Research

Challenges and opportunities of using applied theatre in environmental decision-making: the views of practitioners

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ABSTRACT. Applied theatre techniques are emerging in the environmental realm as promising methods for better representing local people's values in decision-making. These are dramaturgic activities conducted outside ordinary theatre institutions to discuss conflicts based on power differences. We purposively interviewed practitioners who have been part of environmental research projects that have implemented applied theatre techniques in the Global South, including professors, research assistants, postdoctoral researchers, and postgraduate students. Their projects explored aspects such as (a) the extent to which these techniques can enable dialogues on values and power differences, (b) the practicality of implementing these techniques, and (c) open spaces for transformation. Practitioners described how local people negotiated their plural values through applied theatre, and how the techniques create opportunities for reflection on how local people experience power differences, thus fostering some agency for people to bring their own experiences and needs to the discussion. As such, we identified applied theatre as a technique for fostering social-ecological transformations, and thus encouraging small but meaningful changes. However, to be successful, it requires creating "safe-enough" spaces for discussions and implementing an ethics of care. Despite the opportunities presented by these techniques in these projects, further research is needed on the long-term impacts of applied theatre on promoting social-ecological changes.

Key Words: *environmental decisions; ethics of care; performance arts-based methods; power differences; values toward nature*

INTRODUCTION
Including local people's values toward nature has been recognized as a key element in making fair environmental decisions (Agarwal 2009, Edwards et al. 2016, Horcea-Milcu et al. 2019, IPBES 2022). Values reflect how local people perceive, relate to, inhabit, interact with, and give meaning to nature (Chan et al. 2016, IPBES 2022) and can serve as intervention points for facilitating transformational processes (Kenter et al. 2019, Chan et al. 2020, Horcea-Milcu 2022). Unequal power distribution in environmental decision-making processes can hamper the representation of local people's values (Agarwal 2001, Colfer et al. 2015, Ahlborg and Nightingale 2018). Differences in power shape who gets to participate in decision-making, who has the authority to decide, how the agenda is set, and who benefits from this, based not just on laws but also on cultural norms (Lukes 2005). Therefore, power differences in environmental decision-making processes often result in unfair decisions that negatively impact local people's well-being and livelihoods (Agarwal 2001, Colfer et al. 2015). This is particularly pronounced in the Global South, where environmental injustices are often associated with histories of exclusion and marginalization derived from processes of colonization and weak institutional structures, and where there are increasing global pressures on nature (Hickel 2016, Brasher 2020, Zafra-Calvo et al. 2020).

For this reason, studies have focused on rethinking the nature of fairness in environmental decision-making (Lockwood et al. 2010, Bevir 2011, Bevir and Rhodes 2016). As mentioned by Lockwood (2010:994), "inclusive environmental decision-making is about having an awareness of and valuing diversity and having policies and structures to foster actors' contributions and engagement." However, being aware of the diverse actors and/or including them does not necessarily foster fair interventions (Lemos and Agrawal 2006, Bevir 2009). Fairness in environmental decision-making involves respecting and considering the values of all involved without personal biases, especially recognizing the influence of unequal power distribution (Lockwood et al. 2010, Bevir 2011). This concept is related to the procedural and recognition dimensions of justice (Martin et al. 2014, San Martín and Wood 2022). To this end, environmental decision-making processes use participatory approaches and techniques to open spaces for different actors to deliberate and discuss local knowledge without personal bias (differences of power among actors) valuing and respecting diverse knowledge systems (Bevir and Rhodes 2016). These approaches may enable people to play active and influential roles, building trust to share perspectives and understand their relationships with nature (Heras et al. 2016, Leavy 2017). However, conventional participatory approaches have "struggled" with power and representation, and have frequently considered communities homogeneous rather than spaces for shifting alliances and power dynamics (Cooke and Kothari 2001, Williams 2004, Richardson et al. 2019, Turnhout et al. 2020).

Arts-based methods, values, power differences, and social-ecological transformation
In the search for better ways to fairly represent the values of local people in environmental decision-making, arts-based methods have been proposed based on the argument that they offer a more social-constructivist and interpretative understanding of knowledge systems (values) and power dynamics, including the role of emotions and beliefs (Heras and Tàbara 2014, Edwards et al. 2016, Olvera-Hernández et al. 2023a). Arts-based methods involve using art as a primary tool in the research process (Coemans et al. 2015). This can include using art forms such as images, sculptures, or performances as research data instead of, or in addition to, traditional methods such as interviews or

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observations (Coemans et al. 2015, Scheffer et al. 2015, Leavy 2020). Arts-based methods can be used for promoting broader participation in environmental governance and providing new ways of understanding the complexity of social and power relations in environmental decision-making processes (Edwards et al. 2016, Tremblay and Harris 2018).

Performance arts-based methods are one such approach. They use theatre, film, or dance to deliberately blur the boundaries between fictionalized roles and the specific public; participants become actors-producers-dancers (Taylor and Taylor 2017, Morales et al. 2021, Walsh and Burnett 2021). These forms of art can offer diverse communication channels for local people to tell and contest their stories of exclusion beyond the limits settled by power dynamics (Kester 2005, La Jevic and Springgay 2008, O'Connor and Anderson 2015, Walsh and Burnett 2021).

