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The dynamics and politics of integrating local knowledge systems in multistakeholder platforms

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ABSTRACT. Multistakeholder platforms (MSPs) enhance collaborative decision making in environmental and landscape governance. However, the dynamics of integrating local knowledge systems and empowering local knowledge holders remain under-researched. Using data from semi-structured interviews with participants and non-participants in two MSPs in Zambia, this study examines how various forms of power impact what kind of knowledge is exchanged, who engages in knowledge exchange, and whether that leads to context- and culture-specific, sustained, committed, and empowering knowledge co-production. Findings reveal that knowledge exchange and co-production are poorly developed or absent and subject to various power dynamics. The private sector often disengages from MSP processes and uses hidden power to prioritize its agenda. Government actors exercise visible power based on their rule-making and operational power. Local knowledge holders are the most marginalized and underrepresented actors, constrained by invisible power stemming from a complex interplay of structural, discursive, and framing power. This marginalization leads to miscommunication, misrepresentation, and limited influence on decision making, along with unclarified rights. NGOs partly counteract these imbalances by leveraging countervailing power to challenge internalized invisible power that hinders marginalized groups from expressing their views. Despite narratives advocating for local knowledge inclusion and more equitable collaborative processes, both MSPs show limited progress in fostering meaningful knowledge interaction and influence for local knowledge holders. Addressing these issues requires fundamental changes in knowledge governance, including fostering the inclusion of marginalized knowledge holders, adopting pluralistic approaches, committing to knowledge co-production, and tackling power imbalances. This implies a critical role for civil society organizations in amplifying the voices of marginalized groups and advocating for the inclusion of local knowledge into MSPs and decision making. Further research needs to explore the politics of knowledge governance with particular attention to how discursive and framing power influences the empowerment or suppression of marginalized knowledge systems and their holders.

Key Words: *knowledge exchange; knowledge governance; local knowledge; multistakeholder platforms; politics of knowledge*

INTRODUCTION

Multistakeholder platforms (MSPs), well-advocated for in the context of implementing integrated landscape approaches (ILAs; Reed et al. 2020a), are an increasingly widespread strategy for enhancing collaborative processes, knowledge sharing and co-production, and identifying innovative ways of resolving sustainability issues and conflicts (Larson et al. 2022, Siangulube et al. 2023, van Ewijk et al. 2024).

We understand an MSP as a space where civil society, government, and business sector actors and/or local communities come together, collaborate, and negotiate to improve environmental or landscape governance, agricultural development, or natural resource management (Reed et al. 2019, Sarmiento Barletti and Larson 2019, 2020, McConnell 2020, Hovardas 2021, van Ewijk and Ros-Tonen 2021, Yami et al. 2021, Larson et al. 2022). While doing so, MSPs may also provide an opportunity for different knowledge systems and holders to discuss, exchange, and co-produce new ways of doing and knowing in landscape management.

Innovative tools and approaches (e.g., Q method, theory of change, spatial tools) are emerging to foster engagement of different knowledge holders, advance knowledge co-production, and generate usable knowledge for all actors involved in these spaces (Tengö et al. 2014, Whyte et al. 2016, Reed et al. 2019, Ros-Tonen et al. 2021, Bayala et al. 2023, Siangulube 2024). Yet, the politics and power dynamics of exchanging, sharing, and co-producing knowledge receive scant attention despite the acknowledgment that these processes are increasingly important (Kaiser et al. 2017).

An emerging body of research has only recently begun to focus on providing a more detailed and disaggregated explanation of the sociocultural processes and group dynamics underlying knowledge-sharing in MSPs and their outcomes (Sarmiento Barletti and Larson 2019, Gonzales Tovar et al. 2021, Larson et al. 2022, Reed et al. 2023, Siangulube et al. 2023). Despite the evolving literature on MSPs, the extent to which local knowledge systems are integrated, and how local knowledge holders are involved remains under-researched (Bekele et al. 2015, Tengö et al. 2017, Hill et al. 2020, Norström et al. 2020, Yanou et al. 2023a). This is particularly problematic given the increasing recognition that local stakeholders and their knowledge systems are important for their stewardship role in biodiversity conservation and environmental sustainability (Garnett et al. 2018, IPBES 2019). Therefore, their representation and equitable participation in environmental decision-making processes demand further investigation (Sarmiento Barletti and Larson 2019, Larson et al. 2022).

In this paper we aim to address these gaps regarding power and sociocultural dynamics of knowledge sharing by analyzing two MSPs in Southern Zambia. The Zambian context is of particular

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interest because the country has recently implemented several policies that promote collaborative management through an integrated development approach (MFDP 2022) while acknowledging the need to recognize and protect local knowledge.

We aim to generate insights into systemic barriers to equitable knowledge sharing, exchange, and co-production in MSPs. Specifically, we seek to understand how local knowledge is integrated into collaborative processes and environmental decision making, and what implications this has for knowledge governance. We ask the following: (i) How are different knowledge holders engaged in knowledge exchange processes in two MSPs in Southern Zambia, and what knowledge do they exchange? (ii) How are local and other knowledge systems being perceived, exchanged, and co-produced?(iii) What role does local knowledge play in decision making, and how do knowledge exchange and decision making in the MSPs reflect the politics of knowledge and principles of knowledge co-production?

CONCEPTUAL BACKGROUND

Engaging with local knowledge systems in MSPs entails encounters with diverse worldviews, values, identities, practices, and ethics in a context of power and rights asymmetry (Johnson et al. 2016, Whyte et al. 2016, Tengö et al. 2017, Reed et al. 2019, Arias-Arévalo et al. 2023, Vatn et al. 2024). We define knowledge as "the information, understanding, and skills [gained] through education or experience" (Oxford Advanced Learner's Dictionary [date unknown]). It comprises three different types of knowledge: (a) generalized or codified (scientific) knowledge that is academically and professionally taught and diffused; (b) practitioner knowledge, which is context-embedded sectoral knowledge belonging to the professional sector and political networks; and (c) Indigenous and local knowledge (ILK), which is context-embedded community knowledge acquired through experience, culture, and practice (van Ewijk and Baud 2009, Pfeffer et al. 2013, Somuah 2018). We define local knowledge in this paper as "a complex system of culturally specific beliefs, taboos and practices that emerged from long-standing interactions with peoples' environment and which has historically evolved and adapted through time, space and (internal and external) influences" (see Yanou et al. 2023b:71, which also provides a more extensive review of terminologies related to ILK and the reason why we use "local knowledge" in the Zambian context).

Several scholars (Akbar 2003, Pfeffer et al. 2013) add tacit knowledge as a type of knowledge acquired through experience and learning by doing, which often remains implicit or, as Planyi (1986, as cited in Williams 2006:81) framed it, "we can know more than we can tell." We exclude tacit knowledge from the classification because it is a contested term (Williams et al. 2020) and because it overlaps with context-embedded community and practitioner knowledge. It should be noted that boundaries between different knowledge types are blurring as knowledge is inherently dynamic, implying that knowledge-based resources and processes for managing those resources are constantly evolving (van Kerkhoff and Szlezák 2010, see also Yanou et al. 2023b).

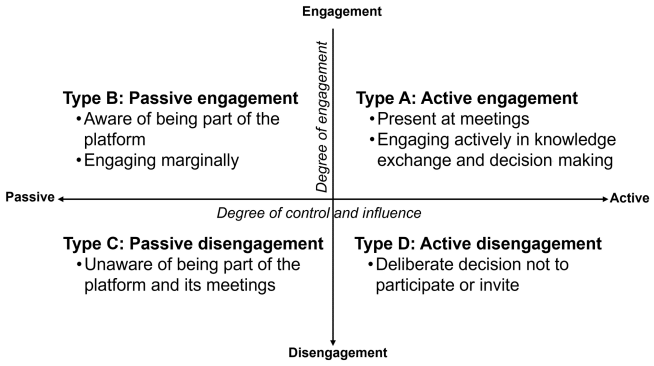
A knowledge system comprises agents, practices, and institutions that organize knowledge production, transfer, and use. Hence, "knowledge systems [can be viewed] as networks of actors connected by social relationships, formal or informal, that dynamically combine knowing, doing, and learning" (van Kerkhoff and Szlezák 2010:4630). In a globalized world, the question is not only whether local knowledge systems have value for sustainability but also whether collaborative processes can support embedded knowledge, actors, and institutions (Reyes-García et al. 2016). Bridging knowledge systems thus necessitates the establishment of environments conducive to multiple forms of knowledge exchange and learning across key aspects of the system through actors, institutions, and processes (Tengö et al. 2017, Hill et al. 2020).

