The first is whether monetising nature can be compatible with earth-centred indigenous cosmologies and whether introducing such attitudes could crowd-out other, intrinsic approaches to valuing nature (Lliso et al., 2022; Wilshusen & MacDonald, 2017). Hence PES could occlude alternative approaches to justice by its framing. The second concern involves how the injection of new resources from PES may affect the balance of power and benefits within communities. The dangers of elite capture, in which the privileged harness disproportionate benefits through their social or economic status, are much discussed. Whilst the phrase is inherently pejorative, there are apparent examples of locally accepted and satisfactory 'elite capture'. For example, 'elites' may be better placed to take positions of power due to education or existing networks

(e.g. Lund & Saito-Jensen, 2013). The advantages this brings may be deemed by participants to warrant a greater share to that individual or group, as the community benefits from the contribution of the 'elite' (e.g. Platteau, 2004). As Rawls emphasises, inequality in processes or outcomes is not enough to imply injustice; parties may fully accept and encourage it. It is therefore important to make the distinction between elite benefit and corruption and discrimination (Dutta, 2009), and to question whether inequality favouring elites is malevolent or benevolent, examine accountability relations and how elite engagement influences project outcomes (Lund & Saito-Jensen, 2013). These principles highlight the contextual nuances that should be considered when assessing justice on a case-by-case basis.

Analyses of environmental justice commonly identify three dimensions: recognitional, procedural and distributive (Svarstad & Benjaminsen, 2020). These mean, respectively, that the rights, values, interests, and knowledge of all individuals involved are recognised and respected, that those individuals are offered a fair and meaningful role in the planning and implementation of interventions, and that the benefits and burdens of an intervention are distributed in a just way within the affected communities. These interlinked concepts have been applied in the CBM literature to examine the equity of decision-making within CBM projects and the distribution of benefits and burdens (e.g. Marion Suiseeya & Caplow, 2013; Sommerville et al., 2010; Wood et al., 2018). There is no agreement on which of the dimensions should take priority or how they relate to one another and we explore them equally here and use them as one interpretive framework for our results.

In this paper, we examine how justice is perceived and delivered by participants in two Kenyan blue carbon projects (i.e. Nature-based Solutions—NbS—projects that involve organic carbon storage in vegetated coastal ecosystems, in these cases mangroves). A voluminous literature explores and critiques the application of PES to forest conservation, including analyses of how justice norms shape practices (Jones et al., 2020; Suiseeya, 2017). A large and growing literature considers the science, economics, and theoretical promise of blue carbon (Dencer-Brown et al., 2022; Macreadie et al., 2019). However, very few blue carbon projects are actually operating, although dozens are now in preparation (Friess et al., 2022); there is a need to learn justice lessons from those that are established. Although NbS founded on blue carbon shares many similarities with terrestrial work there are important differences relevant to justice. For example, blue carbon habitats like mangroves involve both terrestrial and coastal sectors and stakeholders, typically have very complex tenureship arrangements, rarely support permanent human homes and are more fragmented or linear than most terrestrial forests. Hence the primary aim of the current paper is to address this gap in scholarship on justice in blue carbon work and contribute to the call for further studies on PES rooted in empirical justice approaches. In addition, we use this case study to explore the broader debates over justice outlined above that have relevance to all community-based conservation and climate projects that engage with the market. In particular, we ask: (1) How useful are abstract

notions and frameworks of justice, especially those from Rawls and the environmental justice tradition, in understanding the perspectives of community stakeholders? (2) How relevant are the criticisms of 'market conservation' that emerge from political ecology, especially those of elite capture and commodification, to local stakeholders and beneficiaries?

2 | METHODS

2.1 | The projects

Mikoko Pamoja (established 2012) and Vanga Blue Forest (established 2019) are two mangrove protection and restoration projects on the southern Kenyan coast, situated at Gazi and Vanga bays, managing 117 and 460ha and serving estimated populations of 5400 and 8736 respectively (Figure 1). The major economic activity at both sites is fishing (accounting for up to 80% of the local economy), most people are from the Digo ethnic group and 97% are Muslims. Levels of poverty are higher than the Kenyan average, with a poverty index of 0.25 (Vanga Blue Forest, 2020). Other indicators of development also show relative deprivation, for example, ~40% of the local population have attained no formal education (Vanga Blue Forest, 2020).

Both projects are structured under co-management agreements between legally registered Community-Based Organisations (CBOs) and the Kenya Forest Service (KFS), a government agency. Whilst the forest land belongs to the government, these agreements give tenureship to the CBOs for specified benefits, including carbon. Administration, marketing and sales of carbon credits are managed by a Scottish charity, The Association for Coastal Ecosystem Services (ACES), under the Plan Vivo Standard. Sales of carbon credits have raised 199,888 USD in total to date (January 2023), money which is used to fund core project activities of mangrove protection and restoration as well as community development initiatives. In compliance with the Plan Vivo Standard a minimum of 60% (and typically >80%) of annual proceeds are allocated to local spending; this includes salaries for local project staff and funds for community development. The projects are governed by committees elected by local people. Community spending is proposed by the committee and community members vote for favoured projects at barazas, meetings open to all; this spending must benefit the community as a collective and not be for individuals, must not be delivered in the form of cash dividends, and no one individual can direct spending alone (Mikoko Pamoja, 2020). The projects are staffed by coordinators and assistant coordinators who hold responsibility for the implementation of community spending as directed by the committees. Whilst the authors are conscious of critiques of the use of the term 'community', which can gloss over internal forms of contestation and social difference, in these project settings, 'the community' is a locally and legally recognised and used term referring to people who live in the project villages.