Among performance arts-based methods, we focus on applied theatre, which we use as an umbrella term that encompasses a set of techniques of dramaturgic activities conducted outside ordinary theatre institutions (Nicholson 2005, O'Connor and Anderson 2015). Applied theatre originated in the 1970s based on the work of Brazilian Augusto Boal (2013), known as Theatre of the Oppressed, which was influenced by Paulo Freire's work, "Pedagogy of the Oppressed" (Freire 1976). It was created to challenge the dominant Western approach (positivism) to diverse knowledge systems, particularly in the Global South (Boal 2013, Campbell 2019, Hayford 2021). Applied theatre recognizes and addresses the injustices caused by lack of empowerment, oppression, and marginalization by incorporating these issues into its artistic framework (performances) (Boal 2013, O'Connor and Anderson 2015). For example, forum theatre, the most common technique in applied theatre, involves artists/facilitators performing a scene that portrays common social interactions where one character may feel oppressed. During the performance, audience members can intervene, take on the role of the oppressed character, and change the scene (Boal 2013, Campbell 2019).

This opportunity to assume a character's role and explore power differences provides a safe space for sharing personal views on these power dynamics. Safety in the conventional participatory method refers to the process that facilitates reflexive, transparent, and inclusive deliberation (Pereira et al. 2015). In performance arts-based methods, safety also refers to the distance between participants and the role of a character, dancer, or director taken by them during the activity (Boal 2013, Campbell 2019). This change in character creates a distance between the participant (which changes to actor or director) and the conflict being explored (Sullivan et al. 2008, O'Grady 2022). In this context, the conflict can be explored more deeply without assigning the narratives to the participants but to the roles they embody. However, these safe spaces are not spontaneous and require the support of performers/facilitators (Boal 2013, O'Connor and Anderson 2015, Campbell 2019).

Around the 2010s, environmental projects began using applied theatre to facilitate cognitive and emotional dialogues, negotiate meanings, and expose contradictions to explore solutions to conflicts rooted in power differences (Guhrs et al. 2006, Heras and Tàbara 2014, Brown et al. 2017, Haseman 2020, Jordan 2020). Emotional dialogues are critical in identifying and understanding values toward nature (Kenter et al. 2015) and in understanding

decisions regarding natural resource use and management (Morales and Harris 2014). Applied theatre can also assist in exposing and disrupting power differences and oppressive environments, building bridges across differences, and fostering empathy (O'Connor and Anderson 2015, Brown et al. 2017, Balfour 2016, Leavy 2020). Some examples of the use of applied theatre in environmental projects have focused on environmental justice (Guhrs et al. 2006, Erwin et al. 2022), exploration of subjectivity and emotion in environmental management (Morales and Harris 2014), biosphere futures with young generations (Heras et al. 2016), and values toward nature (Hensler et al. 2021, Olvera-Hernández et al. 2023b).

In addition, applied theatre has been used to foster social-ecological transformations (Heras and Tàbara 2014, Muhr 2020, Olvera-Hernández et al. 2023b). Social-ecological transformation in sustainability is a term that describes fundamental changes in structural, functional, relational, and cognitive aspects of social-technical-ecological systems that lead to new patterns of interactions and outcomes to address the social-ecological crisis (Brand and Wissen 2017, Scoones et al. 2020). In the sustainability field, there are three main forms of approach transformations: structural, systemic, and enabling (Scoones et al. 2020). Enabling focuses on highlighting the people's agency in choosing the aims and direction of transformation by revealing values and relationships (including power differences) (Muhr 2020, Scoones et al. 2020, Horcea-Milcu 2022). Values become a key (as in decision-making) because they underpin individual behaviors and, at a collective level, the societal paradigms from which institutions, rules, and norms emerge (Pereira et al. 2015, Horcea-Milcu et al. 2019, Chan et al. 2020). Thus, applied theatre can have an innovative use in opening transformational spaces where people can explore plural values and choose the direction of transformation (Bentz et al. 2022a, Horcea-Milcu 2022, Olvera-Hernández et al. 2023a).

Despite the potential of using applied theatre to highlight values and open discussions about power differences in environmental decision-making and toward social-ecological transformation, issues remain regarding its credibility among environmental professionals (Schutzman 1990, Plastow 2014, Fletcher-Watson 2015, O'Connor and Anderson 2015, Campbell 2019, Olvera-Hernández et al. 2023a). Environmental professionals' validation of these techniques is essential because they shape the interpretation, uptake, and implementation of environmental decisions in practice (Martin-Ortega et al. 2019). Therefore, encouraging the use of this set of techniques for fair environmental decision-making, in part, requires doing research on the practicality of these techniques that can build credibility (O'Connor and Anderson 2015).

