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Diverse voices, sticky maps and wicked patterns. Using creative methods to explore environmental justice

Clare Saunders
University of Exeter, Cornwall

Daksha Patel
Creative Fellow, University of Exeter, Cornwall

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Cover Page Footnote

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Diverse voices, sticky maps and wicked patterns. Using creative methods to explore environmental justice

Clare Saunders and Daksha Patel

Abstract

Environmental justice is multi-faceted. It is distributional, procedural and context inter-dependent. Achieving environmental justice therefore requires transdisciplinary thinking and collaborative practice with participants holding a variety of experiences and knowledges. This paper explores the different meanings of environmental justice in theory, and through artistic practices. It introduces and evaluates a series of creative workshops designed to enhance understanding of environmental justice. The workshops consisted of 1) image-informed co-created cross-national Zoom conversations; 2) using colours and shapes to tease out meanings of environmental justice; and 3) mapping local environmental injustices while centring more-than-humans. It proposes that these creative methods are useful for capturing the meaning of environmental justice and the challenges of attaining it. We consider that our creative methods hold promise for engaging wider communities in projects to foreground environmental justice in decision-making, helping to expose the complexities in distributional injustice as well as injustices to more-than-humans. We also believe that such methods hold promise for achieving parity in participation, so reducing procedural environmental injustice.

Introduction

In the time of the so-called Anthropocene (or Capitalocene), the geological era defined by human-made capitalism, the need for environmental justice – that is justice for people and

non-humans in the distribution of environmental harms and environmental gains – is ever more important (Ryder et al., 2021). The need to protect the poor from environmental injustices has long been recognised (Martinez-Alier, 2013). Yet environmental justice is difficult to obtain because of its complexity. It means different things to policy-makers than to affected communities (Holifield, 2001). It even means different things to individuals within a community. Communities notice and are affected by environmental injustices in diverse ways. Moreover, scholars take a wide array of views of what constitutes environmental justice. Some prefer a broad and inclusive definition (e.g. Holifield, 2001 and Schlosberg, 2007), and others prefer a narrow and exclusive one (e.g. Pellow, 2000). Like Holifield (2001) and Scholsberg (2007), we seek to retain the complexity of environmental justice rather than to shoe-horn it into a neat, narrow, analytical category.

We note that environmental justice is difficult to achieve not only because of its complexity, but also because achieving it requires participation of people from different parts of the world, including those with different worldviews and those more and less well-equipped to participate in 'democratic' institutions. The word democratic is placed in inverted commas because disempowered people, and people from non-Western cultural backgrounds, do not find political institutions to be particularly democratic; indeed, they often feel procedurally excluded from decision-making. In this paper, we show that creative methods are a promising way to map diverse ways of understanding environmental justice, and have significant potential to empower otherwise disempowered people to participate in activities that can help their concerns be recognised and acted upon.

We believe that one potentially important route to help understand *and* achieve environmental justice is to use co-creative and participatory transdisciplinary approaches, drawing together varieties of knowledges. Although we do not think there is such a thing as a one hundred percent object way of generating knowledge, due to social construction processes, we do not seek to discredit scientific ways of generating knowledge. Rather, we argue that our approach can help to contextualise, deepen and sometimes validate scientific knowledge. Put differently, we recognise that science can be useful in helping provide evidence to support quests for environmental justice. We do not think that science alone can generate injustice because of the huge variety of ways in which environmental justice is understood and experienced. After introducing the complexity of the term environmental justice, we outline and evaluate our use of creative and transdisciplinary activities as tools to better understand and achieve environmental justice. In a first step, we created an online dialogue of people across the world (UK, Sri Lanka, Tanzania), supported by pictures (photos or drawings) of things (scenes, species, places etc.) they found meaningful in relation to environmental justice. Participants were from a variety of places and of different ages to capture spatial and intergenerational justice. From these conversations, we produced a short film (see: https://www.artsandcultureexeter.co.uk/creative-fellowship/exploring-environmental-justice).

With a group of academics from different disciplines (including law, engineering and politics) we followed this up with conceptual work on the meaning of environmental justice; and a mapping activity. We argue that these are promising co-creative techniques for revealing routes towards more holistically environmentally just futures. We end the piece by evaluating these techniques and their potential for application in community settings.