In this regard, knowledge governance, a relatively new concept, helps to better capture the knowledge-based processes and navigate the relationships within and between different knowledge systems, both culturally and politically (Burlamaqui 2012, Gerritsen et al. 2013, van Kerkhoff 2014). Knowledge governance is defined as "the formal and informal rules and conventions that shape the ways we conduct or engage in knowledge processes, such as creating new knowledge, sharing or protecting knowledge, accessing it and applying or using it" (van Kerkhoff and Pilbeam 2017:30). The knowledge governance concept might also help to better understand the contexts and power dynamics that influence development and environmental planning and MSPs' capacities and challenges to include, represent, empower, and benefit communities (Gonzales Tovar et al. 2021, Larson et al. 2022). The concept helps understand why ILK and practices and practitioner knowledge of civil society organizations are marginalized in decision-making processes for environmental governance strategies (Hermans et al. 2017, Thorpe et al. 2021) and why dominant knowledge holders have limited ability and willingness to commit themselves to genuine knowledge co-production (Gerritsen et al. 2013).

MSPs bring scientific, practitioner, and Indigenous and local knowledge together to communicate, share, exchange, and co-produce knowledge for more equitable knowledge interactions (Djenontin and Meadow 2018, Zurba et al. 2022). They play a key role in integrated landscape approaches, a form of negotiated governance to reconcile different land uses and conservation and development aims (Reed et al. 2020a, 2020b).

To analyze how the different knowledge holders are engaged in knowledge exchange processes, we adapted Xu's (2019) typology of levels of inclusion and exclusion (Fig. 1). Although Xu's typology was developed to assess farmers' position in the expansion of industrial tea plantations, we find it useful to apply it to an analysis of how knowledge holders are engaged in knowledge exchange and co-production (Xu 2019). Xu's typology distinguishes between active and passive inclusion and exclusion. However, in this paper, we distinguish between degrees of engagement and disengagement (active and passive). Engagement is classified as active when a stakeholder group is present at meetings and actively participates in knowledge exchange and decision making. Engagement is passive if a stakeholder group is aware of being part of the platform but participates marginally (participation is less than 50% quarterly). Disengagement is passive if a stakeholder group is unaware of being part of an MSP or its meetings, whereas active disengagement involves a deliberate decision not to participate or not to invite an actor.

Fig. 1. Typology of position and degree of engagement. Source: Authors' construct, inspired by Xu (2019).



For a better understanding of knowledge co-production processes in the two MSPs, we build on the knowledge co-production principles synthesized from a systematic literature review by Zurba et al. (2022): (a) context-specific, which takes into account the diverse interests and needs of various stakeholders (Rathwell et al. 2015, Norström et al. 2020); (b) frequent, sustained, and early engagement, especially with ILK holders from the design stage, to ensure their priorities and expectations are properly addressed (Armitage et al. 2011, Matuk et al. 2020); (c) shared understanding and commitment to knowledge co-production that enables co-producers to undertake roles and skills that best suit them (Zurba et al. 2022); (d) and empowerment, which is considered an intangible benefit by balancing the scales of power toward a more equitable decision-making process (Hill et al. 2015, Djenontin and Meadow 2018, Latulippe and Klenk 2020).

This brings us to the politics of knowledge, the use of influence, resources, power, and truth claims to determine what and whose knowledge is legitimate for what aims and the use of knowledge to meet political demands, exert power over others, and maintain existing power asymmetries (Djenontin and Meadow 2018, Yanou et al. 2023a). Equitable and empowering knowledge-sharing processes are needed to deliver usable knowledge while avoiding harm to already vulnerable communities (Whyte et al. 2016, Tengö et al. 2017). Recent studies emphasize meaningful participation at all stages, from design to dissemination (Djenontin and Meadow 2018, Turnhout et al. 2020).

Inspired by Siangulube et al.'s paper (2023), which applied the Powercube developed by Lukes in 1974 (Lukes 2021) and Gaventa (2006) in Zambia, we connect the various knowledge systems to different dimensions of power MSP members exercise in their interaction with local knowledge holders within the platforms. In this paper, we understand power as "the capacity of actors to mobilize agency, resources, and discourses to achieve their goals" (Arias-Arévalo et al. 2023). It comprises three dimensions: visible, hidden, and invisible power (Gaventa 2006, Jacobi and Llanque 2018, Lukes 2021, Siangulube et al. 2023).

Visible power is derived from power via statutory or customary governance institutions or customary inheritance arrangements and regulations, overtly exercised by the staff of government agencies, chiefs, and village heads. Visible power is narrowly associated with the notions of rule making and operational power in the power typology in the IPBES Value Assessment (IPBES 2022), which respectively refer to the power to make rules and exert power and control based on formal and informal rights to resources (Arias-Arévalo et al. 2023, Vatn et al. 2024).

Hidden power refers to the power to influence conversations and agendas behind the scenes. It is exercised covertly but intentionally by donor agencies, economically powerful actors, such as livestock farmers and private enterprises, and holders of "expert knowledge," often making use of discursive or framing power in the communication about knowledge systems (Arias-Arévalo et al. 2023, Vatn et al. 2024).

Invisible power is embedded in diffuse societal structures, norms, ideologies, and cultural practices that shape people's perceptions, beliefs, and behaviors. Unlike hidden power, invisible power operates unconsciously or systemically, often without explicit intent or people being aware of it. It leads to the internalization of societal norms and stereotypes, through which marginalized actors, such as local knowledge holders, community members, women, or smallholder farmers, accept their subordinate position as natural or inevitable, refraining them from voicing their opinions in an MSP (Gaventa 2006, Jacobi and Llanque 2018, Lukes 2021, Siangulube et al. 2023).

In addition, we distinguish countervailing power as the ability of marginalized groups to challenge and resist dominant narratives, knowledge systems, or decision-making processes for more inclusive, equitable, and pluralistic knowledge production and governance (Fox 2020, Siangulube 2024). This dimension is narrowly related to the empowerment principle of knowledge co-production discussed above. Figure 2 illustrates how the various concepts interrelate and guide the analysis in this paper.

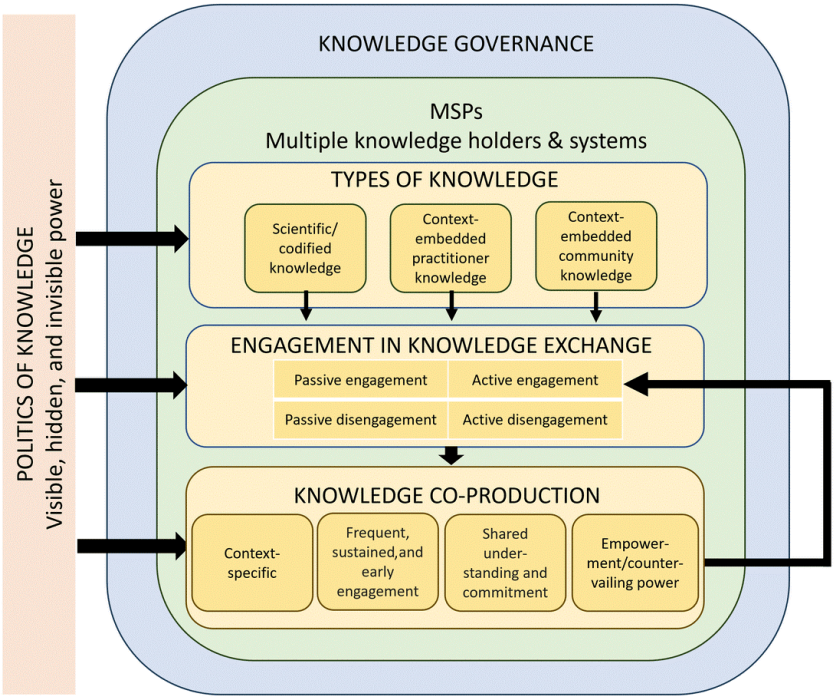
METHODS

Fieldwork was conducted in the Kalomo District in Zambia's Southern Province (Fig. 3) as part of the Collaborating to Operationalise Landscape Approaches for Nature, Development and Sustainability (COLANDS) initiative (https://www.cifor-icraf.org/colands/), led by the Centre for International Forestry Research (CIFOR) in cooperation with the Universities of Amsterdam and British Columbia and local partner organizations in the countries of implementation (in addition to Zambia, Ghana and Indonesia; Reed et al. 2020a). The Amsterdam Institute for Social Science Research (AISSR) Ethics Committee (2020-AISSR-11653) of the University of Amsterdam granted ethical approval for this research.