Exploring the implementation of this set of techniques in environmental projects is necessary to evaluate their potential for fairer environmental decision-making. We explore the challenges of, and opportunities for, using applied theatre in environmental decision-making through the experiences of those practicing it in environmental projects, such as professors, research assistants, postdoctoral researchers, and postgraduate students. Specifically, we aim to answer the following questions: (a) To what extent do practitioners perceive applied theatre as bringing local people's plural values toward nature to the fore and facilitating dialogue

on local power differences in environmental decision-making? (b) To what extent do practitioners perceive applied theatre as a tool in social-ecological transformations? and (c) What are the views of the practitioners about the credibility and practicality of using applied theatre techniques in environmental projects? To do this, we conducted semi-structured interviews of a purposive sample of practitioners involved in a selected number of applied theatre environmental projects in the Global South.

METHODS
We conducted online semi-structured interviews of practitioners who had implemented applied theatre techniques as part of environmental projects focused on nature management and environmental decision-making in the Global South. By focusing on projects implemented in the Global South, we were not considering them as homogeneous; rather, we understand them as diverse, all facing different social and economic issues framed within their historical exclusion contexts (Brasher 2020, Pereira et al. 2020). Diverse knowledge systems and ways of being in the world and understanding complex human–environment relationships arise in the Global South, although colonization aimed to impose Western thinking and institutions on many of these areas (Brasher 2020). In this sense, there is a strong imperative and unique capacities in the Global South to innovate methods for exploring and discussing diverse knowledge systems that can uncover ways of framing how people relate to each other and to nature.

Sampling
We selected professors, research assistants, postdoctoral researchers, and postgraduate students who have worked on the design, implementation, or analysis of projects that have used applied theatre in the context of environmental decision-making. Some, but not all, had an academic background in arts disciplines, but all were practitioners who had implemented applied theatre in environmental research projects.

Practitioners were recruited using the snowball method (Biernacki and Waldorf 2016). First, practitioners who were known by members of the research team were invited. They were then asked to suggest more people who were interested in participating. Additionally, we conducted extensive literature and online research to identify other projects that were implementing applied theatre techniques, and then we sent out invitations. Twelve projects were invited, of which nine participated. Written consent was given to mention the project's name and its role in publications. The value of our work lies not in the size of the sample but in its relevance and depth of analysis (Creswell 2008), as a study of an emerging topic that is growing from a small base, and as appropriate in qualitative social sciences to "generate data which give an authentic insight into people's experiences" (Silverman 1993:91 in Crouch and McKenzie 2006). In addition, this comparative approach, which highlights the relevance and significance of applied theatre in diverse locations and areas of expertise, can offer insights beyond evaluative methods that focus only on single interventions (Matthes et al. 2017).

The participating practitioners had used applied theatre tools as part of projects focused on nature management and environmental decision-making. Three of them were research leaders of the project, six were investigators or research assistants,

and two were PhD students. Three of these projects were implemented in Africa, three in Latin America, one in Asia, and one based in Europe. This last example did not originate from the Global South, but it is relevant to our work. It focused on early career professionals who were researching sustainability and how they might be able to use applied theatre to integrate various forms of knowledge, with a specific focus on how to bridge from knowledge transfer to knowledge for transformation. These forms of knowledge included those from the Global South.

The practitioners' backgrounds included environmental anthropology, environmental history, sociology, development studies, geography, and theatre. Table 1 briefly describes the practitioners and their projects, the geographic area of the project, and the interview code ("P#") allocated to each participant for analysis purposes. In addition, the applied theatre techniques used in the projects are presented. Although the term "applied theatre" was not specifically mentioned by the participants, they all met our criteria of applied theatre approaches. Specifically, they mentioned using theatre/performance techniques following applied theatre principles such as challenging the dominant Western approach (positivism) of diverse knowledge systems and exposing and disrupting power differences.

Semi-structured interviews
In total, 11 online semi-structured interviews lasting from 30 to 90 minutes were conducted between October and December 2022. We used an interview script with pre-determined questions (Appendix 1) but allowed the interviewer to explore responses further (Babbie 2021). The interviewer introduced herself and informed the interviewee that the research aimed to explore whether/how applied theatre techniques improve the representation of local people's values in environmental decision-making. We informed participants that while we understood that their project might not be aimed explicitly at or focused on values, we invited them to reflect on whether their performance-based method may have helped bring local people's values to the fore. All the projects had a component of local power dynamics in environmental decision-making in their aims, which we also explored in our interviews.

The first set of questions aimed to gain further understanding of the projects by identifying the project's aim and the reasons for choosing applied theatre techniques. In the next set of questions, we explored whether these techniques brought to the fore local people's values toward nature. As an introduction to these questions, we briefly explained that values could reflect why nature is important to people (Chan et al. 2016, IPBES 2022), without specifying any particular value framework. Practitioners were prompted to reflect on whether local peoples' values were discussed or if expressions of values emerged during the implementation of applied theatre techniques. Then, we asked about the challenges and opportunities these techniques present in opening spaces for discussing local power differences in environmental decision-making. Local power differences were explained as diversity in relating to nature based on formal and informal social norms (Rocheleau et al. 1996, Ahlborg and Nightingale 2018, Lloro-Bidart and Finewood 2018).