Conceptualising environmental justice

Environmental justice has been brought into sharp relief through news breaking struggles over land use, land access and toxic pollution, such as the high profile cases of resistance to the Dakota Access and the Keystone pipelines on tribal lands the US (Gilio-Whitaker, 2019; Garza, 2021). But these are just the tip of the iceberg. Native American communities have been fighting hard for their rights to live on ancient ancestral tribal land for hundreds of years. Their access to tribal land and sacred practices, and rights to clean and healthy food and water have been dangerously jeopardised by settler colonialism and industrial capitalism. These forces have even attempted erase some native peoples from existence. Environmental injustices are perhaps most drastic in instances where people are separated from cultures that have allowed them to live in harmony with the world. However, we also need to look outside of once indigenous areas to get a fuller picture of environmental (in)justice. The negative environmental effects of industrial capitalism have also disproportionately affected other marginalised populations across the world, notably working class people, people of colour and women. Capitalism, by its nature, displaces environmental externalities in economically efficient ways (Faber, 2018). Those feeling the brunt get stuck in low income jobs in polluted areas, unable to afford a way out (Chancel, 2020), and ill-equipped to find a route of escape via so-called democratic processes.

The above paragraph is illustrative of the two main types of environmental injustice: distributive (pollution spread unfairly) and procedural (being disempowered to resist pollution) (Schlosberg, 2007). *Distributive approaches* to environmental justice dominated the early literature on environmental justice (e.g. Bullard, 1990). Work on distributive environmental injustice has seen environmental justice activists and scholars mapping and

correlating pollution and socio-demographics, an activity often revealing that marginalised people live closest to sites of toxic pollution (e.g. the famous Commission for Racial Justice / Church of Christ report, 1987). Spatial representation studies have made an important impact on the academic field, as well as on environmental justice in practice. However, they are not without issues in measurement: e.g. how does one accurately measure how a plume of toxic air pollution affects those living nearby in changing meteorological conditions (Chakrabarty, 2018)? And can such measurement account for emotional distress, other subjectivities and effects on more-than-human communities?

Procedural approaches are concerned with the 'democratic' processes that those suffering from environmental justice are required to confront in order to prevent pollution, or to redress it once it has happened. They recognise that decisions about industrial infrastructure or toxic waste sites are often made by people in power whose lives take place largely far away from the coalface of environmental externalities. Disempowered communities face huge disadvantages in relation to authority, power and influence (Bell and Carrick, 2018). These might be remedied with inclusive decision-making practices that purposively reduce power imbalances (Hunold and Young, 1998). Related to procedural injustice are the notions of recognition and capabilities. *Recognition* requires that decision-makers are attuned to noticing why, when and how others feel injustice. It requires understanding the ways in which differences (e.g. in culture, knowledge, agency and economy) can be a source of systematic wrongdoing (Whyte, 2018). Participatory parity – open and inclusive participation that recognises the validity of different types of knowledge – is a way to solve this (Schlosberg, 2007). *Capabilities* theory encourages us to think about how distribution of environmental gains, and fairness in the distribution of pollution, can help people to live fully functioning lives (Sen, 2005).

One of our most important observations about environmental justice, as a concept, is that it represents a diverse set of interests (Wenz, 1998; Holifield, 2001) that are at the same time contextually dependent and contextually independent. By this we mean that environmental injustice in one place has knock on effects on environmental injustice in other places, but is also experienced locally in nuanced and context-dependent ways. This is why Walker (2009) argues to move beyond Cartesian maps to incorporate socio-cultural meanings. He finds a plurality of perspectives useful because the space of environmental justice is not only distributional, but also political, institutional, identity-focused and community based, occurring in dynamic sets of flows. This is not dismiss the value of Cartesian approaches, but to see them as sources that require supplementation with broader knowledges. Similarly for Holifield (2001: 82) 'environmental justice will never unproblematically refer to a single set of measurable conditions such as the association between distributions of pollution and demographic characteristics'. Struggles for environmental justice are multifarious, drawing on a host of related social movements, including those for environmental quality, civil rights, health and safety, indigenous rights and workers' rights (Faber and McCarthy, 2001). Environmental justice is also fluid and moving. Notions of the meaning of race and racism (Pulido, 2018; Pulido and De Lara, 2018), and of gender (Gaard, 2018) are changing overtime, as are the ways in which they interact with environmental harms and gains. One important point to recognise is that environmental racism does not require intent to harm people who are racially different (Holifield, 2001).

Plurality need not equate to dilution of the concept of environmental justice or of environmental justice activism. Scholsberg (2007:179), for example, writes that

‘environmental justice movements demonstrate the power of a unity without uniformity as they illustrate environmental justice on so many dimensions simultaneously’. For all of these reasons, the study and resolution of environmental injustices necessitate a transdisciplinary and applied approach that recognises its complexity. We need to account for the multiple dimensions, multiple interpretations, multiple temporalities, multiple spatialities and multiple types (distributional, procedural, intergenerational and more) of environmental justice and the ways in which these multiplicities necessitate drawing on more-than-science knowledges. To reiterate: we do not discount science, but stress the need for it to be enhanced with pluralistic approaches.