Positionality

In the context of MSPs and diverse knowledge systems, researchers play a multifaceted role (Funtowicz and Ravetz 2001). In this case study, throughout fieldwork activities, the first author felt more like an observer than an active participant in the landscape. However, they found themselves adopting behaviors akin to "decolonial approaches," which, as Mignolo (2011) describes, involve de-linking from dominant forms of knowledge (and hence power) and opening the door to new ways of thinking and living. We recognize that both researchers and those being researched must engage in a process of healing from the long history of subjugation of Indigenous worldviews, ways of knowing, and knowledge systems (c.f. Chilisa 2012). This includes

Fig. 2. Conceptual framework highlighting that multistakeholder platforms (MSPs) are embedded in broader knowledge governance processes and showing how different types of knowledge are exchanged in MSPs, potentially leading to co-production. The figure shows that the politics of knowledge, conceptualized in this paper as the combined exertion of various forms of power, impact what kind of knowledge is exchanged, who engages in knowledge exchange, and whether that leads to knowledge co-production. Active inclusion of all types of knowledge holders occurs when the knowledge co-production principles apply. The politics of knowledge determine how and what knowledge systems and holders are included and excluded and how different powers are exercised. Sources: Authors' construct, drawing from van Ewijk and Baud (2009), Pfeffer et al. (2013), Somuah (2018), Xu (2019), and Zurba et al. (2022).



addressing deficit theorizing that perpetuates stereotypes of hopelessness and lack of agency (Yanou et al. 2023b). The first author attempted to implement this approach as a foreign researcher in the field, and this is reflected in the joint analysis in the remainder of this paper.

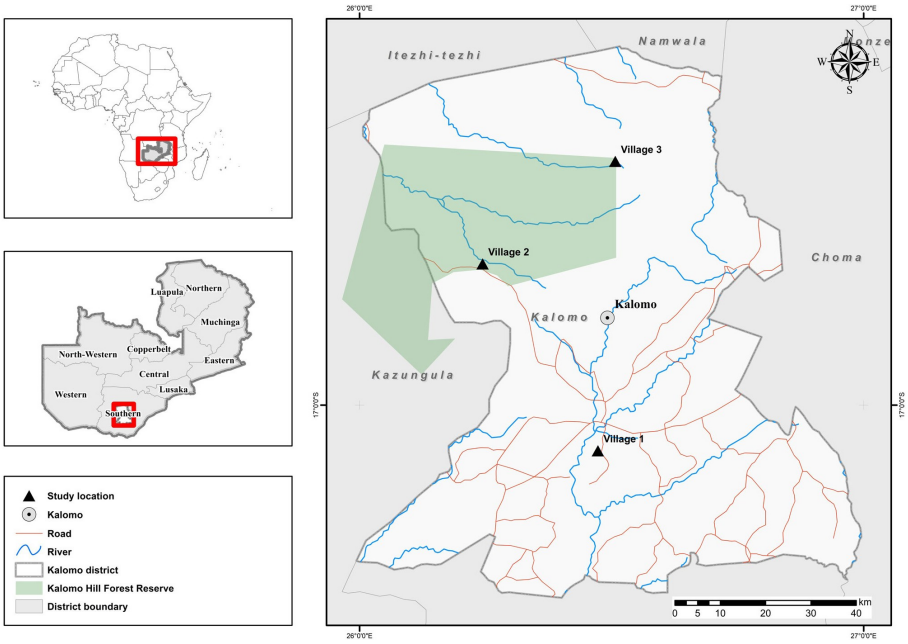
Background to the study area and its knowledge governance structure

The governance structure in Kalomo District illustrates a decentralized structure where central government agencies exercise authority through statutory governance frameworks. Moreover, customary governance is widespread and operated distinctly by three chiefdoms: Sipatunyana, Chikanta, and Siachitema (Moombe et al. 2020). The district represents a contested landscape with fragile institutional ties, conflicts between different levels of governance, and disputes concerning land use and natural resource access. The forest area (the Kalomo Hills Forest Reserve) is subject to growing pressure owing to the increasing need for land for agricultural expansion and infrastructure improvement (Fox 2020).

Legally and politically, Zambia's knowledge governance is embedded in several policies. The current government policy aims to achieve an inclusive and diversified economy, environmental and social sustainability, competitiveness, innovation, and strengthened institutions and capacities (MFDP 2022). The 7th National Development Plan (NDP; 2017–2021) proposed using a theory of change to systematically articulate a set of short and long-term outcomes while providing a clear framework for stakeholder consultations and decentralization (MNDP 2017, Reed et al. 2023). This includes enhancing cultural practices and Indigenous and local knowledge to foster national development (MNDP 2017). The 8th NDP (2022–2026) emphasizes good governance for sustainable natural resource management and climate change mitigation and adaptation, characterized by participation, transparency, accountability, consensus-building, responsiveness, equity, inclusiveness, effectiveness, and efficiency (MFDP 2022). However, compared to the 7th NDP, it has minimal reference to cultural norms and the importance of promoting Indigenous and local practices. Similarly, the Kalomo Integrated Development Plan (2021–2030) makes no mention of local knowledge systems as a strategy for integrating local practices to ensure sustainable landscape management and inclusion in decision-making processes (Makaya and Mpasela 2021).

In contrast, the Protection of Traditional Knowledge, Genetic Resources, and Expression of Folklore Act (no. 16/2016; Government of Zambia 2016) provides a transparent legal framework for protecting, accessing, and using traditional

Fig. 3. Map of Kalomo District, Southern Province (Zambia). Source: Siangulube et al. (2023).



knowledge and practices to guarantee equitable sharing of benefits and effective stakeholder participation. In addition, the act recognizes the spiritual, cultural, social, and political value of local knowledge in Zambia. Internationally, this links to the African Regional Intellectual Property Organization (ARIPO) Swakopmund Protocol on the Protection of Traditional Knowledge and Expression of Folklore of 2010 (ARIPO 2010), which highlights the need to protect local knowledge from misuse and inappropriate use of intellectual property rights. However, Act 16/2016 does not specify how to ensure such protection, particularly in collaborative processes involving knowledge sharing, exchange, or co-production.

Selection of MSPs and respondents

We selected two MSPs based on the following criteria: (a) focused on a particular subnational landscape, the Kalomo District; (b) including at least one representative from the government, non-governmental organizations (NGOs), private sector, and local communities; (c) consisting of institutionalized processes (e.g., statutory, customary, or hybrid; based on legal provisions or voluntary association) being operational for at least one year and not a one-time event; (d) aiming to address both enhanced conservation and development objectives; and (e) representing a sample of MSPs at national, district, and local levels. Local is defined here as embedded in one or more of the three chiefdoms of Kalomo District (Sypatuniana, Siachitema, Chikanta).

The first platform, the District Development Coordinating Committee (DDCC), is the main formal district platform that brings together heads of government agencies and relevant private and public actors. It was created to strengthen venues for engagement in development issues and ensure transparency and accountability mechanisms (MNDP 2017). It aims to contribute to the design and development of district plans, as well as monitoring and evaluation systems, to promote the integration of development strategies at the district level. Such a platform thus functions as a link between the national and district government levels.

The second platform, the Zambia Community-Based Natural Resource Management Forum (ZCBNRMF; see https://www.zcbnrm.com), hereafter also referred to as the Forum, focuses on creating secure livelihoods for communities in Zambia through the sustainable use of natural resources, including forestry, fisheries, water, agriculture, land, and wildlife. The platform was established because of the numerous government programs that sought to mainstream the participation of the MSP in the sustainable management of natural resources. It is an umbrella organization for community-based organizations (CBOs), the private sector, public sector organizations, the donor community, and NGOs with an interest in or support for the platform. As an umbrella organization for civil society organizations (CSOs), it aims to influence policy formulation and facilitate the effective implementation of community-based programs and projects based on sustainable and strategic partnerships between local communities and private and public sectors through continuous stakeholder consultation and networking. A total of nine interviewees were related to the Forum. Both platforms operate within the Kalomo landscape, aiming to address development and environmental concerns at the community level.