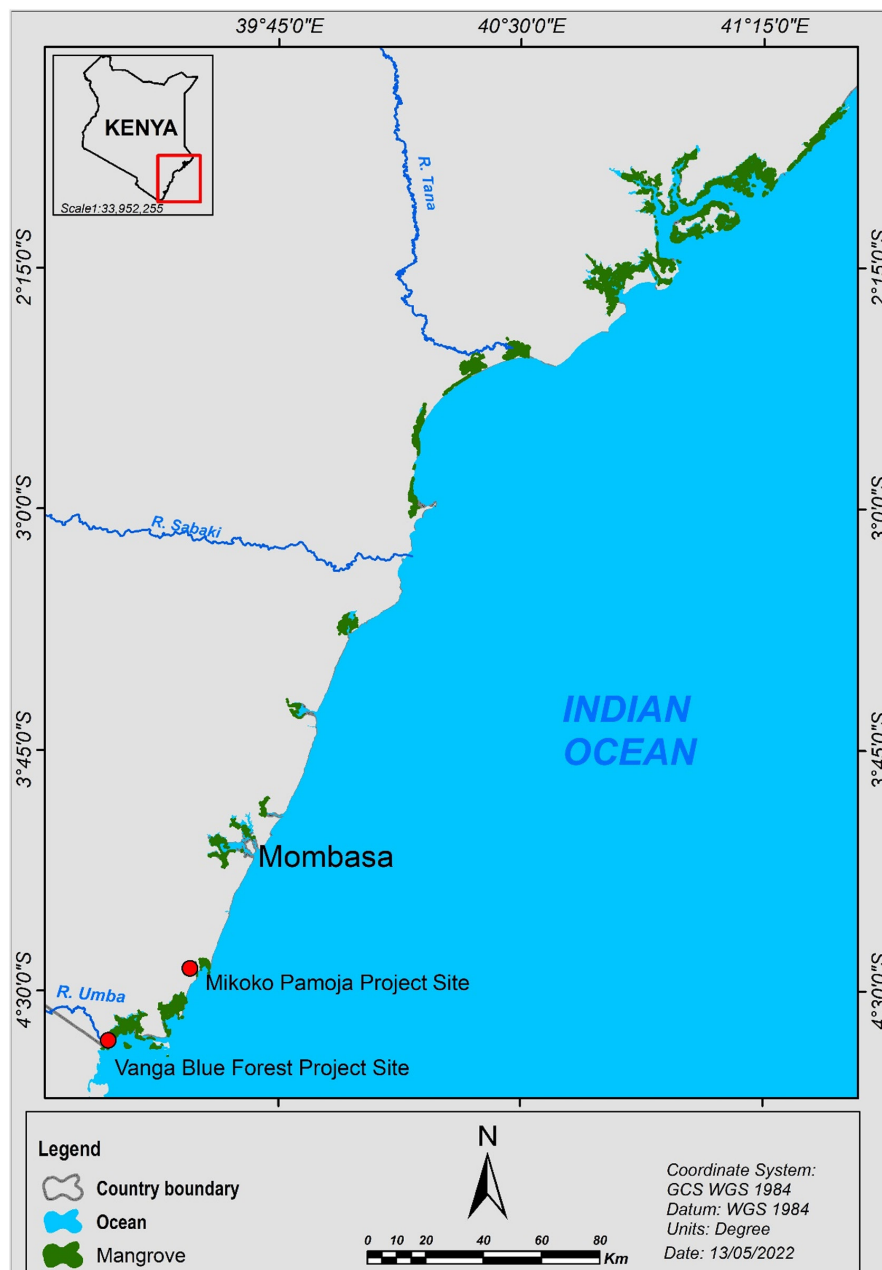


FIGURE 1 Kenyan coastline showing sites of the two blue carbon projects in Kenya, Mikoko Pamoja and Vanga Blue Forest.

2.2 | The original position

As a heuristic and reflexive exercise, the authors constructed an a priori comparison between the status of the two projects and an idealised 'original position', as it may apply to seven stakeholder 'agents of justice' and for the three dimensions of distributional, procedural and recognitional justice (Figure 2). This was done through discussion and agreement among the authorial team, choosing key stakeholders and subjective assessments of the current and ideal positions. Rawls' thought experiment requires a description of ideal social situations and relations by agents situated behind a 'veil of ignorance', which prevents them from knowing the social roles they themselves will inhabit in the society they design. Like all philosophical thought experiments, it is impossible to perform literally but is designed to illuminate key ideas. The purpose of this exercise was

twofold: to produce a conceptual picture of justice, which allowed post-hoc comparison with the perspectives of our interviewees, and to function as a reflexive exercise revealing the initial perspectives of the authorial team. For example, buyers of carbon credits are, by definition, able to afford them and are overwhelmingly in the wealthy global North. As such distributional justice implies a relatively large gap between the original and realised positions for this stakeholder group. In contrast, sellers have little current influence on procedural issues in the voluntary carbon market (VCM) but justice considerations do not suggest that this represents a major insult to the original position. Whilst 'other species' have some small degree of recognition under current carbon standard rules (usually by reference to 'biodiversity benefits') the range of species and the fact they may have different and conflicting needs is not generally recognised.

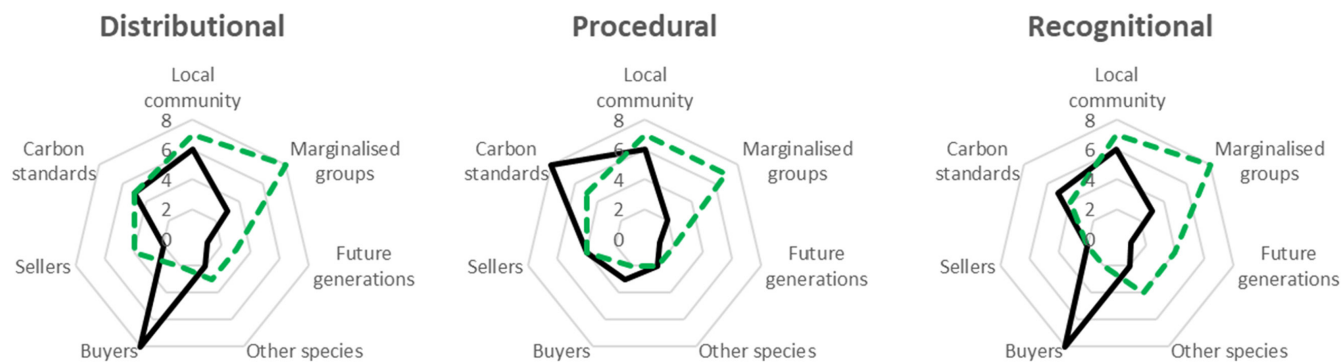


FIGURE 2 Hypothetical current (black line) and 'original' (dashed green) positions for the three dimensions of justice, as applied to seven stakeholder groups involved in the blue carbon projects Mikoko Pamoja and Vanga Blue Forest. For example, the current market gives relatively high recognitional values to buyers (since they are targets for marketing) and much lower ones to future generations and this is not considered to reflect an original position based on justice considerations.