We also note that a distinction is sometimes made between environmental justice and ecological justice. Environmental justice is a term often used to refer mainly to justice for people, whereas ecological justice decentres people, referring to justice for not only people, but also more-than-humans and earth processes. Schlosberg (2007) famously shows how the ecological and environmental justice are quite closely related by revealing the ways in which distribution, procedure, recognition and capability apply to both. We therefore chose to use the term ‘environmental justice’ as a generic term covering what are elsewhere sometimes known separately as environmental justice and ecological justice. We simply extend the meaning of the word community to encompass humans and more-than-humans. Although other species cannot participate directly in our decision-making processes, we can have them at the forefront of our minds when thinking through environmental justice (Schlosberg, 2007). As we show in the next section, we purposively sought to bring other-than-humans firmly into our co-created creative activities. All creative activities were conceived by Daksha Patel during a Creative Fellowship, and refined through ongoing transdisciplinary discussions.

Our creative activities: the why, the what and the how

Why arts for environmental justice?

As we highlighted above, diversity and recognition are key to securing a holistic form of environmental justice. These are perhaps more easily obtainable through creative methods than standard social science methodologies. Arts facilitate diversity and recognition by allowing multiple voices to be heard, opening up new processes of thinking and deeper levels of subjectivity. We believe that art is an essential medium for helping to deal with difficult cultural, social and political issues like environmental problems and social justice, and especially their intersection. Collaborative drawing, in particular, has the benefits of creating an interactive and embodied creative space to help research participants to loosen up, revealing connections between patterns of complex ideas. It helps participants and scholars to move them beyond linear representations and escape the constraints of written words (Zweifel and Van Wezemael, 2021). Sze (2015) highlights the importance of creative collaborations to generate art and action for environmental justice in contemporary times by using the term 'Sweet Art of the Anthropocene'.

Arts also have significant potential to centre other-than-human aspects of environmental justice. Haraway (2009) emphasises the importance of getting in touch with non-human kin and using creative methods do to so. She writes that 'generative, multi-species environmental justice must be as much about play, storytelling and joy as about work, critique and pain' (Haraway 2009: 102). The Shadow Places Collective has similar aspirations. This is a recently established network of environmental justice scholars that promotes the use of arts to help develop feelings and meanings with non-human matters in the 'shadow places' that

capitalism ignores, side lines or abuses. It argues that the arts are especially useful for developing ethical relationality, community, place identification, care, responsibility and reciprocity through the 'diffracting of meaning making through the material world' (Potter et al 2022, p.285). How did we design activities that fulfil the expectations of Sweet Art of the Anthropocene?

Our activities

Diverse Voices: Cross-national Zoom Conversations

Our first creative activity consisted of a series of Zoom calls involving a mix of students and lecturers from a university in each of Sri Lanka, Tanzania and the UK to encourage Global-South Global-North and intergenerational dialogue. Participants were invited to join in the discussions after completing an online screening questionnaire. We called the series of talks 'Diverse Voices' purposefully capturing the multifarious nature of environmental justice by involving people from contrasting backgrounds, across a range of ages. In the questionnaire, we asked them to briefly answer 'what does the term environmental justice mean to you'. Of 35 responses (10 Sri Lankans, 18 Tanzanians and 7 UK participants), only four centred other-than-humans (e.g. '*justice for everything that surrounding [sic] human beings*'). Most recognised distributive justice (e.g. '*Environmental justice is the fair exposure of poor and marginalized communities to harms from disasters, natural resource uses, and land uses*'). But only a small minority also mentioned procedural justice (e.g. '*Environmental Justice ensures the involvement of all stakeholders, and all different types of people/communities/voices, in the fight for environmental protection and conservation. In order to help mitigate and effective overcome this global issue, it is vital to understand how,*

and in what way, different groups/areas have different lived experiences. The only way to effectively do this is to encourage collaboration with multiple different actors').

To facilitate meaningful conversations, the Zoom conversations were carefully structured and hosted by the artist. First, participants were asked to upload to Padlet.org a drawing or photograph representing something local that was meaningful to them in relation to environmental justice. This pre-Zoom activity created an opportunity for reflection prior to conversations. Everyone introduced themselves by speaking about their chosen image and explaining why it was important to them. The diversity of imagery was striking, and this simple method offered a very personal and natural way for everyone to share affecting and poignant stories. Images are powerful tools of communication, particularly when participants have different levels of English language competency. Participants were also asked to send us questions they wanted to ask of others, which we shared during Zoom conversations to keep them participant-led. Equality in having a voice and being heard were central premises of Diverse Voices. To ensure this, the Zoom calls were structured around timed turn taking, and participants were paired across countries to ask (and answer) a question chosen from the list. Discussions followed naturally from this process. In total we held three creative video exchanges, with 2-6 cross-national participants in each.

