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Navigating multi-level natural resource governance: an analytical guide

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Navigating multi-level natural resource governance: an analytical guide

Fiona Nunan ⓘ

Abstract

A plethora of terms are used to describe the form of governance of complex social-ecological systems, such as multi-level governance, polycentricity and network governance. This plethora of terms is associated with a diffuse literature from which it can be challenging to identify which variables are important for investigation of the governance system and what questions could be asked. The purpose of this article is to present the development of a guide for the analysis of the complex governance systems of renewable natural resources, informed by a breadth of literature from which key characteristics, challenges and concepts are identified. The guide consists of three dimensions: multiplicities of levels, actors and institutions; the existence, opportunities for, and challenges of, interactions within and between levels (vertical and horizontal interactions); and an assessment of governance performance through application of governance principles. The guide is applied to a case study of mangrove forests in Kenya, to illustrate its utility in generating understanding and identification of challenges and opportunities for more effective multi-level governance. It is proposed that the guide could be beneficial to researchers and practitioners seeking to develop an understanding of structures, performance and outcomes of multi-level governance.

Keywords: Multi-level governance; network governance; polycentricity; natural resource governance; mangrove forests.

1. Introduction

The governance of renewable natural resources, such as fisheries, forests and river basins, has long been recognized as complex, stemming from interconnections within and between multi-faceted natural and social systems (Andersson and Ostrom, 2008; Blomquist, 2009; Poteete, 2012). Some natural resource systems cross administrative boundaries and fall within the remit of multiple levels of governance. In addition, they may offer multiple benefits and so attract multiple users with different objectives, interests, degrees of power and resources. The complexity of natural resource governance further increases with new actors coming in through the decentralization of natural resource governance to local authorities, the adoption or emergence of participatory, collaborative approaches and the introduction of market-type initiatives such as payment for ecosystem services and certification schemes.

This resulting interactive, multi-tiered system of governance has been described in several ways, including as multi-level governance, polycentricity and network governance. Multi-level governance highlights the existence of multiple actors interacting at multiple administrative levels and multiple scales (Armitage, 2008; Mwangi and Wardell, 2012), whilst polycentricity recognizes "systems with many centres of decision making … multi-level governance in polycentric systems implies that decision making authority is distributed in a nested hierarchy and does not reside at one single level" (Pahl-Wostl, 2009: 357). In contrast, network governance recognizes that interactions may cut across levels and are not bounded or constrained by administrative levels (Carlsson and Sandström, 2008). There is then a diversity of concepts and approaches that have been used to describe and analyse complex natural resource governance.

Despite a plethora of terms and associated literature, there is no clear guide available on how to approach an analysis of the landscape of multi-tiered governance of renewable natural resources. It is proposed here that such a guide would be beneficial for researchers and practitioners seeking to develop an understanding of structures, performance and outcomes of governance. Such a guide can inform research design and analysis seeking to answer a range of research questions. The term "multi-level governance" is used as it reflects the formal governance

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arrangements in many settings, organized around different administrative levels of national, sub-national and local government and found at regional and international levels. The use of this term does not mean that interactions always take place within formal arrangements or within or between certain levels. Networking can take place within a multi-level arrangement, with network governance emerging from actors seeking collaboration and exchange of information in search of solutions to complex problems (Gibbs, 2008; Provan and Kenis, 2008; Scarlett and McKinney, 2016).

The purpose of this article is to present the development of the guide, informed by a breadth of literature from which key characteristics, challenges and concepts associated with multi-level governance have been identified. The guide does not seek to be normative or prescriptive; it does not set out an ideal for multi-level governance or components that must be present. It does not suggest that multi-level governance is necessarily coherent, coordinated or effective; it may be fragmented, weak and ineffective. Nor does it seek to determine which level or actor should be allocated which responsibilities, as might be the concern of analysis of environmental federalism and subsidiarity (Mostert, 2015).

The purpose of the guide is to assist researchers and practitioners in finding their way around, or navigating, the landscape of multi-level governance of renewable natural resources. The development of the guide is informed by reviewing definitions of, and trends in, natural resource governance, characteristics of multi-level governance and how the performance of natural resource governance has been assessed. From this review, three interconnected dimensions are identified to inform a sequential analysis. These dimensions are the multiplicities of levels, actors and institutions that necessitate interaction leading to the second dimension, being the existence, opportunities for, and challenges of, interactions within and between levels (vertical and horizontal interactions), with the performance of the levels, actors and institutions and interactions between them assessed in terms of a set of governance principles, which constitute the third dimension. Each dimension is elaborated on by identifying key associated components from relevant literature, which inform a set of questions to facilitate analysis.