2.3 | Data collection and analysis

A three-pronged approach to data collection was designed to capture the perspectives of project staff, partners and participants (here defined as the self-identifying members of the 'local community' within the project area). In addition, it allowed an analysis of how the founding and influencing documents shape the scope and ability of the projects to operate in alignment with justice considerations at the local level. This approach involved: (a) a review and content analysis of the key documents that directly influence or relate to the governance and management of the projects; (b) focus groups and interviews with project participants and partners, conducted in community settings in Gazi and Vanga villages; (c) content analysis of observational diaries written by the project coordinators (the primary staff members) over a 14-month period (September 2020–November 2021). All focus groups and interviews were conducted in Swahili language and later translated to English prior to qualitative thematic analysis; English versions of guides and questions are given in [Supporting Information S1](#). Three authors independently coded the focus group and interview transcripts for open, axial and selective codes, following the methodology of Williams and Moser (2019). This involves an inductive process of deriving emerging themes and concepts from the material and then conducting a series of iterative data reduction and consolidation steps. These initial codes were then compared and integrated during three separate rounds of comparison and negotiation to produce a final list of agreed codes.

Ethical clearance for this research was provided by the Research Ethics Committee of the Institute of Development Studies (IDS), an independent research body located on the campus of the University of Sussex. All participants in interviews and focus groups gave written consent. The work was conducted by a team that included people closely associated with the projects and some independent of them: Scottish project developers, Kenyan project staff, Kenyan supporting scientists and un-associated Kenyan and British social researchers.

2.3.1 | Document analysis

Key documents were identified that relate directly to project design or governance, or that exert influence on the project design or governance. These included both internal and external documents. The documents analysed are listed in [Table 1](#).

Each document was analysed to explore the following questions related to equity, fairness and justice:

- What provisions are in place to ensure fair representation in the project (governance and/or management), including of minority or vulnerable groups? (Recognitional justice)
- What procedures are outlined for decision-making within the project? Who do these procedures include (and who do they not), and what scope of decision-making do they encompass? (Procedural justice)
- Is there a fair reporting procedure for grievances relating to the project? Have any conflicts been dealt with through this procedure and how? (Procedural justice)
- What provisions are in place to ensure fair and equitable distribution of project benefits? (Distributive justice)

As the documents range from international agreements to project-level texts, and as such a diversity in relevance to and prescription of elements of justice would be expected, the relevance of each document to the three dimensions of justice was ranked from 1 to 5. Here, 1 indicated no mention of terms relating to the element of justice, 2 indicated brief mention of terms but these were not prescriptive in any discernible way, 3 indicated moderate discussion of terms with some prescription, 4 indicated considerable discussion of terms and prescription, and 5 indicated extensive discussion of terms and prescription.

2.3.2 | Focus groups

Focus group discussions (FGDs) and interviews were conducted in October 2021 in community settings in Gazi and Vanga villages. Ten

TABLE 1 Overview of data sources used in document analysis.

Document type	Document	Author	Description
International treaty	The Paris Agreement	UNFCCC in conjunction with Parties to the Agreement	The principal international treaty on climate change, encompassing climate mitigation, adaptation and finance
Kenyan policy and legislation	Forest Conservation and Management Act (2016)	Government of Kenya	The Kenyan legislation that provides for the development and sustainable management of forest resources
	Draft National Policy on Community Development (2017)	Government of Kenya	A comprehensive framework for coordination, implementation and management of community development practice for national development, applicable to, inter alia, CBOs
Internal document	Project Design Document (PDD) for each project	The project CBOs, Kenya Marine and Fisheries Research Institute, Edinburgh Napier University, ACES	A document detailing the project design and technical specifications submitted to and approved by the Plan Vivo Foundation in order to achieve certification under the Plan Vivo Standard
	Constitution for the Community-Based Organisation (CBO) underpinning each project	The CBO for each project	The constitutions developed under the community groups registration bill in order to gain recognition as Community-Based Organisations under Kenyan law

gender- and role-segmented focus groups, with 70 participants in total, and 19 interviews were conducted with members of project communities, facilitated by gender-matched research team members (Table 2). Participants were segmented by gender and roles into four groups: community group men and community group women (members of a project community who are not formally involved in carbon project activities) and carbon project committee men and women (consisting of project members with formal responsibilities for how the carbon projects are managed).

Each community focus group contained from seven to nine participants. The selection of the participants in Vanga was led by the chairmen of VAJIKI CFA, who informed the leaders of environmental groups in each of the three villages, Vanga, Kiwegu and Jimbo, to identify participants for this study. For equal representation, each village produced three representatives for each category of FGD. In Gazi and Makongeni villages, the selection was carried out by the village heads. Each village produced at least 3 representatives for each category of FGD.

Additional FGDs were conducted with members of a technical group composed of KMFRI Gazi officers and interns (six participants). These FGDs were carried out to capture variability and nuance in perceptions of project-related benefits, trade-offs and fairness between community members and members of the technical staff.

2.3.3 | Interviews

Semi-structured Interviews were conducted following focus groups with key individuals identified during the group discussions, to explore themes or topics raised during focus groups in greater detail and to provide a confidential setting in which participants could

discuss sensitive subjects that they did not feel comfortable discussing in groups. Interviewees were selected either because they demonstrated particular knowledge and insight during the FGD or because they seemed reluctant to speak in that setting and hence may have perspectives more easily shared one-to-one. Interviews were held immediately after the FGDs. Questions were based on the themes or topics that each key informant discussed during focus groups. Nine interviews were carried out in Vanga-Jimbo-Kiwegu villages and eight were carried out in Gazi-Makongeni villages; in both settings, transcripts showed saturation was reached for the topics covered. Two additional interviews, with a Social Services Department officer and an Ecosystem Conservator of Kenya Forest Services, both in Kwale County, provided information on the role played by government agencies on issues relating to justice (Table 2).