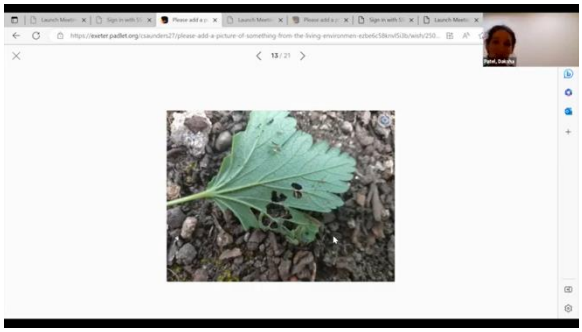
The discussions revealed some highly contextualised differences in conceptualisations of environmental justice, often reflecting the experiences of living in different countries. A Tanzanian participant talked at length about the effect of a drying up stream near some semi-subsistence villages, which contrasted with the pictures of semi-urbanised home gardens of some of our UK participants. Survival, culture and dependence were more common themes

among Global South participants. A Sri Lankan participant posted a picture of a beautiful marine environment and commented on '*how the people are using the sea for their survival … their lives depend on water*' and a Tanzanian man emphasised the importance of '*raw materials*' to '*developing countries*' and how these are turned into commodities with profits made elsewhere. We show screenshots of the stream, the home gardens and the sea, to which we referred above, in Figure 1.

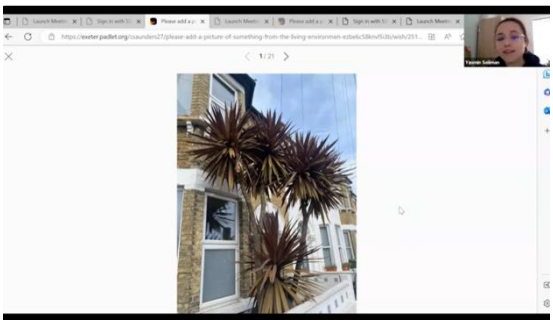
Figure 1: Screenshots and quotes from the Zoom conversations

'*This area is a farm … last time it had a lot of water. People used it to grow crops*' (Tanzania)

'*This picture is explaining how people are using the sea for their survival*' (Jaffna, Sri Lanka)



'*This is a gooseberry leaf … I grow it in my home … the sawfly loves gooseberry leaves …[But] actually my gooseberry plant doesn't mind being eaten that much …We can all have enough if we can be kind and compassionate*' (UK, South West England)



'*This image … represents home to me. I've lived here my whole life. …While this is a manufactured version of the natural world … it represents environmental justice to me because it is a microcosm of how people see home*' (UK, South West England)

Notes: respondents gave permission for us to use their words and images in videography and publication.

There was also some emphasis on procedural environmental justice. A male Tanzanian participant commented that the voices of those suffering the most from environmental injustice are '*always mute*'. A British woman highlighted the importance of hearing '*different forms of knowledge that different people have*'. She alluded to procedural parity when she commented that '*the way you get no one to be opposed [to a decision related to environmental justice] is to have everyone present*'. Key points of discussion common across participants from different backgrounds included the role of rich countries in redressing their pollution (especially greenhouse gas emissions), the need for nature and humans to be kept in balance (a Sri Lankan woman noted that '*humans are meddling with that balance*') and the role of students in taking up the fight for environmental justice. Participants from a variety of backgrounds talked about moving environmental justice away from '*us*' (i.e. humans) to thinking about the broader impacts on the environment and other species. A Tanzanian woman put this most eloquently when she emphasised the importance of '*taking care of the environment so that the environment can take care of us requires a group of people acting together as one army*'.

To set the scene for our workshops with academics from a range of disciplines, we showed a seven-minutes edited cut of the three hours of Zoom video coverage. Moreover, to centre more-than-humans, we decorated the room with natural artefacts (see Figure 2) and had natural sounds playing over the speakers in the room (bird song and running water).

Figure 2. Centring more-than-humans with natural artefacts

Note: photo credit Daksha Patel

Exploring pragmatic and principled forms of environmental justice

In early scholarly work on environmental justice, the term environmental justice referred to land free from toxic hazards. But this definition has changed over time to increasingly refer, additionally, to other species, earth processes and their interplay. With the aid of coloured pens, large sheets of paper, and an oval diagram (see Figure 3), we charted different meanings of the environment, and of justice for the environment, and compared and contrasted weak (tokenistic) and strong (holistic) versions of environmental justice. We ran these activities, with seven academics in each session. The participants had academic expertise in environmental politics, environmental law, anthropology, climate change, renewable energy, mining, geography, and ecology. One participant claimed to be transdisciplinary.

Figure 3. Charting different meanings of environmental justice

Note: photo credit Daksha Patel

The environment was represented by participants at a range of scales, from planetary to microcosmic and from village to mega-city. As in the Diverse Voices conversations, the need for balance between species was a recurring point, but dynamism and change were also mentioned. Some wrote of Mother Earth and Gaia. The larger context of the Anthropocene also featured, recognising the increasing complexity and unpredictability of interactions between humans, webs of life and Earth processes.