Subsequent questions prompted responders to explore practical aspects of using applied theatre techniques, organized around safe spaces, ethics, and credibility. We chose these issues because

Table 1. Description of participants' projects.

Number (P#)	Project title	Location, area/region	Project's general aim	Applied theatre technique as named by the project	Aim of the techniques
P1	Southern Cape Interdisciplinary Fisheries Research Project/Theatre production called "As die See Byt"	Melkhoutfontein, Cape Town, South Africa	To understand climate change in the coastal region of the southern Cape	A theatre production to create curiosity and concern (dissemination method)	To disseminate the results with people from Melkhoutfontein
P2, P3, and P4	Forum theatre to enhance joint agency in Kenya and Mozambique: toward relational understandings of climate change	Kanyaka municipal district in Mozambique, and Msambweni in Kenya	To empower the joint agency of stakeholders to address governance processes for climate change adaptation in poor coastal communities	Theatre of the Oppressed (main research method)	For data collection and to enhance reflection on adaptive capacity among participants
P5	Moving with risk	Manizales in Caldas, Risaralda in Pereira, Soacha in Cundinamarca, Colombia	To understand how people experience forced displacement and relocation through a lens of disaster risk reduction in Colombia	Forum theatre (main research method)	To create spaces for local people to tell their life stories with dignity and agency
P6	Build parallel worlds. Experiences of representation and creative materiality for the restoration of degraded areas	Sacrificio Quintero and Puchuncaví, Valparaíso Region, Chile	To explore artistic expressions as promoters of relational values toward the restoration of degraded areas in Chile	Narrative and film (dissemination method)	To communicate results
P7	Playing with wildfire	Chiquitania, Bolivia	Advance local and international public debate on the complexity and urgency of wildfire emergency	Community theatre and forum theatre (main research method)	To generate community-based responses to multi-layered conflicts regarding wildfires
P8	Freiburg Scientific Theatre: acting for sustainability	Main office in Freiburg, Germany	To support transdisciplinary knowledge on sustainability issues and participatory learning	Scientific theatre (dissemination method)	To bridge the gap among scientific knowledge and the public
P9	The lived experience of climate change	Dhaka, Bangladesh	To understand how land tenure influences climate change impacts and in turn how land tenure can influence strategies for enhancing climate resilience in a Dhaka slum	Performances called "Pot Gan" (dissemination method)	To build awareness of how climate change affects the lives of those living in Dhaka slums
P10	Lalela uLwandle: an experiment in plural governance discussions (part of One Ocean Hub, a collaborative research)	KwaZulu-Natal, South Africa	To understand the needs of multiple fisheries that are active in South African waters	Empatheatre (main method)	To make visible local people's stories of living with the ocean that are seldom seen or heard in the public domain
P11	The Cape Town Museum of Watery Relations	Cape Town, South Africa	To develop an online interactive map of the various water samples/stories	Diverse arts methods, including performances (complementary method)	To share experiences regarding environmental issues

previous research (Olvera-Hernández et al. 2023a) showed that environmental professionals considered these as challenges for implementing applied theatre techniques. The questions about operational challenges included inquiries about resources such as the time or training necessary to facilitate theatrical activities (Chambers 1994, Balfour 2016), and the ethical approach used (Campbell 2019, Olvera-Hernández et al. 2023a). The challenges associated with credibility focused on the need for implementing follow-up activities to validate or support the outcomes from the theatrical activity because these techniques explore knowledge as non-linguistic, emotional, and tacit (O'Connor and Anderson 2015, Walsh et al. 2023). We asked a final set of questions focused on participants' views on the potential of using applied theatre techniques to foster social-ecological changes or transformations, and then invited respondents to provide further comments about this research topic.

Analysis
We analyzed notes and transcriptions from the interviews using the qualitative data analysis software Nvivo12. We explored three main themes: (a) values and power differences that emerged in the theatre application as identified by the practitioners, (b) participants' views on the viability, ethics, and credibility of using applied theatre for environmental decision-making, and (c) changes and transformation in social-ecological processes influenced by the implementation of applied theatre tools.

We applied a grounded approach to the analysis of values and power differences; i.e., codes were attributed to themes as they emerged from the participants' narratives (Srdjevic et al. 2017). Values were approached using the concept of epistemic pluralism from ecological economics, which suggests multiple ways of conceptualizing values within human–nature relationships (Horcea-Milcu et al. 2019, Kenter et al. 2019). Local power differences were approached as informal social rules and norms that establish legitimate ways of relating to nature (i.e., who can benefit from nature's contributions) (Colfer et al. 2015, Bee 2016, Ahlborg and Nightingale 2018). The views on the operational aspects of applied theatre were also coded using a grounded approach (Srdjevic et al. 2017) following ideas related to viability, ethics, and credibility. The use of applied theatre techniques to foster changes was approached by understanding the use of arts to open spaces for transformational processes (Heras and Tàbara 2014, Charli-Joseph et al. 2018, Pereira et al. 2020).