2.3.4 | Project coordinator observations

Two project coordinators (the primary management position within the CBOs) recorded fine-grained observations on day-to-day decision-making and local power dynamics over a period of 14 (for Mikoko Pamoja) and 11 (for Vanga Blue Forest) months. The coordinators were tasked with noticing and recording critical incidents involving the exercise of power and influence on decisions pertinent to justice. Outcomes could be positive or negative and power could be exercised overtly (for example through reference to the constitution) or covertly (for example through tacit knowledge of status); whilst the former was clear, the latter category necessarily involved some subjective interpretation by the recorder based on their intimate knowledge of the community and the projects (for example, intuiting the reasons why some people in a meeting spoke more than others).

TABLE 2 Overview of focus groups and interviews, including sample size, social roles and topics explored.

Study site	Gender	Sample size	Social group	Topics addressed
<i>Focus groups</i>				
Gazi	Male	8	Community	<ul style="list-style-type: none"> • Purpose and goals of carbon project • Finance, design and running of carbon project • Community participation • Groups benefiting • Groups not benefiting • Leadership • Conflict resolution • Benefit sharing • Decision-making • Vision and future of project
	Female	8	Community	
	Male	8	Committee	
	Female	8	Committee	
	Male and female	6	KMFRI officers and interns	
Vanga	Male	8	Community	<ul style="list-style-type: none"> • Transparency • Sharing of benefits and opportunities arising from the carbon projects • Complaints and conflict resolution channels • Compensation for lost livelihoods
	Female	7	Community	
	Male	9	Committee	
	Female	8	Committee	
<i>Interviews</i>				
Gazi	Male	2	Community	<ul style="list-style-type: none"> • Transparency • Sharing of benefits and opportunities arising from the carbon projects • Complaints and conflict resolution channels • Compensation for lost livelihoods
	Female	3	Community	
	Male	1	Committee	
	Female	2	Committee	
Vanga	Male	3	Community	<ul style="list-style-type: none"> • Transparency • Sharing of benefits and opportunities arising from the carbon projects • Complaints and conflict resolution channels • Compensation for lost livelihoods
	Female	3	Committee	
	Male	3	Committee	
State agencies Kwale County	Male	1	Social Services Department Officer	<ul style="list-style-type: none"> • Transparency • Sharing of benefits and opportunities arising from the carbon projects • Complaints and conflict resolution channels • Compensation for lost livelihoods
	Male	1	Ecosystem Conservator, KFS	

Coordinators took these notes as part of a developmental exercise, with reflection on how processes and practices may improve and with feedback from line managers. Summary notes were made shortly after events and included a categorisation of the type of power dynamic (using terms such as 'monopoly', 'male chauvinism', 'trust' and 'personal gains'), a short description and a reflection on future responses. Notes were taken following formal and informal governance processes (including committee meetings, *barazas*—whole community consultation events—and approaches outside of these formal settings). Observations were recorded in written format in English by the project coordinators, were anonymised and then analysed independently by two other team members.

3 | RESULTS

Analysis and interpretation of our results involved combining our pre-determined framework of distributive, procedural and recognitional justice with the themes and concerns of local participants that emerged inductively from our data. The congruence of these two approaches diminished as our methods moved from the more general and formal to the more contextualised and responsive (document analysis, FGD/interviews, participant observation). We present results from the first two methods using the justice framework (which was relevant to much but not all of the FGD/interview data) but leave participant observations under their original broad categories to avoid distorting these data.

3.1 | Document analysis

The extent to which each of the examined documents refers to the three types of justice is summarised in Table 3, where they are ranked from 1 to 5, with 1 indicating no discernible influence and 5 indicating a strong influence on the dimension of justice within project design.

Elements of recognitional justice are most prominently discussed in the Paris Agreement e.g. 'Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity'. The Draft National Policy on Community Development, which recognises the importance of mainstreaming gender, disability, ageing and youth. Although these do not explicitly detail the level or nature of representation of these groups at project levels, it sets a precedent for the inclusion of these marginalised groups in any type of climate action. In contrast, the constitution and PDDs include specific provisions for representation (e.g. that at least 30% of governing members must be women), but make no explicit reference to the inclusion of minority groups other than women and youth, for example, minority ethnic groups or disabled community members. No explicit procedures are outlined for the inclusion of those less able to attend community meetings, such as those unable to travel for practical or financial reasons.

TABLE 3 The influence of governing and influencing documents on the three dimensions of justice within project design.

		Recognitional	Procedural	Distributional
International policy	Paris Agreement	4	2	1
National policy and legislation	Forest Conservation and Management Act	2	1	2
	Draft National Policy on Community Development	3	2	2
Community organisation governance	CBO Constitutions	3	3	4
Project design	Project Design Document	3	5	5

Procedural justice is most evident in and influenced by the PDDs, which outline specific procedures for decision-making, spending, elections and dispute or conflict reporting and resolution. These are reflected in, and build on, stipulations within the CBO governing documents. While project-level procedural governance is less within the remit of national and international policy and legislation, these broad policies do prioritise participatory capacity building (Paris Agreement) and recognise the importance of community participation for sustainable development (Draft National Policy on Community Development).

Like procedural justice, distributional aspects were most heavily influenced by the PDDs and constitutions, which include detailed procedures for the distribution of funds within the project activities and community. Distribution of burdens is referenced in the PDDs with recognition that woodcutters will be negatively impacted by forest protection, and mitigation actions are outlined to minimise the negative socio-economic impacts of this. Within national and international policy and legislation, the importance of just distribution is generally recognised but not explicitly mandated or facilitated with clear procedures. Examples include aspirations to 'improve livelihoods' in the Forest Conservation and Management Act and, in the National Policy on Community Development, recognition that 'inequitable distribution of resources contributes to marginalisation of some communities and perpetuation of inequalities'.