In the next concentric oval, we asked participants to write down as many phrases as possible answering the question 'What do we mean by justice in relation to the environment?'. The range of responses that came back focused on people and processes. In relation to people, comments included recognising our responsibility to enact justice, as well as our latent and manifest power. In relation to processes, respondents mentioned policies and laws as formal mechanisms for environmental justice, nested in broader sets of socio-cultural processes.

True to procedural forms of democracy, participation was deemed crucial as was restoration, rebalancing, repatriation and decolonisation.

The final oval identified shallow (tokenistic, incremental) and deep (genuine, holistic) forms of environmental justice, which were later entered onto a different sheet of large paper. Deep forms of environmental justice were written about in green pens, and weak forms in red pens. Participants wrote the advantages above the name of the approach and the disadvantages below (Figure 4). We discovered that principled approaches are holistic but difficult to achieve, and that pragmatic ones might be inadequate alone, but could be stepping stones toward more holistic forms. On the challenges of delivering deep approaches to environmental justice one of our participants commented:

> '*the deeper aspect isn't as visible because … sometimes you can't comprehend the Earth because it's so vast. And the structures and the things we need to think about it are vast. So it's very difficult to pick on one thing or another as action and that's why they are deep. You see the waves on the surface, but it's the deep ocean that actually is one of the conveyor belts of the planet*.'

And although the overall sentiment was that smaller actions can add up and change minds along the way, there were some concerns that shallow environmental justice solutions (e.g. switching fossil fuel powered cars to electric cars) were just creating new sets of problems. This is illustrated nicely in the interchange, below, between three participants:

> '*I think shallow means externalising environmental problems … I mean whales are still recovering from [whale] oil [use] ... And then [fossil fuel] oil solves the whale problem but creates a whole new set of problems, and then they solved the lead problem and*

now it's CO2 and it also solved the horse manure problem in all the streets. So I'm scared that electric vehicles are going to have problems we're not even aware of yet.'

'*It feels like pushing pieces around a board. Just a transfer of matter rather than actual change.*'

'*Kind of like whack a mole!*'

Figure 4. Principled and pragmatic forms of environmental justice

Wicked Patterns and Sticky Maps: Mapping environmental justice

In a final exercise with a cross-disciplinary group of academics, we mapped local environmental injustices. Why map environmental injustice? Maps are a highly intuitive and useful way of understanding the distribution of environmental injustices in their multiple dimensions, recognising and capturing multiple subjectivities, when co-created. Indeed, as we already explored they are the main analytical technique used to understand the risks of pollution on particular socio-demographic groups. But they are also – if co-created with publics – an excellent way to generate parity in decision-making. If consensus is not possible

across multiple conflicting groups, they at least bring to the fore sets of conflicting interests that be adjudicated through further careful deliberation. Embodied engagement in environmental justice research is highly recommended in order to make a difference to the world and to properly connect diverse knowledges. Mapping has the advantage of being able to mobilise intersecting concerns (de Onis and Pezzullo 2018).

In a pilot run of the mapping exercise, we discovered that some participants had reservations about drawing. To overcome this, Daksha Patel, the project's Creative Fellow, developed some simple, easy to copy examples of images that participants could straighforwardly replicate. A simple drawing of a footprint was used to unleash participants' inner-artist and to represent different types of human communities that exist locally. These were drawn in different colours and mapped in key locations to represent tourists, local communities, landowners, industry, fishing interests, conservationists and students. Following this, and to ensure more-than-humans were centred, we broke participants into small groups to map different types of species: invertebrates, amphibians, fauna, fungi, mammals, freshwater species, birds and marine and coastal life. Finally, we encouraged sites of industry and habitats to be mapped (Figure 5). We asked participants to write on the map what the different communities (human and more-than-human) required to thrive; and what the barriers were to them thriving. Interestingly, once our 'map' was populated with drawings over time, participants became increasingly confident and some very lovely examples emerged (Figure 5, left panel).

Figure 5. Mapping more than human environmental (in)justice

Note: photo credit Daksha Patel.