It should be noted that it was difficult to achieve a gender balance among the respondents. Representation in DDCC is based on institutional presence, mainly assigned to males, and less on considerations of gender equality (see Appendix 1). In the case of the ZCBNRMF, it was generally difficult to find a sufficient number of members because of the low level of direct involvement in this MSP.

For purposes of validation, we also selected two representatives of organizations that do not participate in either of the platforms, although they seemingly belong to the target group based on their activities. The first non-participant is the chair of the Ward Development Committee of one of the four zones of Mwata (Kalomo District), who would be expected to participate in the DDCC. The second non-participant is the Project Coordinator of a faith-based CSO, the Adventist Development and Relief Agency (ADRA) in Zambia, who would be expected to attend the Forum based on our community-level interviews, where many respondents mentioned the organization's work in all the villages in which we conducted interviews. By interviewing these individuals, we aimed to illustrate why inclusiveness matters, whether non-participants perceive any benefit of their organizations being included in the platforms, explore the reasons behind their perspectives, and provide an external viewpoint on how the platforms' performance affects (or fails to affect) the broader landscape. We asked these respondents why they were not part of the MSPs and how they develop collaboration processes with other stakeholders in the landscape.

Data collection and analysis

Data was collected between April and July 2022. Data collection methods included participant observation in workshops, semi-structured interviews with MSP organizers and participants (n = 25; 16 participating in the DDCC and 9 in the ZCBNRMF), and analysis of peer-reviewed and grey literature and policy documents.

Appendix 1 provides an overview of the categories, interests, and number of respondents. The qualitative data was coded according to themes derived from the conceptual framework (see Appendix 2), and NVivo software was used to organize the data and extract relevant information and quotes related to each of the concepts and research questions.

The names of interviewees were anonymized using codes to respect anonymity. The first part of the code indicates the platform to which the respondent is affiliated (MSP1 = DDCC; MSP2 = ZCBNRMF), and the second part the characteristics of the respondents (GOV = government, NGO = non-governmental organization, non = non-participant). Quotes may have been slightly edited for clarity and fluency without changing the content or meaning.

RESULTS

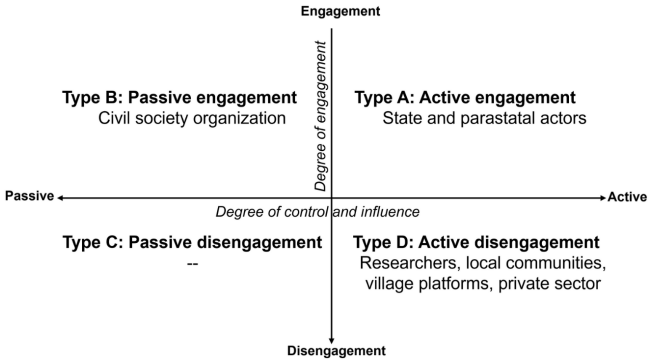
The findings are presented in three subsections, each addressing a specific research question.

Engagement of different knowledge holders in knowledge exchange

Here we explore the role of local knowledge holders in knowledge exchange processes within MSPs, focusing on the types of knowledge they exchange. The analysis reveals that various stakeholder categories exhibit differing levels of engagement in the MSPs.

In the DDCC platform, we interviewed 16 participants: one representative (the executive director) of an NGO working with women and environmental issues in Kalomo District, and the rest were heads of government agencies. Active engagement (Type A) applies to representatives of state agencies and parastatal organizations (Fig. 4). They lead and organize the platform's activities, determining its main interests and goals. Because of the nature of the DDCC platform, participation is described as "mandatory" by government decree (7th and 8th NDP), which explains that the position of the heads of governmental departments is characterized as active inclusion.

Fig. 4. Typology of degree of engagement and control and influence for District Development Coordinating Committee (DDCC) platform participants. Compiled by the authors, adapted from Xu 2019.



Passive engagement (Type B) applies to the local NGO. It is part of the DDCC platform, but seemingly does not actively participate because of a lack of means and resources to participate in meetings: "Challenges to collaboration are funds! We have projects, but we can't keep going because of [a lack of] funds" (MSP1NGO6).

Passive disengagement (Type C) from the DDCC does not apply to any stakeholder group, but active disengagement (Type D) applies to researchers, local communities (Chiefs, headwomen, and headmen), village platforms, and the private sector, who are not often invited to the platform despite their increasing presence and influence in the landscape. This active disengagement is due to the nature of the DDCC as a government-steered platform with a focus on bringing heads of government departments together. Chiefs (or their representatives) are usually invited only to specific MSP meetings if development initiatives in their villages are discussed.

Fourteen respondents believed that communities and village platforms were adequately represented by state actors. Some DDCC participants, such as the Ward Development Committee, were also members of village committees and could channel the voice of the communities and would be willing to do so:

> *If we are given that chance, we would be happy as we have been in Zambia for a long time. We have been doing a lot of interventions since 1996. We believe in collaboration. Working alone, we can't achieve more.* (MSP1Non1)

Despite the different positions and levels of engagement, the main knowledge that was being exchanged was practitioner knowledge (Table 1). Participants discussed and updated various current and upcoming projects. This means that participants mainly exchanged practitioners' knowledge of projects being implemented in the area, trying to coordinate joint fieldwork missions and transports.

Table 1. Participants, collaboration degrees, and type of knowledge exchanged in the two multistakeholder platforms. DDCC = District Development Coordinating Committee; ZCBNRMF = Zambia Community-Based Natural Resource Management Forum.

Actor category	Position	Collaboration degree[†] within the platform	Position and degree of engagement[‡]	Type of knowledge exchanged	Collaboration degree with local knowledge holders	Type of knowledge exchanged with local knowledge holders
DDCC						
Government agencies	Department officers (n=14)	Setting-up collaboration	Active engagement	Practitioner knowledge	Consultative collaboration	Practitioner knowledge (e.g., NRM, land use, agriculture, forest and wildlife management, food security)
Civil society organizations	Executive director (n=1)		Passive engagement	Practitioner knowledge		Practitioner knowledge (women's rights, child marriage, climate change, and sustainable practices)
ZCBNRMF						
Parastatal actors	Fieldwork officer (n=1)	Ignorance	Passive engagement	Practitioner knowledge	Consultative collaboration	Practitioner knowledge (tobacco cultivation)
Civil society organizations	Community-based organizations (n=4)		Passive engagement	Practitioner knowledge	Co-management	Practitioner knowledge (climate change, climate-smart agriculture, local knowledge, child education); local knowledge (climate change, smart agriculture, local knowledge)
Private sector	Seed company (n=1)		Passive disengagement	Practitioner knowledge	Information	Practitioner knowledge (tree nursery)
Research institution	Research assistant (n=1)		Passive disengagement	Practitioner knowledge	Setting-up collaboration Co-management	Research knowledge (deforestation, land use, governance); cultural knowledge
Multilateral agency	Project officer (n=1)	Ignorance	Passive disengagement	Practitioner knowledge	Consultative collaboration	Practitioner knowledge (land management)

[†]We use the collaboration ladder we implemented in Yanou et al. (2023a), adapted from Bao et al. (2020): ignorance, information, consultative, setting-up, co-designed, co-management, and dissemination collaboration.
[‡] See the conceptual framework.
Source: Fieldwork 2022.

Regarding the ZCBNRMF platform, we interviewed nine participants, including the platform organizer, who was responsible for organizing all the activities the forum offers to participants. The others were representatives of an NGO, an international research organization, a faith-based civil society organization, a private seed company that also implements development projects with local communities, a parastatal organization based in Kalomo, and an (ex-)officer from a United Nations organization that implemented development projects in Kalomo District.

As with the DDCC, participants engaged in the ZCBNRMF in different ways (Fig. 5). The Forum organizer seemed to be the only participant actively involved in the platform (active engagement). As the Forum representative, he travels to meet partners, understand their needs and priorities, and report back to the Forum.

In contrast, the development and research organizations were aware of being part of the platform, but explained that the Forum has not really worked as a space for bringing different stakeholders together and exchanging knowledge because of poor communication and little awareness of what the Forum has to offer or when participants come together. Therefore, they did not participate in all meetings (passive engagement). In this case, active disengagement was not intentionally caused by any specific actor but rather the result of a poor communication and implementation strategy by its coordinator.