3.2 | Focus groups and interviews

Independent coding followed by separate rounds of comparison and negotiation resulted in 71 open, 23 axial and seven selective codes; the latter two are illustrated in Figure 3. Illustrative quotes are organised here under the broad framework of the three types of justice and are linked to the selective codes by which they were categorised during analysis.

3.2.1 | Distributive justice

Many comments related broadly to distribution, including not only distribution among project stakeholders and local agents but also

how much total income and resources were available and thus distribution from the global market to community-level beneficiaries.

Selective codes—Community and environmental benefits

All interviewees were aware of the benefits that had come to the community as a whole because of the projects. These include infrastructure, education, water and health:

'[W]e have a bridge..., there is also furniture in Kiwegu, there are sanitary towels donated to girls in Kiwegu, those are benefits. There was also a provision of food during the COVID-19... There was landfilling of the Jimbo nursery school, those are also benefits. We have planted trees in schools, those are also benefits'.

'[T]here was lack of water, "Mikoko pamoja" has brought water at their doorsteps and even in their houses and this has helped reduce the cost of living in other ways'.

Respondents also recognised and understood a range of environmental benefits that the projects helped to deliver, including those in addition to the direct protection of the forest:

'[T]he project will also help prevent soil erosion ... through the protection and conservation. There will also be an increase in fish because mangrove is breeding grounds for fish.'

And those going beyond the local community:

'According to my understanding, apart from us who are near the forest, we benefit the whole world when it comes to the issue of absorbing carbon. So when we conserve the mangroves, carbon is absorbed and we get the fresh air.'

Most respondents were eager to expand the scope of the projects to bring more funds into their communities:

'[They should] look for more markets so that we can increase the forest [that is conserved]'

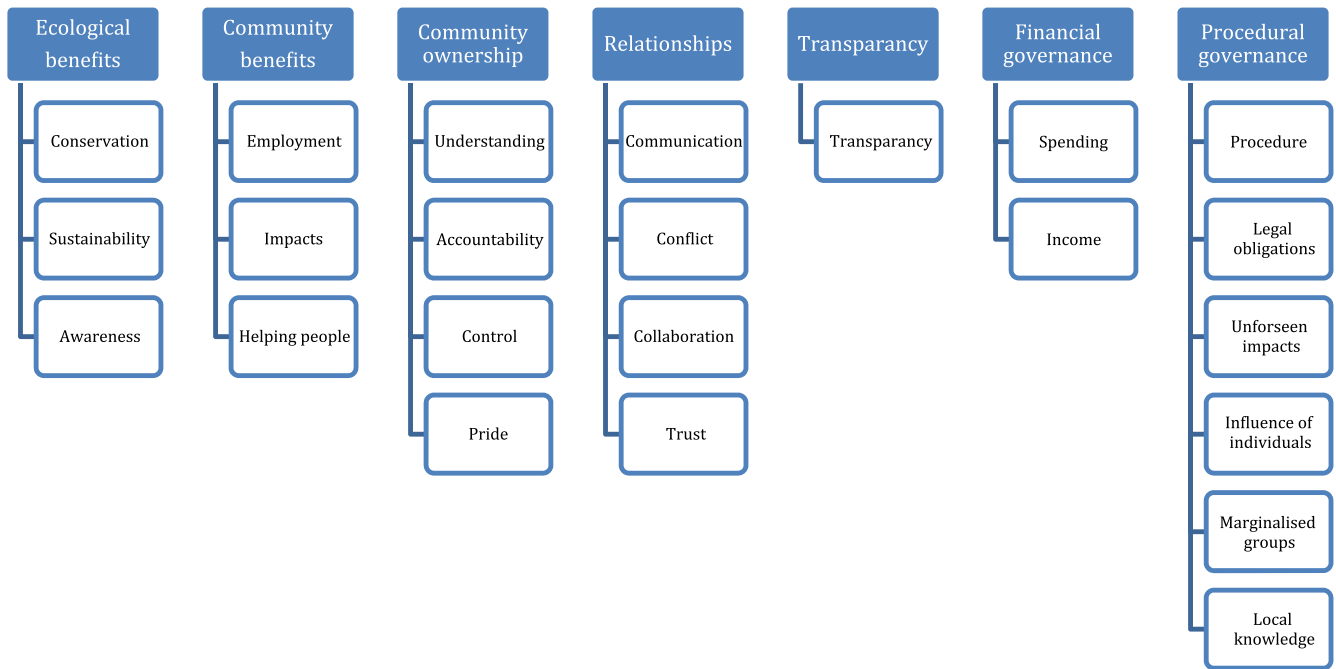


FIGURE 3 Axial and selective (lower and upper boxes respectively) codes derived from all transcripts of focus groups and interviews across both sites.

'[W]e would like them [outside world] to know that there is carbon here and the sale of carbon does not help us only but it helps the whole of Vanga community. So if there are other buyers they should bring them for us so as to add more plots.'

But it was also felt that some individuals had been negatively affected by new restrictions on cutting:

'[A]nother elderly man in our village had a business of selling mangrove poles but after the business was closed, the elderly man has been negatively affected.'

'[I]n the past before people used to get in the forest and cut firewood among other things. But now that there is VBF, they have been stopped or denied access to the forest such that they cannot perform their activities the way they used to.'

Selective code—Procedural governance

Despite the acknowledgement of benefits realised, many respondents hoped for more. A common suggestion, that includes elements of recognition, was for employment and training of local people (rather than using outsiders):

'I would like our youth to be recognized. They should be trained on how to collect data on carbon. Since every time we plan for fieldwork, [an outside expert] team has to be contacted, so why can't we have our own youth getting in the mangroves and collecting data?'