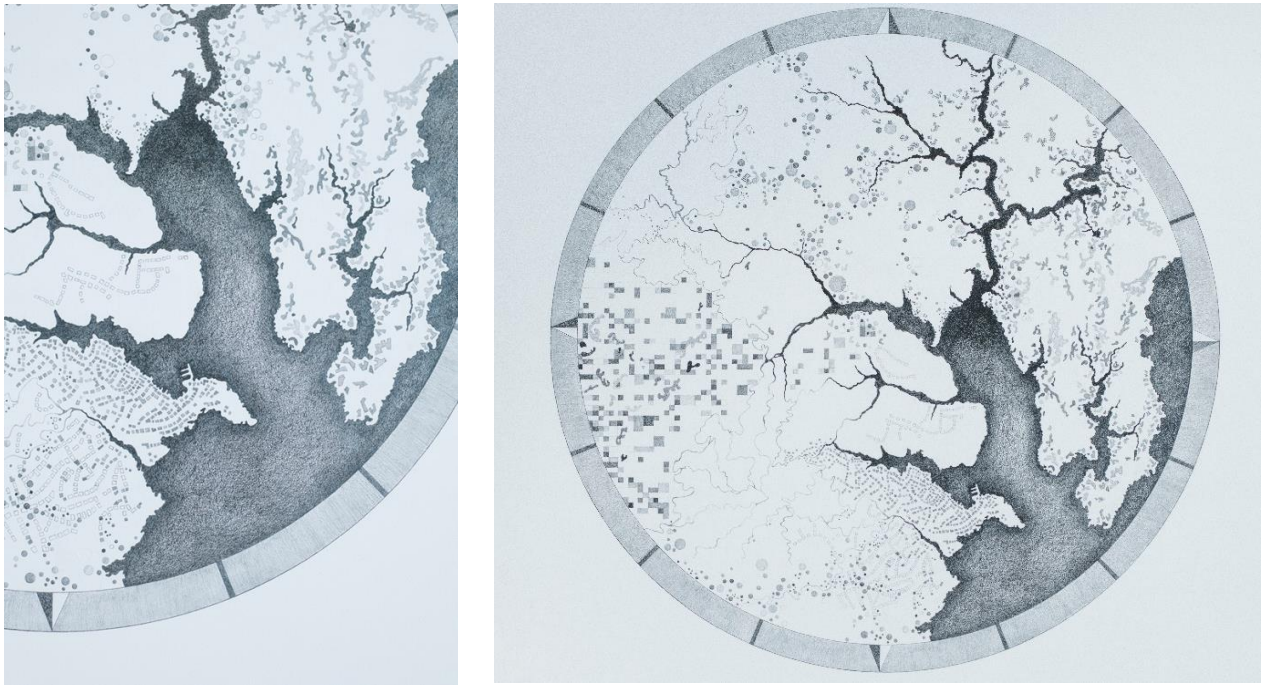
The exercise revealed complex entanglements of environmental injustices that are necessary for planners and policy-makers to understand to develop 'recognition' for human and more-than-human communities. The needs of industry, fishing, conservation, tourists and locals often clash, but must be considered together in participatory contexts to begin to work towards compromises that do the least harm to all.

Sticky Wicked

Our work has legacy in the form of an art installation at the centre of our university campus. *Sticky Wicked*, by Daksha Patel, is a large-scale (1.3m diameter) wall drawing, representing the local estuary and geography surrounding the university campus (Figure 6). It is framed within a circle, with compass points, suggesting a globe. This represents the relationship between local 'situated knowledges' (Haraway, 1988) and global knowledges that are so integral to environmental justice. The medium of graphite pencil was used for the drawing because of the centrality of carbon to the environmental crisis. Hand-drawn symbols typically

used in cartography and ecological data-mapping were layered within the map to represent information about human habitations, diverse natural habitats and diverse species in the locality. Environmental maps often focus upon a specific theme or issue, such as sites of pollution, protected area or species. *Sticky Wicked* merges and layers diverse data about humans and more-than-humans, blurring the boundaries between them. The work evolved out of the previous mapping workshops in which the needs of different groups of humans and more-than-human life (what they need to thrive) were represented through drawing and text.

Figure 6. Sticky Wicked: The art installation on our University campus



Note: photo credit Daksha Patel

Nevertheless, the artwork makes no claims to be an objective representation. Instead, it creates a space for reflecting upon the conflicting needs (and potential symbiotic relationships) of humans, non-human kin and earth processes within the local environment. It purposively draws on critical cartography theory (Harley, 1989, 2002), recognising that maps

are entangled in power/knowledge and are not usually one hundred per cent scientifically objective or straightforwardly truthful. Indeed, Kitchin and Dodge (2007: 235) argue that maps have no ontological security and are practices that are 'constantly in a state of becoming'. Artists are increasingly interested in alternative forms of mapping (counter-mapping), and despite the ubiquity of digital data-mapping technologies, there is a resurgence of interest in drawing (Rekacewicz, 2021: 228). The process of drawing, with its qualities of contingency, fluidity and contextualisation is pertinent to counter mapping practices. Rekacewicz (2021: 230) asserts 'hand-drafted maps symbolize a world in perpetual motion'. Drawing is a 'sticky' (von Hippel, 1994) method that compels people to pay close, sustained attention both in looking and making. It is an apt medium for reflecting upon the 'wicked' complexities and contradictions of environmental issues and the quest for environmental justice.