Although the Forum claims to be a space to work with communities, according to NGO representatives, no community members or village platforms participated in the Forum, again primarily because of poor communication and unawareness in the communities of the Forum's activities (active disengagement). The private sector actor continued to operate outside the Forum, despite implementing sustainable development and natural resource management projects with local communities in response to the companies' social and environmental responsibility policies. The company implemented reforestation and nursery activities at the community level, but there was no coordination or collaboration with organizations implementing similar projects. This participant appeared to be the least involved and unaware of being part of the DDCC or ZCBNRMF platforms (passive disengagement). They developed their own agenda through social responsibility projects on tree management with the communities in the landscape, in isolation from the MSPs, to the extent that it can be questioned whether this is not a case of active exclusion.

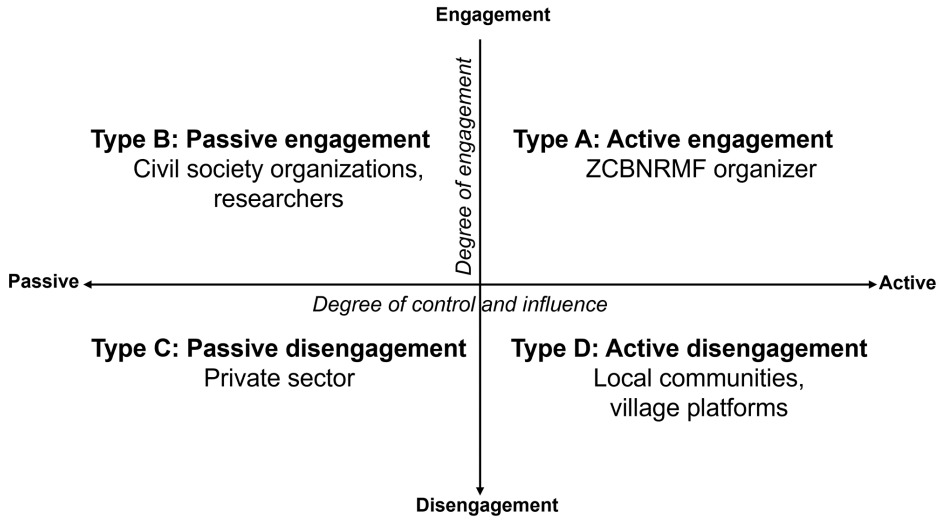
A representative of a faith-based organization outside the Forum emphasized the importance of their organization being part of the Forum network. They highlighted that their organization works closely with grassroots communities and that the ZCBNRMF should be aware of their activities (MSP2Non1). Despite operating in the Kalomo landscape for many years and implementing projects across several villages, their presence and work have largely gone unnoticed by other actors in the landscape. This lack of recognition has sometimes led to duplicated efforts in similar interventions.

The Forum serves as a space for participants to share information about potential community-based natural resource management projects (Table 1), thereby fostering collaboration among participants. This primarily involves the exchange of practitioner knowledge (Interview Forum coordinator, Livingstone, June 2022). However, the interviewees did not recall any knowledge exchange, nor were there any joint projects developed through the platforms.

Perceptions, exchange, and co-production of knowledge

During quarterly meetings, participants in the DDCC shared and exchanged information and updates on current and future interventions and projects implemented in the district by

Fig. 5. Typology of degree of engagement and control and influence for the Zambia Community-Based Natural Resource Management Forum (ZCBNRMF) platform. Compiled by the authors, adapted from Xu 2019.



government agencies. However, two government representatives noted that the platform had previously held only two meetings per year, which had low attendance. One blamed the COVID-19 pandemic, while the other attributed the limited number of meetings to a lack of organization and prioritization.

> *We are supposed to have four meetings annually. But in the past years, there were instances where we had two DDCC meetings in a year, maybe because of disorganization and a lack of seriousness toward it. This is because priority is given to other meetings, like council management meetings or others, and then the DDCC meeting would be lacking.* (MSP1Gov2)

In this regard, two government representatives complained about the failure and slowness of bureaucracy in the flow of information across different scales. One governmental stakeholder explained:

> *There is no follow-up mechanism, or maybe there is, but these offices do not share. It would be good to share something with the province; there should be feedback.* (MSP1Gov2)

Three other governmental actors involved in the DDCC complained about gaps in the information flow, as exemplified in the following quote:

> *I have not seen any program sensitizing and sharing knowledge for almost five years. If citizens do not know, the platform will be more or less irrelevant because the people would not see the need for it.* (MSP2Gov5)

Respondents explained that the DDCC platform is intended to be a place where each affiliate can share a report with their cluster's chairperson, who presents all the updates from the cluster at the platform meeting. A cluster consists of a group of government department representatives from different line ministries and other non-state actors that collaborate on projects, interventions, and policy-making processes. Information sharing focuses on ongoing development projects, accomplishments, challenges encountered, and recommendations. The information would then be transferred to a platform at the next level (Provincial Development Coordinating Committees) and finally to the highest-level platform (National Development Coordinating Committees). Through this process, national government policy makers should receive feedback from lower governance layers, which may lead to policy changes. Despite the envisioned structure, respondents complained about the severe lack of information sharing and transfer across committees at different government levels.

Participants' expectations were high because they participated in and engaged with the platforms. The head of a governmental department anticipated significant policy changes and issues related to land and boundary disputes. State and NGO actors working in the same field were willing to learn from each other and exchange information because this helps them better understand what can be improved and how common challenges can be overcome. The parastatal stakeholder also emphasized the need for the government to invest more in information and knowledge sharing, particularly in providing financial means for transportation to support fieldwork activities.

Regarding local knowledge systems, DDCC members believed that local knowledge should be integrated into collaborative processes and environmental decision making. However, as clarified in the previous section, community participants were actively disengaged from the DDCC, meaning local knowledge and practices were generally excluded or not fully validated regarding their relative potential for environmental and natural resource management compared to other knowledge systems and holders.

Five governmental participants viewed local knowledge with skepticism, considering it a practice that may undermine sustainable natural resource management. Four lacked a clear understanding of how local knowledge and practices are related

to natural resource management. Seven governmental stakeholders had a thorough understanding of local environmental practices and their benefits. For example, ethnoveterinary is a practice that uses medicinal plants for curing cattle. A respondent confirmed that:

> *I'd not say [it is] so much used by the department. But I think we are almost going toward that, but it has not yet been incorporated into the department. They [the communities] are still using the conventional way.* (MSP1Gov9)

At the community level, DDCC member organizations used fieldwork activities, radio, questionnaires, and surveys to collect data to collaborate with villagers. However, in several cases, local communities were unable to follow up or access the data collected, primarily because there was no feedback on the results. Moreover, partly because of finance and resource constraints, most knowledge-sharing projects relied heavily on "external" knowledge implementers, i.e., research organizations such as CIFOR and research institutes affiliated with multilateral agencies, such as the European Commission, to conduct fieldwork activities, such as monitoring projects or receiving community feedback.

For the implementation and monitoring of practitioner knowledge, government agencies sometimes collaborate with other organizations. A forestry officer explained:

> *We work hand in hand with CARE International to establish tree nurseries. A camp officer from the Agriculture Department helps us to monitor the nursery. The Forestry Department does not have camp officers because of financial and administrative issues.* (MSP1Gov11)

External support is also essential to overcome practical challenges, such as a lack of financial and transportation means to go to the field and visit communities:

> *We have some transportation challenges. We entirely depend on NGOs, such as CIFOR and CARE International, which collaborate with our department. At least we have two radio stations in Kalomo now, so we can inform people about community visits and the program on such a day, as we did in Chiefdom Siachitema.* (MSP1Gov11)

In the ZCBNRMF platform, the MSP organizer mentioned that there are typically meetings once every two months, depending on project funding and the need for deliverables. No other participants confirmed this statement, partly because it was challenging to identify stakeholders who were directly and actively involved in the platform and meetings. Participants from the public and private sectors (n = 4) were unaware that their organization was part of the platform (despite claims from ZCBNRMF).

Participants use the platform to convey knowledge to stakeholders through means such as websites, reports, and social media, allowing for a two-way exchange of ideas and experiences (Table 2). Determining stakeholders' attendance levels proved challenging, as some interviewees who were aware of the platform were not actively involved. In other cases, the interviewees were organizational representatives who were not directly engaged with the platform, as the individuals who typically participated were unavailable. Generally, stakeholders' engagement is project-based: they interact when they co-manage and co-implement projects. The ZCBNRMF's organizer explained:

> *So, you find that partners have work [a project] but do not have the expertise in that area. So I asked what they want the forum to help them with, and they'll tell you. ... They requested governance training for the community-based organizations they work with. That gives visibility to the forum and shows how it contributes to project implementation by partners.* (MSP2NGO3)

However, none of the other interviewees recalled direct interactions with the Forum or its organizer for collaboration or information and knowledge sharing. Similarly, the platform's organizer appeared to be the only actively participating stakeholder with all relevant information on the platform's structure, dynamics, and goals.