RESULTS AND DISCUSSION
In this section, we first explore the potential and challenges of using applied theatre techniques to discuss people's values and facilitate discussions about power differences in environmental decision-making. While values were not an initial focus of the projects included in this study, we found that they played a significant role. Practitioners were able to engage in meaningful discussions about these values. In addition, we examine practical considerations for successfully implementing applied theatre using an ethics of care approach. Finally, we discuss how these techniques can create spaces for transformative change.

Exploring local values toward nature and power differences using applied theatre
For fair decisions to be made, the views and values of local people must be represented in decision-making processes (Lockwood et al. 2010, Chan et al. 2016, Edwards et al. 2016, IPBES 2022). Previous studies have shown that applied theatre supports dialogues in which values toward nature can be brought to the fore without attempting to "translate" values into a single dimension or unit (Heras et al. 2016, Hensler et al. 2021, Erwin et al. 2022, Olvera-Hernández 2023b). One practitioner noted that they recognized a connection among the values expressed by participants during the theatre activities, particularly the importance of trees in relation to rainfall (which provides ecological benefits) necessary for safeguarding local harvests. Following this theatre activity, local people proposed ideas for planting trees (P4). Our analysis shows how the interconnection of values reflected people's everyday life, which is consistent with the idea that people living in rural areas are more likely to attribute their values to the importance of significant relations and responsibilities between humans and nonhumans (Martínez-Alier 2002, 2008, Chan et al. 2016).

In addition, other practitioners mentioned that applied theatre can be a "powerful activity" to share values as part of emotional experiences such as loss or human displacement, which can be difficult to address otherwise. For instance, in one project (P7), applied theatre was used to create spaces for local communities to express their histories about losing loved ones, forests, and wildlife due to wildfires. While applied theatre provides a platform for sharing personal experiences related to environmental issues, one participant pointed out that it often does not foster discussions about broader conflicts that impact the lives of local people. The following illustrates this:

> We want to hear people's experiences…However, sometimes these things do not represent what we as researchers think about reality. So, there is that tension between life histories and the reading that these individuals have of social and natural processes and what we think is happening. For example, in this case, people never talked about the fact that there are large economic processes of deforestation in this region, no, that was something that was not a problem for them…at a macro level, there are other things that they did not talk about (P7).

While discussions about broader problems can be useful, exploring local people's values through personal experiences helps in understanding their emotional and philosophical connection to nature, and challenges pre-established analytical views on value (Horcea-Milcu et al. 2019, Chan et al. 2020). The previous quote

also complements what participants in our study highlighted—that applied theatre tools did not necessarily open discussions that aligned with the research team's expectations or project aims, values, or understanding of the conflict. Instead, local participants chose which specific aspects or values they wanted to discuss during their involvement.

This in part is supported by the idea that when using arts, participants have greater control over their involvement in the research process (Coemans et al. 2015). In terms of power differences, this also illustrates that applied theatre fostered some agency for people to bring their own values and perceptions regarding environmental issues into public forums. This is particularly important in the Global South, where processes of colonization and weak institutional structures have fostered exclusion or marginalization of powerless people from decision-making spaces (Hickel 2016, Brasher 2020, Zafra-Calvo et al. 2020). Other practitioners complemented this, commenting that by using applied theatre, it is also possible to present to policymakers what people who have been historically excluded prioritize (values) about a specific environmental issue. In this respect, one practitioner mentioned the following:

> It is difficult as a community to pass on or to deliver a message to some relevant government authority or the relevant person who is supposed to handle such conflict…but forum theatre created that space; it was easy for them to talk, to raise their voice and provide some possible solutions, and at the end of the day, the message reached that particular person who was supposed to get that message, and everyone was like 'oh!' (P4).

Thus, applied theatre can be an innovative set of techniques that empower individuals to express their own values (Balfour 2016) and help policymakers understand those values instead of imposing their own based on political agendas (Himes and Muraca 2018, IPBES 2022), which supports fair environmental decision-making processes (respecting and considering people values without personal biases) (Lockwood et al. 2010, Bevir 2011).

In addition, it is worth noting that in four of the case studies explored in this research, applied theatre was used as a dissemination method. In these cases, the local people's engagement in the dissemination process highlighted the potential of applied theatre to involve local people in dialogues, in which they are not just passive recipients of information but active participants discussing academic results that affect them directly. In this context, as one practitioner noted, expressing values in the form of art or performances gives participants ownership of the outcomes, particularly when theatre is used to disseminate findings, and thus offers some possibilities in the path of democratization of science (P10). Democratization of science refers to bringing equity access to scientific results and potentially beneficial findings that could affect local people or their communities; e.g., presenting results in their native languages. In this sense, a practitioner commented that it is advisable for academics who implement applied theatre techniques to collaborate with local researchers, which would facilitate communication with local people and mitigate extractive science practices (P3). Extractive science, where researchers from higher-

income countries extract data without involving local researchers and community, can hamper the use of scientific results to address local issues (Johnson and Zentella 2017, Odeny and Bosurgi 2022, Navarro-Perez et al. 2024). There are also challenges to the notion that the outputs of applied theatre, in the form of performance pieces and emotive narratives that reflect local people's views, can be effectively shared with a broader audience. Previous studies have mentioned that in order to build credibility and ensure better analyses and interpretations, complementary methods should be used alongside theatre (Leavy 2020, Muhr 2020, Turnhout et al. 2020).