A related comment made forcibly, particularly at one community, was that opportunities for employment in the projects (especially the central project co-ordinator role, which is currently advertised for a Kenyan graduate and subject to open competitive recruitment) should go to local people:

'The communities wanted a coordinator to come from within either Makongeni or Gazi communities because we own Mikoko Pamoja and this was the only chance we were to employ each other and there is no other place for employment'

3.2.2 | Procedural justice

Quotes given here pertain to the nature of agreed procedures and to how these are operated and understood on the ground.

Selective codes—Procedural and financial governance

How the projects operate to generate funding for conservation and community benefit was well understood by some respondents:

'There is a terminology used by the white men called PES, payment for ecosystem services. In our local language is that we as the community conserving the forest should get benefits from the work done in conserving the forest. So the goals of this project are that we conserve, develop and restore the forest but the main goal is this, that is, we have to get payment services for the forest.... after selling the carbon'

However, there was also widespread confusion and ignorance about the details of the complex processes of accreditation, marketing, selling and then distributing carbon funds:

'Because you are brought the money and told "according to the mangroves you planted, here is your money!" and you have no clue of how the calculations were done! I can't understand that!'

This lack of knowledge and capacity was also reflected in some governance procedures. For example, a government social development officer suggested local committees sometimes fail to follow standard or prescribed practice:

'[W]henever they have a meeting they don't have somewhere to record their minutes, they don't have anything to show as evidence that such thing have been done. So documentation is a big issue'

and some respondents were unsure about conflict resolution processes:

'[T]hey have given us the project and money but they have not informed us of where to direct our complaint. We are not aware of the channel to follow'

When discussing benefit sharing respondents were confident that outcomes reflected the democratic decisions of local stakeholders but also conceded that this sometimes meant minority groups, such as 'outsiders' (people who had come to the communities from different places or different ethnic groups, including people who had married local residents), could be excluded:

'Those who came earlier, others are married [to local residents], have children and even have grandchildren but are still referred to as outsiders and have no rights to get anything'

Selective codes—Relationship and transparency

Openness in procedures and benefit sharing has been and remains key in overcoming suspicion and reassuring people that procedures are fair:

'[W]hen it [money] is brought, community members must go and witness! We are even shown the receipts of how money was used and we are satisfied'

'It's ourselves who sat down and chose [the committee]. It was not a secret. ..the chief came and I was introduced to everyone. Everybody witnessed that these are the ones chosen.'

3.2.3 | Recognitional justice

Quotes presented here relate to perceived as well as declared recognition, often touching on issues of trust. They include how stakeholders imagine these projects present their communities to the world and how they hope to be seen and recognised as conservation champions.

Selective codes—Relationships and transparency

Both communities have long experience of conservation and development projects with a mixed history of success. For some people, this created initial suspicion when the projects were initiated:

'[T]he community members were also afraid that we will just be used as the stepping stone while other people benefit, this has been so much common and it created fear to the communities.'

Although respondents expressed confidence in how the projects were supported by international stakeholders, suspicion of government structures and motivations was common:

'I can say that the people from outside Kenya support us but the Government of Kenya does not. How come they have not planned to visit us even for a day?'

Selective codes—Community ownership and pride

Most respondents communicated a clear sense of ownership of the projects and agency over how they operated and there was awareness and pride of how the projects were seen and recognised internationally:

'[T]he community is the one that decides on whether to buy medicine, pay for school teachers, madrasa teachers or they will buy books. The community itself ...decides'

'This project goes well, and if it's not going well, we are there to supervise. If there are problems, we say the truth.'

'[T]hey [people outside of Kenya] should think of us as being the best in the conservation of mangroves.'

'I would like that on my side, the president himself should know about his citizens from Vanga, because Vanga is in the furthest corner of the Kenyan map. But he should be aware that there is something designed in Vanga which helps the whole world.'

3.3 | Project coordinator observations

Forty-eight separate critical incidents were recorded by coordinators (28 from Mikoko Pamoja and 21 from Vanga Blue Forest). There were 34 'explicit' exercises of power and 20 'covert' examples (these numbers do not sum to 48, since some incidents were judged to contain both types) with 24 judged 'positive' and 30 'negative'. The most frequently recorded category of incident (with three times more records than the next most frequent) was 'exercise of power'. Here, we summarise the top five categories of incident (which covered 75% of those recorded) ranked in order of frequency:

3.3.1 | Exercise of power

This category referred to occasions when one or more individual was thought to use their social position to influence a decision. These occasions included explicit and positive examples, such as when a village elder discussed their knowledge of seagrass and explained why a decision about a protected area should be changed. They also included covert and negative examples. One such incident involved a village elder and committee member giving private permission to cut trees, in contradiction to committee rules, but because of his personal authority in the village.

3.3.2 | Social roles

This category was used to describe a perception that decisions were influenced by societal norms (such as gender roles) but which did not depend on one or a few individuals. All the examples here referred to the relatively small contribution of most women in some open meetings, with an inference made that this reflected the traditionally subservient status of women in the society.

3.3.3 | Governance structures

This category referred to instances when the formal structures of governance were seen to enhance or inhibit positive exercise of power. For example, the ability to convene extra-ordinary governance meetings was used to arrange a formal gathering that led to the resolution of conflicts around a proposed protected area. A negative example was when ambiguity in the contractual arrangements between the committee and a collaborating but separate project in the area led to conflicts over payments and benefit sharing.

3.3.4 | Corruption

Instances when it was suspected that individuals attempted to benefit materially in ways that contravened laws or the constitution.

Three such events occurred, all involving interactions with third parties. For example, some officials in a separate but related community body asked for personal payments to prioritise work.

3.3.5 | Trust

This category often included examples in which transparency and knowledge of process played a part. A negative example was when some committee members became suspicious that money had gone missing following delays in payment; this was resolved only after showing letters from an international partner explaining the delays and discussing again the convoluted chain between carbon buyer and local expenditure. Positive examples involved public appreciation of community development projects, such as new buildings, translating into easier communal decision-making because of enhanced trust.

4 | DISCUSSION

Our primary aim was to use a range of methods to understand how justice is conceptualised and perceived in two blue carbon projects, with particular emphasis on the views of local people. We hoped this would allow an assessment of the relevance of abstract notions of justice, such as Rawls' original position, and theoretical critiques of PES, including dangers of commodification and elite capture, in this institutional and cultural setting.