Evaluating our use of creative practices to explore environmental justice

Our methods of evaluation are three-fold: short qualitative questionnaires from ten participants in the workshops, a 30-minute focus group after the creative mapping exercise and reflections from two experts. Our expert evaluators were Clifton Evers, Senior Lecturer in Media and Cultural Studies at Newcastle University and Saskia Vermeylan, Reader (Associate Professor) in Law at the University of Strathclyde. Both use creative practices to work towards environmental justice. The participants' reflections centred around the benefits of the exercise for stimulating thought processes by visualising environmental justices together, for managing emotions and as a basis for community action.

Stimulating thinking

One central outcome seems to be the generation of contextually grounded holistic environmental justice thinking. Respondents repeatedly commented on how the workshops helped them to think things through differently. One mentioned that they previously had only thought of environmental justice in relation to environmental damages inflicted on the Global South by institutions and corporations in the Global North. They found it fascinating to have a vehicle through which to think through local applications of the principles of environmental justice. In relation to holism, another commented that '*it brought the focus to different species and … communities*' (Focus group participant 2). In addition, the non-threatening gentle way of talking about difficult issues was very much appreciated by our participants. Questionnaire respondent D, for example, claimed that, for her, the workshops facilitated:

> '*looking at issues holistically, building up relationships in a non-threatening way, breaking down economic hierarchies, providing opportunities for people to show their different, specific knowledge [and] showing academics how little they actually know*.'

Visualising environmental justice

The visualisation of environmental justice in the mapping exercise was deemed particularly useful in moving beyond linear thinking. In general, scribbling and drawing helps our respondents to '*think tangentially*' allowing them to '*nest their ideas*' (Focus group participant 1). In the words of focus group participant 4:

> '*I think it wouldn't work on a computer so well. You are forced to think line-by-line on a computer. You can't do sketches and put arrows in every direction. You can't do that on a computer*'.

Moreover, the practice of mapping environmental (in)justices, and the resultant piece proved '*very useful to visualise the local shared landscape – to appreciate that there are particular pinch-points of multiple land users*' (questionnaire respondent H). It showed the ways in which '*we are connected, the land, the sea, the living creatures and the earth system. Everything we put on the map matters*' (questionnaire respondent E). Another questionnaire respondent (A) claimed that '*I feel a bit more aware of competing interests between different groups – including non-humans*'.

Managing emotions

Our focus group respondents were unanimous in their view that drawing put them '*into the zone*' (focus group participant 2), which was a calm place of self-reflection. They were '*connected to the page*' (focus group participant 3). In the words of focus group participant 1:

> '*I find it [drawing] quite a self-absorbed little space and focused. That's why it's calming because it's focused on the task at hand … but in terms of connecting with people while I'm in the act of drawing, I didn't have conversations, they kind of washed over me*'.

Many respondents found their self-absorption therapeutic. There were several comments about the workshops being fun, joyful, relaxing and enjoyable. Questionnaire respondent H wrote that one of the benefits of the creativity was to '*calm your nervous system during difficult conversations*'. Another claimed that:

> *'I found it tense working with the deep and the shallow, but this [the drawing] really calmed me down. It was nice to work with my right brain a little bit and just visualise … it was nice to organise ideas mentally'* (focus group respondent 2).

The use of '*different parts of the body and brain*' (questionnaire respondent C) made the often tense environment of group work more enjoyable for many. Taking a half day out of the usual grind of work was welcomed and helped to create a relaxed (at times!) working environment.

A basis for community action

For one of the respondents, the visualisation was particularly useful for helping her to identify areas that could be worked on more closely with stakeholders (Focus group participant 1). In a questionnaire response, the same respondent commented on how she was thinking of using a similar creative approach in her own work at the research proposal stage as a way to foreground environmental justice in preference to making matters of social justice an add-on or afterthought.

Another commented that the work made them '*think about the longevity of diffractive approaches like this*' and their potential for '*long term action and embodied change*' (Questionnaire respondent B). Moreover, the activities were considered to be inclusive, allowing '*people to respond or think in different ways*', opening up their potential to achieve more than a modicum of participatory parity.

Other themes

We also received some constructive criticisms from our respondents. There was some recognition that neuro-diverse and disabled participants may struggle to participate in the activities (Questionnaire C). '*From an inclusion point of view, some elements might have*

raised barriers'. Moreover, a few participants suggested that we should '*invite more specialists and stakeholders of different areas*' (Questionnaire B), and that a tighter focus might be useful. Questionnaire respondent C, for example suggested that we '*take a particular issue / location / community and really explore that*'. Working outdoors and outside of academia within multiple meaningful contexts, and grounding people's knowledge was also suggested (questionnaire respondent I). This chimes with focus group respondent 5's comment that '*it would be interesting doing it with lots of different groups*'.