However, our respondents mentioned that applied theatre could stand as a research method by itself. Still, they also implemented tools such as interviews and ethnography to gather information to create the script or to follow up with what people shared during the performances. They also mentioned that these other methods were not intended to give "validation" to the theatrical activities but to add to the research process. While credibility with practitioners is not a problem, applied theatre may be less credible with staff working at funders, whose positivist approach may be less amenable to applied theatre techniques (O'Connor and Anderson 2015). In this respect, a practitioner mentioned that the difficulties of assessing the impacts of applied theatre techniques and challenges in data interpretation and representation can be due partly to environmental professionals' disciplinary conventions that still adhere to positivism.

Practical aspects for good implementation of applied theatre: safe spaces and ethics of care
Applied theatre techniques need to provide a safe space for the participants to explore values and discuss power differences. Safe space in participatory methods refers to the process that facilitates inclusive deliberation that reflects open-mindedness norms, which not only encourage the expression of different views but also respect and acknowledge diversity (Reed et al. 2014, Pereira et al. 2015). It is crucial to acknowledge that, as one participant pointed out, applied theatre cannot be guaranteed to be a safe space because social interactions are dynamic and unpredictable (P10). Previous studies support this concept and discuss "safe-enough" spaces.

Safe spaces address sensitive issues during the research process, such as power imbalances, which may make participants feel vulnerable (Pereira et al. 2020). In applied theatre, creating a play involves exploring power dynamics, which may create discomfort. This sense of discomfort helps establish empathetic connections with the characters and encourages them to take the stage and explore potential changes (Boal 2013, Campbell 2019). In this regard, practitioners also noted that instead of offering safe spaces, it is better to outline the measures to facilitate respectful dialogue. For instance, in our study, respondents emphasized the importance of building trust through prior visits and implementing both preparatory and follow-up activities, thereby highlighting the value of long-term processes.

Previous studies have indicated that time is an essential resource for fostering trust and encouraging participation (Heras and Tàbara 2014, Leavy 2020). Practitioners have noted that it is beneficial to make frequent, long visits to the communities to establish trust and build empathetic relationships with participants. One of the practitioners said the following:

Don't be in a hurry to get in and out of places because it's the real connections and the relationships that develop that make the work meaningful for everyone, not just for you as a researcher, but the process becomes more meaningful when there's the deeper connections (P11).

Practitioners highlighted that using applied theatre involves making time to visit the communities, but also time to carefully implement previous and follow-up activities. For instance, one practitioner recalled that when they first arrived in the communities, there was significant mistrust during the initial meeting. People were reluctant to participate, so the practitioners introduced games designed to help individuals get to know one another and foster an atmosphere of trust (P7). Thus, implementing these tools is also about "having a cup of tea, chatting, and listening to local people" (Balfour 2016:9). Nevertheless, it is important to mention that time can become a barrier when current scientific and assessment processes leave too little time for deeper thinking and reconsideration of the underpinning assumptions (Turnhout et al. 2020, Bentz et al. 2022b).

The measurements mentioned by the practitioners respond to an ethics of care. Ethics of care is a moral theory that involves the active acceptance of responsibility for others to foster mutual trust, embrace conflicts to challenge power dynamics, and see those individuals empowered rather than maintaining a state of passive compliance and dependency (Staffa et al. 2021, Sadeghi-Yekta and Prendergast 2022). Our respondents further elaborated on this ethical approach. One mentioned that the ethos of care underpinning the entire process and ethics is not just legalistic check boxes that protect the university more than the relationships (P11). In practical terms, the ethic of care refers to care about how we approach the communities, facilitate the participation process, perform local realities, and present results and following activities (Jordan 2020, Leavy 2020, Sadeghi-Yekta and Prendergast 2022). The safety of the space will respond to the practitioner's responsibility of implementing an ethics of care approach.

Applied theatre as a tool for transformations
Transformative change is necessary to halt nature degradation (Tschakert et al. 2017, Chan et al. 2020). Applied theatre can play a crucial role in fostering transformative change by offering a space for people to express diverse values in emotive narratives, which reflects the complexity of people's relationship with nature (philosophical connections). Values can trigger transformative change because they underpin individual behaviors and, at a collective level, the societal paradigms from which institutions, rules, and norms emerge (Charli-Joseph et al. 2018, Chan et al. 2020, Bentz et al. 2022b, Horcea-Milcu 2022). However, it is central to challenge pre-established analytical views on values to allow for the development of understandings of emotional and philosophical connections to nature (Horcea-Milcu et al. 2019, Bentz et al. 2022a). For instance, a practitioner described a theatre activity centered on climate change that illustrated how fishermen face challenges as their catch moves farther offshore. Participants in the theatre activity interpreted this scenario through diverse lenses. Some attributed it to spiritual causes, suggesting their ancestors were displeased with their actions. Others expressed strong emotional reactions, perceiving the situation as

punishment linked to government neglect (P3). Through the applied theatre activity, the practitioner understood varied emotive interpretations, which highlighted the diversity of values that emerge from different cultural, domestic, and social contexts.