Rawls' underlying conception of justice is distributional, and he shares this with most of our respondents. There was a strong emphasis on the distribution of benefits from these PES projects. Whilst generally seen as fair, respondents acknowledged that some minority groups may be excluded. This outcome was anticipated in our 'original position' heuristic exercise, but other perspectives illustrated that were not reflected at the community level. Some of these discrepancies reflected differences in knowledge about how carbon markets and trading work. For example, the original position exercise identified the dominant recognition currently given to buyers in the carbon PES landscape as unfair. This was not explicitly raised by local people (although calls for more income and other benefits could relate indirectly to it); given the complexity involved this is unsurprising. Numerous comments related to the difficulty in understanding all the technical, legal and financial processes involved in bringing carbon benefits, so the gap shows how differences in knowledge and experience in an original position exercise will inevitably influence perspectives on justice. Other discrepancies were more conceptual. For example, the current recognition given to non-human species and future generations was seen in the exercise as unfairly small. These views were not raised by local stakeholders; when they did mention biodiversity, it was mostly in the context of direct services to humans. The exercise thus illustrates what are likely to be fundamental differences in worldviews between local stakeholders and the authorial team (although the literature on

Rawls discusses how involving non-human animals in any conception of a social contract is particularly challenging; Garner, 2013). Likewise, some community perspectives were not anticipated by the authors. For example, there was a frequent and usually negative comment on the role of government as a key stakeholder; it seems that many local people think the balance, particularly in recognition, between community and government is currently unfair. However, we did not include government as a separate party in our original exercise.

There was less explicit discussion of procedural and recognitional elements of justice, a finding that contrasts with the text of many high-level policies, such as the UNFCCC Safeguards and the Paris Agreement, which have a strong focus on these elements but little on distribution. We endorse the importance of recognition in conservation and development work and understand how failures to respect this can lead to injustice (Martin et al., 2016). The high levels of local agency and control expressed by respondents here suggest general satisfaction with recognitional and procedural issues (although participant observations showed how full recognition may not always be achieved, for example, due to social norms tacitly silencing some women and local elites looking to secure influential positions). The dominant focus of local stakeholders was on distribution. This may reflect how the recognitional and procedural guidelines embedded in international and local policy documents for these projects are doing their work, in contrast with the less codified, more contentious, and arguably more important question of how costs and benefits are distributed.

Critics of conservation work that uses market innovations (such as PES) often warn against elite capture and commodification. Our results show how such concerns need to be contextualised. On elite capture, some stakeholders see the employment of 'outsiders' (Kenyan graduates not from local villages) as a missed opportunity for local people. Following international standards, project coordinator jobs are advertised for any qualified candidates. Here is a clear conflict between two different conceptions of justice, with local stakeholders emphasising distributional outcomes and current project practice following Western procedural norms. It shows that the notion of 'elite capture' needs careful application; here, the elite in question are young Kenyans who have secured modestly paid employment through open competition. How to respect local views, whilst recognising employment law and avoiding nepotism, is a difficult challenge that requires open and trusting discussion. The need for graduate-level skills in some project jobs forms part of the context for this conflict since this excludes most local candidates. The need arises from the complex monitoring, governance and reporting requirements established by carbon standards and international norms. Hence such norms, even when ostensibly concerned only with technical issues of carbon or biodiversity measurement and driven by well-meaning considerations of good governance, have implications for justice that may be negative. The values associated with nature differ between cultures, and contextual recognition of this in flexible PES design can help increase conservation success (Lliso et al., 2022); our results support similar flexibility for justice.

Local stakeholders did raise problems linked with the commodification of carbon, but not in the ways typically warned of by critics of PES. Assuming that allocating monetary values to nature will undermine other, indigenous perceptions risks condescension; here, respondents were familiar with markets and indeed eager to earn a fair price for the services their ecosystems provide. It is possible that responses were already framed by the context of discussing PES projects known to operate through bringing financial returns, although the fact that additional benefits and values, such as local pride in the projects, were raised argues against this. Regardless of the normative impacts, the complex chain of actions and actors needed to transmute sequestration by mangroves into income makes understanding and engaging with the process difficult; the main problem is one of complexification, rather than commodification. The financial and scientific elements of NbS PES projects are linked in this regard. An important tension is between technocentric and community-based discourses. The former emphasises scientific accuracy and economic efficiency and is oriented towards reassuring international policymakers and buyers of the probity of claimed carbon benefits. The latter considers local agency and project legitimacy (Wells et al., 2020). Projects must balance both and are often forced into trade-offs. For example, increasing the precision with which carbon flows are measured is likely to divert funds from community benefit and may require greater emphasis on skills and resources not available locally, which can reduce community ownership and understanding. Kent and Hannay (2020) cite examples of how technical complexity in carbon projects can lead to low participation by locals or be used as a justification for excluding local communities altogether. This is a particularly acute problem in novel settings and ecosystems such as blue carbon projects, where established protocols may be missing, there is greater scientific uncertainty and carbon measurements may be more expensive. Our 'original position' exercise reflected a belief that the procedural and recognitional elements of justice should be better balanced between the buyers and standards and other agents of justice, including indigenous groups. This trade-off between technical and participatory agendas illustrates why.

An appropriate response to market and regulatory demands for complex monitoring, reporting and evaluation is to invest in capacity building at the local level. This would be enthusiastically endorsed by many of our respondents, who called for more education, more training, and more opportunities. Some of the difficulties recorded during the participant observations also illustrate how training in governance, leadership and the carbon market might help local committees run more effectively. Resource constraints are the main limitations preventing this. Both case study projects rely on voluntary labour and in-kind support, from local and international stakeholders. The income from carbon sales at current market prices is not enough to make profits, employ permanent staff outside of Kenya or invest widely in all the many local needs, including in providing education that could compensate for severe local disadvantage. One interpretation of justice in this setting, therefore, is that any original position would involve more resources coming from the relatively

rich (especially buyers) to the poor (local custodians); but perhaps also to the international voluntary facilitators, such as volunteer marketers, sellers and students who contribute time and expertise in helping run the projects. As Neimark et al. (2020) point out, projects such as these rely on a new class of 'eco-preariat'—and this includes project developers and facilitators in the global North. Buyers should recognise that carbon prices need to rise to address this. In addition to climate benefits, forest carbon projects already attempt to facilitate many other SDG goals and are under regulatory and market pressure to do so (Milbank et al., 2018). A market that expects this and supports just outcomes must allow higher prices for carbon and avoid imperatives for economic 'efficiency' that squeeze out local engagement and contributions beyond carbon.