Knowledge exchange between Forum participants and local knowledge holders in the communities takes place through fieldwork activities, surveys, and questionnaires. Such mechanisms seldom allow for two-way knowledge flows but rather represent one-way flows of information, which we earlier referred to as informative and consultative collaboration, respectively (Yanou et al. 2023a). Moreover, parastatal and private sector actors seemed not to implement any methods to disseminate and provide feedback to and from the communities they work with.

Participants who worked with local communities tended to integrate local knowledge and practices in natural resource management activities. They considered local knowledge particularly key to climate change adaptation and ethnoveterinary, and believed that a sense of ownership among the communities could be useful in future projects they intend to develop.

> *Recently, we had a workshop that looked at the use of local knowledge in climate change adaptation. We looked at local knowledge, and part of the workshop was in the field to share ideas by looking at the knowledge from the*

Table 2. Methods of knowledge dissemination used by multistakeholder platforms (MSPs) participants. DDCC = District Development Coordinating Committee; ZCBNRMF = Zambia Community-Based Natural Resource Management Forum.

Knowledge dissemination methods	DDCC	DDCC (and local knowledge holders)	ZCBNRMF	ZCBNRMF (and local knowledge holders)
Meetings	n = 15	n = 15	None	
Reports, annual reports	n = 15	n = 15	None	
Websites			n = 1	
Email groups			n = 1	
WhatsApp, Facebook			n = 1	
Radio		n = 1		
Fieldwork activities, questionnaires, surveys, flyers	n = 15	n = 15		n = 6

Source: Fieldwork 2022.

> *community. So, we did things like resource mapping. There was a lot of knowledge from the community, which we feel can be used in future projects dealing with climate change. We have two participating areas in Kalomo where we try to tap the basic knowledge from local communities on climate change and how they adapt.* (MSP2NGO1)

The Forum organizer explained that for many people, local knowledge has ceased to be the primary knowledge used for environmental management since colonial times, as colonizers introduced a legally recognized "adaptive management strategy" that communities should adopt. Because the Forum works primarily with community boards, associations that give a voice to rural communities living near national parks, game management areas, and protected forests, the platform submitted a law proposal package to the government in 2020 to ensure community rights, such as fair revenue-sharing between communities and the state in game management areas. The law proposal was suspended because of the presidential elections.

The role of local knowledge in decision making and the politics of knowledge

As the research made clear, little or no knowledge exchange and co-production occurred in the two MSPs, and representatives of local communities and village platforms were not part of them. Therefore, we sought indirect evidence of how influence and power play out in the interactions between platform members and local knowledge holders. First, we asked respondents if the platform they engage with has helped empower local communities, even though they do not participate in the platform. All respondents involved in the DDCC were of the opinion that local knowledge systems and holders do not influence or impact policy and decision making on natural resource management.

Besides that, the DDCC as a whole has limited influence or power toward policy-making processes, or, in the words of two governmental officers in the DDCC, "no real power." One of the respondents mentioned:

> *I would not want to use [the word] power, maybe influence. Because when you say power, it means having authority, but I like to distinguish between power and influence. When you have power, it means you have muscles, finances, and a say. But when you are only able to influence, you may not necessarily dictate what type of project we choose to be there. That's why I am saying the DDCC is more or less an influencer and assessing what is happening in terms of development.* (MSP1Gov5)

Next, we explored how different actors (and their degrees of engagement, see Table 1) and knowledge systems exercise different powers in the decision-making process (Table 3). In the case of the DDCC, visible power is in the hands of the heads of governmental agencies at the district level, who can set the agenda and prioritize interventions at the community level based on knowledge they report to higher-level governmental platforms.

The private sector exercises hidden power. Although actively disengaging from both the DDCC and the Forum, seed companies have a strong presence and power in the landscape. They possess the knowledge and power to set their own agenda, primarily utilizing codified knowledge through top-down approaches that often overlook or fail to engage with other forms of knowledge, such as local or practitioner knowledge. This means that holders of hidden power, based on having their own means, can supersede other knowledge holders without creating space for knowledge exchange, co-production, or other forms of collaboration.

Although they are formally part of the DDCC, NGOs cannot directly influence government agenda-setting, partly because of active disengagement and partly because of a lack of means and resources to participate in the MSPs. However, through lobbying and advocacy, they counteract invisible power to influence policies, such as those regarding women's rights and local climate change adaptation (see Table 1). In their relations with communities, they use visible power when they implement (and sometimes co-develop) projects to address people's needs. For instance, ADRA and CARE International are two organizations that work closely with communities to meet their knowledge needs regarding climate change, climate-smart agriculture, and seed management. Although they create space for local communities to express their needs and share their knowledge, in practice, we were not able to fully grasp the degree to which local knowledge holders have a say in the implementation of such projects, or instead, whether NGOs' practitioner knowledge prevails in all stages of the projects.

Similarly, local knowledge holders, although supposedly represented in the DDCC, are not directly involved. They continue to be (mis)represented by state actors or their elected councilors, resulting in their knowledge and decision-making power being consistently excluded from decision making. However, there is evidence of communities leveraging countervailing power to challenge (invisible) power, often with the support of NGOs, for instance, by advocating for gender equity or advancing a justice agenda.

The empowering role of the ZCBNRMF is limited because local communities and knowledge holders are underrepresented in the Forum, lacking the authority to influence the agenda, collaborate, or report on their needs. The Forum organizer uses knowledge and visible power to convene relevant stakeholders working with local communities, without considering the communities' engagement. However, the organizer pointed out the importance of empowerment through capacity building and community training. All interviewees agree that there is much to be done in this regard:

> *It is paramount for local people to know what they are supposed to do. Rights to access and ownership of natural resources [are important]. When they feel they have the ownership, they feel it's their responsibility [to manage resources sustainably].* (MSP2NGO3)

Furthermore, all participants emphasized the importance of developing community rights, including women's rights. Women in Kalomo face marginalization, which affects their access to land and natural resources. For instance, men are the primary owners of livestock, while women are typically responsible for small stock. When women have access to land, they borrow it from their husbands. However, in such cases, the community tends to have less trust in her ability to manage that portion of land compared to a man's. Yet, all stakeholders in the NGO-led forum confirmed that women's roles in agriculture and natural resource management are important:

Table 3. Type of knowledge and forms of power exercised by multistakeholder platform (MSP) members in their interaction with local communities outside the platform. DDCC = District Development Coordinating Committee.

Actor	Type of knowledge	Forms of power exercised	Example of knowledge-power relations
State and parastatal actors	Practitioner knowledge	Visible	Instill fear of evictions and sanctions among local communities that illegally utilize resources (e.g., introducing agricultural and forestry practices to communities, which overshadow local practices already in use in the communities). Power can be exercised through compulsion, such as disciplining erring government officials, as well as concrete and intangible incentives like recognition, encouragement, and awards (e.g., labor days).
Civil society organizations	Practitioner knowledge	Visible; Invisible	Dialogue is used to influence local ideologies and cultural views, and to ensure compliance with local needs (e.g., creating and building local schools, such as colleges, and promoting sustainable development practices like smart agriculture). However, the organization operates thanks to external funds and has no concrete ties or engagement with MSPs or the government.
Researchers	Codified/scientific knowledge (absent in the DDCC)	Visible; Invisible	Create a common ground for collaboration with different landscape actors. These actors can collaborate with government representatives, for instance, organizing workshops and fieldwork activities with local knowledge holders to understand landscape and land-use issues.
Private sector	Practitioner knowledge	Hidden	Use "corporate responsibilities" as a pretext to maintain the status quo and prioritize their own agenda. For instance, a seed company implements development projects independently without any government or research consultations.
Local communities (village platforms)	Local knowledge (absent in the platforms)	Invisible	Encourage local participation in decision making and recognize their ability to act on common views and norms. Kalomo communities already use and apply local practices for sustainable landscape management.

Source: Observations and interviews with MSP members, fieldwork 2022.

> *Whatever activities we are doing, we advocate for 50/50 participants. They are an important part … a lot of ideas come from women.* (MSP2NGO1)

Despite ongoing debates, also in this Forum, knowledge and power (in different degrees) remain in the hands of different participants but not local communities (Table 3).