Our experts' feedback

Our two creative environmental justice experts were very praiseworthy of our work. Clifton Evers claimed that we were 'ahead of the game' and it was 'refreshing to see this work, so central to Green Humanities taking place'. He stressed the importance of using the next stage of our work to reach communities and activists, but also to centre Humanities in an environment where there is a tendency for governments and policy-makers to priorities STEM (science, technology, engineering and maths) subjects. In his words:

> *I work with multi-disciplinary research teams on environmental justice. A growing need is placing the humanities on equal footing to the 'hard sciences' as we work out how to adapt, survive, and heal. A key part of the multidisciplinary and subsequent interdisciplinary research has been in the first instance working through epistemological and ontological questions that provide the conditions for going beyond established thinking, action and structures that have caused the climate catastrophe in the first place. The creative arts are a productive way of doing that productive epistemological and ontological work. Together and through the art we*

ask: how can we assemble differently and what may be the justice effects of the arrangements?

Saskia Vermeylen pointed us towards some useful resources that provide ideas for where we can take the work next, also pushing us towards the activism-community-scholar nexus. Among the resources she identified for us to consider are Sria Chatterjee's conversation piece on 'The Arts, Environmental Justice, and the Ecological Crisis' in British Art Studies. It points to the challenges of using arts as a form of activism for environmental justice that combines theory and practice while being mindful of representation, colonialism and the unsustainable structures and contexts within which art takes place.

Presenting our collectively produced artwork is another challenge raised by Vermeylen. Our current work is presented herein as a standard academic article, but it is published alongside a carefully curated blog post that sheds more light into Daksha Patel's creative practice, rather like Hameed Ayesha's (2019) script that accompanies her multi-media work on slavery. Our mapping work also has the potential to take the form of a public art project in closer collaboration with public communities. Vermeylen also raised our awareness of Margaret Pearce's Mississippi Dialogues project, which uses public art and Indigenous knowledge on water and flooding to generate future oriented map-based imaginaries of flood management. Throughout 2024 we look forward to following Pearce's outdoor exhibition that will support public decisions and raise awareness. We are keen to learn from previous related projects to help develop a civic and useful form of scholarship on environmental justice.

Conclusion: Creative practices for a civic and useful form of scholarship on environmental justice

Our work chimes very much with existing work on the benefits of creative methods to tackle difficult (sticky and wicked) problems like attaining environmental justice (The Shadow Places Collective, 2022; Haraway, 2018). The benefits of art for our participants and for our understandings of environmental justice are clear. We have been able to engage in honest, non-linear and messy, collaborative and subjective thinking to reveal how environmental injustices interweave through different parts of the physical, economic, social and cultural environment. Issues that might be expected to result in conflict and negative feelings were gently weaved into the peaceful tapestry of our collective artwork. We are, nonetheless, aware that we were working with a small group of participants where potential for conflict is much lower than in a community setting, which is why we propose to work with different sectors of the community in separate exercises, overlaying the complex results ourselves before working on a deliberatively democratic way of bringing different groups together.

The sectors of the community we would like to work with include local communities, agricultural workers, students, fisher people, conservationists, technological companies, schools, mining companies, tourists etc. Indeed, community involvement is often seen as central to securing environmental justice (Wilson et al., 2018). We are building up to develop a series of co-created workshops, mapping environmental (in)justice using a variety of media, with the media tailored to the preferences of the user-groups. Schoolchildren, for example, may want to use paint; coastal residents may desire to use sand and shells; miners may prefer rocky substrate; and fisher people artefacts from the sea. The decisions on media will not be ours, but will be the choices of our co-creative partners.

We envisage a 3D piece of artwork that scales the different multi-media maps collected from different community groups, which can be used in future planning for environmental justice. We believe it crucial to foreground environmental justice in planning for the future rather than it being a tokenistic add-on. This is especially important in the quest for Net Zero, where new technologies will result in different sets of winners and losers, generating fresh 'whack a mole' challenges if their justice implications are not thought through in advance by multiple transdisciplinary stakeholders.

There are additional multiple benefits of our approach: making difficult conversations fun, being inclusive (and mindful of not being able-ist), securing participatory parity – including of more-than-humans by centring them – and mobilising multiple knowledges without prioritising one form over the other. For Haklay and Francis (2018) future hopes for environmental justice hinge on using participatory GIS. Our proposal for further research is for a modified version of GIS, producing publicly accessible carefully created 3D multi-media 'Sweet Art for the Anthropocene' (Sze, 2015) under our motto of 'Justice for People, Species, Living Systems and Earth Processes'. Once we have mastered this work at the local scale, we can consider upscaling to the national and global (while always carefully nesting the local). Bringing globally diverse voices to a multi-media 3D participatory mapping exercise is our ultimate challenge, combining the lessons learned herein.

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