Global demand for nature-based carbon credits is growing rapidly (Koh et al., 2021). There is a particularly large gap between supply and demand for blue carbon credits; a recent market survey showed that 51% of asset managers saw opportunities for investment in blue carbon (Suisse, n.d.). Such investment could transform mangrove conservation. Up to 20% of the world's mangrove extent (~2.6 million ha) potentially qualifies for avoided deforestation carbon credits (Zeng et al., 2020). This could make an important contribution to slowing climate change, with potential carbon benefits from protection and restoration of blue carbon habitats equivalent to ~3% of annual anthropogenic emissions (Macreadie et al., 2021). There are legitimate concerns about the neo-colonialism and expropriation that such investment from the global North could imply (Beymer-Farris & Bassett, 2012). Our work shows such concerns are not intrinsic to NbS projects. Local stakeholders were proud of their projects and keen to expand them. Instead of expressing suspicion of international partners and markets, community stakeholders saw more conflict with government interests, supporting concerns that centralised 'programme' approaches to NbS may be less just than devolved 'nested' designs that allow greater local control (Sikor, 2013).

Our objectives included testing the salience of abstract ideas, drawn from the political philosophy, political ecology and environmental justice literature, in the novel context of blue carbon. We found that Rawls' thought experiment was a useful tool in anticipating certain issues. Some—such as the dangers of excluding marginal groups—were shared by local stakeholders. Some—such as the division between distribution, recognition and procedure—were deemed less important, perhaps reflecting the emphasis on the latter two in governing documents. Some—such as elite capture and commodification—had meanings in this context that were different from those typical to the literature, showing how technical decisions concerning project monitoring, reporting and valuation have justice implications. The exercise also helped to reveal what may be fundamental differences in perspectives and worldviews, such as the status of non-human animals, and flag-up agents, especially the government, seen as particularly important by some stakeholders but not by others. We recommend the original position thought experiment as a useful exercise for mixed teams of researchers and project staff, but only if combined with subsequent discussion with local stakeholders in the spirit of 'empirical justice'; the main value

emerges in identifying areas of congruence and difference. A genuine commitment to justice requires the hard work of understanding local perspectives. Conceptual and procedural guidelines are important, but even when they are motivated by concerns for local agencies (such as warning against elite capture and commodification) they need to be tested in context. NbS are essential to achieving the goals of the Paris Agreement (Girardin et al., 2021), but calls on governments and NGOs for greater efficiency and impact in NbS projects risks ignoring or undermining local agency. We call for more focus and research on this problem, including on how best to incorporate locally rooted projects into government programmes such as Nationally Determined Commitments under the Paris Agreement (Dencer-Brown et al., 2022). The details of distribution of benefits at the local level are of critical importance, but this must respond to the local context. Such details cannot, therefore, be stipulated at higher levels of policy (in contrast with broad principles of procedure and recognition). However, we believe the Plan Vivo approach, of setting a minimum threshold for local benefit, provides a useful model and could be used more broadly.

Ethics and strategy both demand that justice becomes first among virtues in nature-based solutions. The climate emergency is already punishing those least responsible whilst most carbon-rich habitats (and especially blue carbon ecosystems)—which must be enhanced for an effective global response—will only flourish if their local stewards are empowered to protect them. Rawls, Sen and the wider literature can help us achieve this, but listening to local people, learning from their perspectives, and modifying our understanding and approaches will always be needed.

AUTHOR CONTRIBUTIONS

Mark Huxham, Robyn Shilland, Amber Huff, Anne Kairu and Joseph K. Lang'at conceptualised and designed the study. Rahma Kivugo and Mwanarusi Mwafrica collected participant observer diaries. Anne Kairu collected interview and focus group data. Mark Huxham, Robyn Shilland and Anne Kairu conducted initial data analysis. Mark Huxham and Robyn Shilland led on writing, but all authors contributed.

ACKNOWLEDGEMENTS

We thank all those individuals in the Gazi and Vanga communities who volunteered their time for this work, and the committee members and chiefs who helped to recruit participants. We are also grateful to Caroline Wanjiru and Anita Ogilvie for their support and mentorship for the project (and dedicate this work to Caroline Wanjiru, who inspired and supported many and is sadly missed). Two referees, including Barbara Schröter, gave helpful comments on an earlier draft and Drs Alexander Rotich and Mohamed Karama assisted with the Swahili abstract.

CONFLICT OF INTEREST STATEMENT

Two authors, Rahma Kivugo and Mwanarusi Mwafrica, were employees of the projects studied during this research; this allowed them access, as participant observers. Mark Huxham and Robyn Shilland

are trustees of the charity ACES, which supports these projects. All interviews and focus groups were conducted by Anne Kairu, who has no connection with the projects and who reported raw data without input from other authors. Transcripts were independently scrutinised by three authors, Anne Kairu, Mark Huxham and Robyn Shilland.

DATA AVAILABILITY STATEMENT

Data used in this study can be sourced at the open data repository at Edinburgh Napier University: <https://doi.org/10.17869/ENU.2023.3090209>.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Supplementary Information 1. Indicative focus group questions.

How to cite this article: Huxham, M., Kairu, A., Lang'at, J. K., Kivugo, R., Mwafrika, M., Huff, A., & Shilland, R. (2023). Rawls in the mangrove: Perceptions of justice in nature-based solutions projects. *People and Nature*, 00, 1–15. <https://doi.org/10.1002/pan3.10498>