DISCUSSION

This paper aimed to disentangle knowledge exchange and co-production processes and associated power dynamics in two MSPs in Zambia: the government-led DDCC and the NGO-led ZCBNRMF. The findings were illuminating: hardly any evidence of knowledge exchange and co-production was found in the DDCC, and not at all in the ZCBNRMF. Insofar as knowledge was exchanged, it was mainly restricted to practitioner knowledge and mostly concerned practical information on interventions. No knowledge exchange or co-production occurred with local knowledge holders, whose positions and engagement in the MSPs were characterized by active disengagement and exclusion. Based on the findings, it is challenging to determine the extent to which knowledge co-production principles apply to the two MSPs. We, therefore, also consider the interactions of MSP members with local communities irrespective of the two MSPs.

Principle 1: Context-based

Because of the diversity and interdependence of different contexts and places, knowledge sharing, exchange, and co-production should be context-embedded (Zurba et al. 2022). We conclude that this is not the case for the MSP studied, nor for the interactions of MSP members with local communities. Results on the DDCC showed selective reporting of knowledge to higher-level platforms, suggesting that place-based knowledge at the local and district level may partially or not reach the central government. This implies that the needs, interests, beliefs, and goals of different groups of stakeholders are excluded from decision making at higher levels (Polk 2015, Rathwell et al. 2015, Norström et al. 2020, Zurba et al. 2022). This exclusion of local knowledge represents a missed opportunity for the potential it has for environmental management. For instance, in the Northern province of Zambia, a study found that weather forecasting indicators derived from local knowledge are more accurate than meteorological indicators based on codified knowledge (Kasali 2011).

Such struggles to achieve equitable recognition and integration of Indigenous and local knowledge systems are common across various contexts. These challenges are linked not only to the complexities of interactions between different knowledge systems and their holders but also to the broader social and research value attributed to a specific knowledge system (Zurba et al. 2022, Yanou et al. 2023a).

Principle 2: Frequent, sustained, and early engagement

The findings showed that the second knowledge co-production principle, i.e., frequent, sustained, and early engagement of the most marginalized knowledge systems and holders, was completely absent in the interactions between MSP members and local communities. The lack of financial means for proactive collaboration is one factor, as is the exercise of visible and hidden power of actors engaging with local communities, resulting in one-way knowledge flows characterized by informative or consultative collaboration (Yanou et al. 2023a). Invisible (or structural) power also plays a significant role in this regard, as illustrated by Yanou et al. (2024), who highlighted that community members had internalized the perceived "inferiority" of their knowledge and regarded "external" knowledge as inherently superior. This dynamic is closely tied to the use of discursive and framing power, as evidenced in interviews with government actors who expressed skepticism about the value of local knowledge.

Yet, a growing body of literature highlights the importance of starting collaboration with local knowledge holders from the design stage of collaborative processes (Yanou et al. 2024). Early engagement allows for developing and implementing projects in ways that comply with local priorities and expectations, identify culturally appropriate methods and communication channels (Norström et al. 2020, Maclean et al. 2022), prioritize local needs

(Djenontin and Meadow 2018, Yanou et al. 2023a), address power-sharing scenarios and conflicting worldviews (Siangulube et al. 2023), and foster trust, respect, and reciprocity among all platform participants (Sarmiento Barletti and Larson 2019, Larson et al. 2022).

Complexities are inherent in these collaborative processes (Djenontin and Meadow 2018). This is often attributed to operational issues, including inadequate measures, insufficient organizational support, and insufficient funding for engagement activities in research and knowledge exchange, as well as the lack of time to conduct these activities alongside other responsibilities (Cvitanovic et al. 2015a, 2015b). Several scholars have argued that holders of codified and practitioner knowledge should provide room for ILK holders to lead and progress beyond being mere stakeholders and knowledge sources (Artelle et al. 2019, Latulippe and Klenk 2020). However, as we will argue below, achieving knowledge co-production goes beyond participatory fixes and requires fundamental changes in knowledge governance.

Principle 3: Shared understanding and commitment to knowledge co-production

Commitment to knowledge co-production is considered key to knowledge pluralism and enhancing the legitimacy, credibility, and context-relevant pathways toward sustainability (Norström et al. 2020). It is crucial for a shared understanding of context- and culture-specific pathways toward sustainability (Zurba et al. 2022). The findings revealed a lack of shared understanding and commitment among different knowledge holders. This hinders a common understanding of each other's abilities and responsibilities and makes it more difficult to achieve common goals (Djenontin and Meadow 2018, Norström et al. 2020).

Recent literature emphasizes the importance of jointly developing a theory of change to foster a shared understanding of conservation and development challenges and to build commitment toward actionable co-produced knowledge (Reed et al. 2023, 2024). Such a theory of change provides insights into the drivers of change and assumptions about how a series of actions will contribute to a desired change based on a common understanding of goals, objectives, success metrics, and the design of co-production processes (Reed et al. 2023, 2024). It is thereby critical to recognize that there are several viable pathways to achieving a shared goal (Norström et al. 2020), which pluralistic knowledge systems can help reveal (Caniglia et al. 2021, Clement 2022, Halfon and Sovacool 2023). The findings indicate that although several stakeholders are eager to engage in a multi-sectoral process aimed at achieving a shared objective, endeavors remain fragmented and underdeveloped. This indicates a lack of effective co-produced strategies for conservation and development objectives, with the least powerful stakeholders remaining passively engaged.

Principle 4: Empowerment to create more equitable space in collaborative processes

The principle of empowerment encompasses all other principles previously mentioned. Although collaborative knowledge processes are empowering in themselves (Klenk et al. 2017), the studied MSPs lack such processes, including in the interactions between MSP members and local communities outside the purview of the MSPs. The politics of knowledge played a role in this respect.

The findings show that the government is one of the most powerful actors in the Kalomo landscape and, therefore, their (predominantly practitioner) knowledge is more dominant and influential, implying visible power in decision-making processes. On the contrary, local knowledge holders remain the most marginalized, as their representation is poor or lacking. Consequently, their knowledge and practices remain invisible and unintegrated in the MSPs. In between this hierarchy, NGOs and researchers interact with both the government and the communities. They wield both visible and hidden power through lobbying and advocacy while challenging invisible power through awareness-raising campaigns for justice and women's rights (see also Siangulube et al. 2023). With the government, these actors are primarily subjected to government power and knowledge, but with communities, they are more willing to engage at an early stage and create space for communities to express their needs. Although practitioner knowledge prevails in these interactions, limiting the empowering potential of knowledge exchange, their use of power to change the narrative regarding local knowledge partly compensates for this.

Finally, the private sector is the most powerful actor in the landscape and decides if and when to interact with other stakeholders. In most cases, the corporate sector avoids participating in collective conversations, using subtle strategies and hidden power to prioritize its own agenda over broader concerns at the landscape level (see also Upla et al. 2022). One way of exerting its power is through collaborations with the government, such as establishing joint venture seed companies in places like Kalomo. These companies sell seeds to smallholders, effectively holding a monopoly over seed-related practitioner knowledge in the area. To demonstrate a commitment to sustainable landscape management, companies independently implement development projects in local communities, such as establishing tree nurseries. This constellation of exerting hidden power undermines the empowerment of marginalized knowledge holders.

Implications for knowledge governance

As highlighted in the conceptual section, knowledge governance comprises the formal and informal rules that steer how actors engage in knowledge sharing, co-production, or use. Despite good intentions backed by laws, this study found a notable failure to integrate local knowledge and its holders in the two MSPs studied. In this section, we reflect on the implications of the findings for the broader knowledge governance debate.

First, effective knowledge governance requires the participation of diverse stakeholders, including holders of ILK. Active or passive disengagement of local knowledge holders compromises the legitimacy, credibility, and relevance of environmental decision making (Matuk et al. 2020). This applies as much to global knowledge processes as to local MSPs, as argued for the IPBES (Díaz-Reviriego et al. 2019, Arias-Arévalo et al. 2023, Vatn et al. 2024) and the food systems science-policy landscape (Turnhout et al. 2021).

Second, and related to the previous point, knowledge governance should adopt pluralistic approaches. In this respect, Halfon and Sovacool (2023) introduce the concept of "pluralistic collaboration," which transcends notions like inter- or transdisciplinarity. Instead, they argue for the integration of diverse perspectives across epistemic practices, cultures, norms,

and work styles. Although they focus on academic collaborations, their idea of pluralistic collaboration can also be applied to local and global MSPs.