Transformation also requires the creation of equitable spaces where diverse voices can be heard and included (Bentz et al. 2022b). However, transformation processes risk perpetuating pre-existing injustices when they fail to adequately consider the voices and needs of local people (Bentz et al. 2022b). Addressing these challenges requires deliberative processes, such as the use of applied theatre, that prioritize and respect diverse values and knowledge systems (Bennett et al. 2019). A practitioner highlighted applied theatre's unique strength in encouraging local communities to actively participate in discussions, regardless of their formal education or familiarity with technical jargon. This accessibility promotes fairness in knowledge-sharing, thereby creating spaces for diverse voices to be heard and valued (P1).

Additionally, creating spaces for reflecting on possible actions to existing problems in which ideas for social-ecological changes can emerge is also a key component in transformation processes (Charli-Joseph et al. 2018, Pereira et al. 2020). However, changes resulting from the use of applied theatre techniques might seem "small" to some environmental professionals (Sircar 1981, Heras and Tàbara 2014). For example, a practitioner highlighted that:

> Changes in applied theatre activities begin in the mind and gradually become evident as participants' ideas evolve over the activity. I noted that participants' ideas shifted during the activity, reflecting empathy toward the ideas of others and an openness to collaboration (P3).

These apparently small changes can still be triggers for larger transformations, as mentioned by Sircar (1981:55): "the sum total of all these little, almost all these little positive choices we take, can one day bring about the change we are all waiting for." This was echoed by our respondents who highlighted that one of the main achievements was that marginalized people had decided to participate.

In addition, the transformative potential of values also involves creating time and space for meaningful reflections (and emotive narratives) (Horcea-Milcu 2022), as described by Bentz et al. (2022b); i.e., transformation processes are "journeys" characterized by potentially slow and time-consuming and caring practices based on relations created through intensified involvement (Moriggi et al. 2020, Bentz et al. 2022b). This viewpoint closely aligns with the principles of applied theatre discussed in the previous subsection, which highlight the significance of taking time to build trust among participants and implementing an ethics of care approach to explore emotional narratives, values, and collaborative actions, which in turn can foster local people's agency and ownership over the transformation process.

CONCLUSION

We have highlighted insights from practitioners who have used applied theatre techniques in environmental projects in the Global South regarding the potential of these techniques to facilitate discussions about values and power dynamics in environmental decision-making. The data analysis showed no differences across geographical areas but highlighted the shared benefits of applied

theatre implementation. Applied theatre techniques were seen by those who practice them as activities that can foster profound engagement by establishing inclusive spaces that invite people, including those often marginalized in decision-making processes, to explore personal narratives about their emotional and philosophical connections to nature. This can be translated into actions for transformative change because pre-established analytical views on values can be challenged. In addition, results show that applied theatre techniques encouraged individuals to discuss their values without necessarily being influenced by policy agendas. Our findings show how people's agency was enhanced by encouraging individuals to use performance as a way of communication, thereby fostering a sense of agency and ownership over the performances. Results presented in the form of performances can help policymakers understand people's values within emotive narratives, while also being a path toward democratization of science.

For applied theatre techniques to effectively address people's values and environmental conflicts, it is essential to build trust and create "safe-enough" environments. While it is important to recognize that truly safe spaces may not exist due to the dynamic nature of participation, prioritizing participants' well-being throughout every stage of the process remains crucial; this notion of creating a "safe-enough" environment aligns with an ethics of care approach. To do this, the use of applied theatre techniques requires a long-term commitment to establishing trustworthy relationships, which includes frequent visits to the communities and follow-up activities that can complement applied theatre techniques. The results show that spending time building trustworthy relationships is critical to facilitating the development of actions that can incrementally lead to deeper transformations. Moving forward, we encourage future studies to delve into how these techniques inspire transformational "journeys," as well as what their opportunities and challenges are depending on where and how they are applied. By examining the use of applied theatre over time and across different contexts, we can better understand its contribution to a more equitable environmental future.

Author Contributions:

Silvia Olvera-Hernandez had the conception of the study within the guidelines of her PhD work at the University of Leeds. Paula Novo, Julia Martin-Ortega, M. Azahara Mesa-Jurado, and George Holmes supervised the work. Julia Martin-Ortega led and administrated the funding. Silvia Olvera-Hernandez carried out the interviews and analysis with inputs from Paula Novo, Julia Martin-Ortega, M. Azahara Mesa-Jurado, and George Holmes on the interpretation of the results. Silvia Olvera-Hernandez led the writing of the manuscript and the reviews with inputs from all co-authors. All co-authors approved its publication.

Data Availability:

Due to ethical restrictions, the data from the interviews are archived on secure servers at the authors' institutions and cannot be made openly available to preserve the confidentiality of the participants.

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Appendix 1. Interview guide with practitioners.