Third, knowledge governance should embrace co-production processes based on early, frequent, and sustained engagement as well as shared understanding and commitment to ensure context-relevant and actionable solutions and empowered local knowledge holders capable of exerting countervailing power (van Kerkhoff 2014, Norström et al. 2020, Zurba et al. 2022). This paper showed that there were few incentives for stakeholders to engage in such processes and that accountability mechanisms were lacking if they failed to do so.

The previous point suggests a limited willingness to fundamentally change the status quo and address power imbalances. Our last point, therefore, emphasizes that knowledge governance must actively address power dynamics. This paper revealed overt and covert power plays that marginalize ILK knowledge systems. This implies that democratizing knowledge governance goes beyond the perfection of participatory methods and requires "reversing top-down research and the hegemony of scientism" to empower and assign more agency to marginalized knowledge producers such as smallholder farmers and Indigenous people (Pimbert 2018:261). This also requires unveiling the epistemological barriers between knowledge systems and governance frameworks that value diverse worldviews (Obermeister 2017).

For researchers, this implies the need to make power imbalances and epistemological frictions explicit and reflect on implicit assumptions about actors' roles and obligations (Turnhout et al. 2020, Siangulube et al. 2023). It also implies a critical role for CSOs in amplifying the voices of marginalized groups, enabling them to claim and exercise their rights, and advocating for the inclusion of ILK and a better integration of MSPs into decision making.

Limitations of the research

Because of time restrictions and the limited number of prospective respondents affiliated with the two MSPs, the sample of MSP representatives was small, and some viewpoints may have been missed. Furthermore, we were unable to provide an adequate sample of female respondents. Finally, although a finding in itself, we found limited evidence of knowledge exchange and co-production in the DDCC and none at all in the ZCBNRMF.

However, it is important to highlight that our case study demonstrates the absence of knowledge exchange and co-production processes, which underscores the inability of existing MSPs to advance knowledge co-production strategies within multistakeholder processes, disrupt entrenched power hierarchies, or meaningfully include local or marginalized voices. Despite the intentions embedded in Zambian policies and laws to valorize local knowledge, there are no incentives or mechanisms in place to hold platform organizers accountable for excluding marginalized knowledge holders. Similar conclusions were drawn in a comparative review of MSPs targeting sustainable land and forest use by Larson et al. (2022). This does not imply that all multi-stakeholder platforms are inherently incapable of achieving more inclusive and transformative outcomes, but our study found little evidence of such outcomes being realized.

The absence of knowledge co-production processes also limited our ability to apply the more nuanced power typology of the IPBES Value Assessment (2022) to analyze how discursive and framing power (Arias-Arévalo et al. 2023, Vatn et al. 2024) are used to prioritize and valorize certain types of knowledge over others. Although we found anecdotal evidence of structural power (e.g., government actors expressing skepticism about local knowledge) and framing power (e.g., NGOs challenging gender norms and raising awareness of the value of local knowledge), future research could explore in greater depth the role of discursive and framing power in justifying or contesting the dominance of scientific and practitioner knowledge over local knowledge in the governance of natural resources and landscapes.

Despite these limitations, the findings reveal significant sociocultural and political-economic dynamics of knowledge exchange and co-production in the Zambian context. For example, despite government efforts toward decentralization and integrated and collaborative development, as well as legal recognition of the spiritual, cultural, social, and political value of local knowledge, decision making remains mostly centralized and top-down. It is also worth noting that although worldwide and national policy discussions favor more equitable environmental governance and natural resource management, reality has yet to be matched with rhetoric.

CONCLUSIONS

Despite the growing recognition that mobilizing diverse actors, knowledge systems, and values is critical to sustainability initiatives, their coexistence remains challenging. Systemic barriers hinder the integration of local knowledge systems and holders into collaborative processes of environmental management and policy making. This study demonstrated that the two MSPs in Zambia's Kalomo District are no exception.

The findings revealed that, despite the potential to provide spaces for mobilizing diverse stakeholders for knowledge sharing, exchange, and co-production, the integration of local communities into these platforms and knowledge exchange was virtually non-existent. Similarly, the knowledge co-production principles of being context-based, frequent, persistent, and early involvement, shared understanding and commitment, and empowerment were not upheld. Local knowledge holders were actively and passively excluded from MSPs, where decisions about the landscape were made without considering their aims, needs, and knowledge.

At an operational level, this exclusion was attributed to time and resource constraints, poor communication strategies, and inadequate and ambiguous approaches to engaging local knowledge systems and holders. However, a deeper analysis revealed that these exclusionary practices were perpetuated by visible, hidden, and invisible forms of power, with limited countervailing power from community actors or NGOs advocating for gender equity and justice.

In conclusion, ensuring equitable representation and developing effective mechanisms for sharing, exchanging, and co-producing knowledge remains a significant challenge. Addressing these issues requires fundamental changes in knowledge governance, including fostering the inclusion of marginalized knowledge holders, adopting pluralistic approaches, committing to

knowledge co-production, and tackling power imbalances. Without such changes, knowledge co-production remains an exercise that uses an ILK narrative for its rhetorical strength without giving local knowledge holders any substantive decision-making power.

Data Availability:

The data and code that support the findings of this study are available on request from the corresponding author, MPY.

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Appendix 1. Participant categories of the two MSPs in Kalomo District and their representation in the sample

Category	Definition	Interest	No. of respondents		
			DDCC	ZCBNRMF	Non-participant
Statal actors	Governmental stakeholders representing state interests involved in coordinating and implementing social, economic, and natural resource management policies at the district level.	Addressing economic, human, and social development while ensuring environmental sustainability within the district.	14	-	1
Parastatal actors	State-owned organizations and public-private partnerships that work for the government and share similar interests and profits.	Contribute to government interventions through media engagement and maintain the flow of funds from private to public initiatives.	-	1	-
Civil society organizations	This category refers to a wide array of not-for-profit organizations, for instance, community groups, non-governmental organizations (NGOs), charitable organizations, faith-based organizations, and foundations that aim to help protect the rights of local communities and natural resource users.	Empower the most marginalized groups and ensure the protection of their rights to natural resources.	1	4	1
Village Platforms[†]	Stakeholders at the village level who voluntarily organize a platform to serve as a link between the needs of the community to achieve development goals.	Help identify development issues at the community level and report to the government.	-	-	-

(table continues)

Category	Definition	Interest	No. of respondents		
			DDCC	ZCBNRMF	Non-participant
Private sector	The private sector consists of all privately owned and for-profit businesses.	Ensure the flow of public funds to private initiatives.	-	1	-
Researchers	Scholars and staff of research organizations who provide information and knowledge through projects that work with local communities on landscape governance, natural resource management, and human rights.	Developing research-based activities on land-use and natural resource management while enhancing multistakeholder collaboration processes.	-	1	-
Multilateral agency	Multilateral development banks or International financial institutions are formed by three or more countries that work together on issues of common interest and global priority.	Promoting economic and social development in specific countries or regions.		1	
Subtotal	23		15	8	
Non-participants	2		1	1	
Total	25		16	9	

[†] Although village platforms are included in the Kalomo landscape dynamics for decision-making processes, no representatives from village platforms were interviewed because none of the village platforms are part of the MPS we selected, and MSP participants did not identify them as potential missing stakeholders in the MSPs.
Source: Fieldwork 2022.

Appendix 2. Coding scheme

Theme	Codes
a) MSP characteristics	MSP structure
	MSP member category
	MSP aim
	MSP opportunity (for knowledge co-production)
	MSP challenge (to knowledge co-production)
b) Type of collaboration	Ignorance (no collaboration)
	Information (one-way info downflow)
	Consultative (one-way info upflow)
	Setting up (2-way discussion in MSP)
	Co-designed (sense of ownership)
	Co-management (full and active engagement)
	Dissemination (sharing results and communication strategies)
b) Participation and representation	Active inclusive engagement
	Passive excluded engagement
	Active inclusive engagement
	Passive excluded engagement
c) Knowledge types	Codified/scientific knowledge
	Practitioner knowledge
	Local knowledge
d) Knowledge exchange	Means of exchanging knowledge [to be specified]
e) Knowledge co-production principles	Context-based
	Early and sustained engagement
	Shared understanding and commitment
	Empowerment
e) Influence on decisions and policy	Actor with power to influence
	Actor without power to influence
	Reason for having (no) influence
f) Power	Visible power
	Hidden power
	Invisible power