This script was for guidance, and the questions were asked in the more open conversational.

Interview format (semi-structured)
Welcome (solve technical problems) (5min) and Consent to video and/or audio record and use of quotes (1min)
Thanks for giving us your approval to record this meeting in the consent form we sent to you on the DATE. As we mentioned to you, at any moment you can decide to stop the recording or withdraw from the interview without any problem.
In this interview, we will be talking about your project (name or description). We would like to know about your experience implementing performing arts-based methods. We will ask you about the possibilities and challenges of these methods as a space for local people to talk about power differences and nature's values. To finish the interview, we will talk about the viability, cultural relevance and credibility of these methods.

About your experience in the project
I have read your project's information and understand it was aimed at [read from their website].
1. Could you share with me (briefly), a little bit more about the general aims of the project? To whom it was targeted?
2. Could you tell me about the type of performance arts-based method used?
3. Why did you select that performance arts-based method? Or what was the motivation for doing so?
   Were you planning to use performance-based methods originally or this came as a second thought? and why?
4. Could you tell me what were expecting to achieve with this method?
   - Did you achieve what you wanted with the method?   Why /why not
5. What do you think were key factors to the success of your project (if there was success)?

Values
I know, you might not have been looking into values for nature, but I would like to still ask you about that. Values are a key element in making decisions related to nature. For example, values reflect why nature is important to people. Values also can be understood as desires. They give meaning to nature (values shape and they are shaped by how people perceive, relate to or inhabit nature).
6. Could you tell me, whether [name of the method] could be a space for local people to express their values towards nature? Why/why not?
   -Did people express why nature is important to them? How?
   -Could you give me some examples?
   -Did people express their desires for a better future (regarding environmental aspects)?
   -Could you give me some examples?
7. In your project, did emotions play a role to encourage people to express their values? How?

Power differences
I would like to now ask you about power difference. Such as informal social rules and norms that establish legitimate ways of relating to nature (i.e. who can benefit from nature's contributions). Or as powerful actors, who impose decisions that impact nature over other point of views.

8. There was some specific power dynamics planned to be discussed or confronted in your project? Why?
   Specifically about local power differences, those that exclude some groups of people based on the intersection of their social axes such as gender, class, caste, race, culture, and ethnicity).

9. Did local power differences emerge (make them visible) during your project (and the performances?)? Could you give me some examples of the local power differences that might have emerged?
   - Why (or why not) people were encouraged to talk about these (local) power differences?

10. Could you tell me, whether the method worked as a space for different groups to participate? And if so how?
    - Why (or not) this method was helpful to engage with groups of people who have been marginalized or excluded from environmental decision-making.
    - Why (why not) the facilitation process helped to blurring power differences?

Viability, cultural relevance and credibility
There are some operational requirements, explored in the academia such as viability, cultural relevance (sensitivity) and credibility. Viability can be explored in terms of resources such as time and training (trained facilitator and a trans-disciplinary team).

11. What you can tell me about the facilitation process during the implementation of [name of the method] in your project?
    -What do you think are the characteristics of a good facilitator in performance arts based-methods?
    - Do you think these methods required a more skilled facilitator than other conventional participatory methods (with knowledge of theatre or other forms of arts)? (why/why not)

12. To what extent the implementation of performance-based methods needed a trans-disciplinary team (for example artists working on the design, implementation and analysis)?

13. There is something else you would like to tell us about resources, time, and trainings necessaries for implementing these methods in environmental projects?

Cultural relevance
Now we will talk about Cultural relevance (sensitivity), which focused on the importance to respect and embrace different cultures and worldviews (ethics).

14. In your project, what do you think was the key to ensuring that these methods were respectful of the cultural context?
    - How was the process to elaborate the materials (scripts or other materials).
    -Which information did you use to elaborate the material?
    - Do you need to have a relationship with the participants to elaborate the materials? Why/why not
    -Do you need to have a relationship with the participants to implement these methods? Why/why not

15. How ethics was approached in the project?

16. There is something else you would like to tell us regarding cultural relevance (cultural sensitivity) when these methods are applied in environmental projects?

Credibility
Now we will talk about credibility, this can be explored in terms of the challenges to validate among the local people or funding institutions non-linguistic or more emotional results.

17. Performance-based methods often present information through image, sound, and movement. Which of these (or others) were used in your project?

18. To what extent have results represented trough image, films, performances or other autistics forms, impacted on the credibility of your project with the local people? And with funding institutions or government agencies?
    - There were other qualitative or quantitative methods implemented in your project?
    -To what extent do performance-based methods need to be implemented along with other methods to assure the good quality of results?
    - Why (or why not) your project was considered a long-term project?
19. Are there other challenges in terms of credibility for these kinds of methods? Could you give me some examples?
    - What do you think needs to be done to increase the credibility of these methods in the area of environmental governance?

    Transformation (Closing)
    To close this interview
20. To what extent do you think the use of these methods can foster socio-ecological changes? Or other transformational changes?
    -Did you observe any changes or transformation during your process or do you have evidence of this having happened as a consequence of your project