The guide is then applied to a case study of mangrove forests in Kenya, to illustrate its utility in generating the understanding and identification of challenges and opportunities for more effective multi-level governance. Three key observations emerge from this application: there may be a diversity of objectives, policies and management approaches within government as well as a diversity of actors beyond government in natural resource governance, creating challenges for effective policy design and implementation; whilst many opportunities for more coordinated multi-level governance may exist on paper, interaction within and between levels tends to be *ad hoc*, depending on project-

funded activities and personal connections; and many challenges are associated with the performance of governance, for example in terms of accountability, legitimacy, participation and representation, resulting from an uncoordinated, fragmented system of multi-level governance.

It is concluded that the guide has the potential to assist in the navigation and analysis of the landscape of multi-level governance, informing understanding of the context of multi-level governance and of the opportunities and challenges for more coordinated, integrated and effective governance.

2. What characterizes multi-level governance of renewable natural resources?

The purpose of this section is to identify key characteristics of the multi-level governance of renewable natural resources to determine the appropriate dimensions of the guide. To do this, definitions of, and trends in, natural resource governance are reviewed; from this, the interactive nature of multi-level governance is highlighted, together with consequences for the effectiveness of governance structures and processes.

Natural resource governance has been defined as "those rules and processes that control the allocation of rights to and use of natural resources like forests, carbon, wildlife and land", with the "distribution and exercise of power" being fundamental to how natural resource governance operates and its outcomes (Barnes, 2014: 3). Campese (2016: 7) defines natural resource governance as "the norms, institutions, and processes that determine how power and responsibilities over natural resources are exercised, how decisions are taken and how citizens – including women, men, youth, indigenous peoples and local communities – secure access to, participate in, and are impacted by the management of natural resources". Governance is therefore concerned with who has power and responsibility and how that power and responsibility are used to influence access to, and benefits from, natural resources.

The governance of renewable natural resources has been characterized by three trends since the 1980s, which explain the involvement of a diversity of actors, operating at multiple levels. First, the increase in the decentralization of management functions from central government to lower level authorities (Bartley *et al.*, 2008; Larson and Ribot, 2004; Larson and Soto, 2008; Ribot, 2002) and the often associated implementation of participatory or collaborative management approaches, including community-based natural resource management and co-management (Mwangi and Wardell, 2012). Second, new public management in the 1980s and 1990s led to the creation of specialized government structures away from more general bureaucracies, which resulted in a need to develop new mechanisms to encourage coordination (Bouckaert *et al.*, 2010). The formation of many specialized government structures is

reflected in Ballet *et al.*'s (2009) observation that the governance of environment and natural resources in developing countries is often characterized by the existence of many ministries or public bodies with responsibility for the environment and natural resources, leading to a fragmentation of governance. Third, the uptake of certification schemes and payment for ecosystem services has brought the private sector, civil society and market-type instruments into governance arrangements (Cashore *et al.*, 2004; Matzdorf *et al.*, 2013), thereby increasing the range and number of actors and interests. These three trends reflect the wider context of the displacement of state power and control, upwards, downwards and outwards; upwards to international actors and organizations, downwards to regions, cities and communities and outwards to civil society and non-state actors (Pierre and Peters, 2000).

These trends suggest that a multiplicity of parts and levels of government and other actors are involved in governance, each with their own interests and resources, and that this multiplicity characterizes multi-level governance. Associated with this characteristic is a multiplicity of "institutions". Institutions, understood as "rules of the game" (North, 1990: 3), facilitate and inform decision-making and are therefore an integral part of governance arrangements. Institutions also shape, and are shaped by, governance arrangements and performance (Blomquist, 2009). Institutions may be diverse in their source, remit and function, to include government policy and legislation, local taboos and cultural norms (Nunan *et al.*, 2015).

The existence of multiple actors operating at multiple levels, with their roles and performance informed by a range of institutions, suggests that interactions within (horizontal) and between (vertical) levels are likely, or at least may be desirable. Horizontal and vertical interactions therefore form a further key characteristic of multi-level governance (Mwangi and Wardell, 2012; Vousden, 2016). Horizontal interactions facilitate cooperation and coordination between actors at any one level, whilst vertical interactions facilitate the flow of resources, information and decisions up and down the system. However, such interaction, vertical and horizontal, whilst desirable, may be infrequent, with limited coordination and cooperation between actors, leading to a lack of policy coherence overall. Termeer *et al.* (2010: 5) refer to this as the "coordination dilemma", resulting from "transactions costs of coordinating multiple actors at multiple levels". In addition, interactions may bypass intermediate levels reflecting networks that form as actors seek alliances and solutions to complex problems of governing ecosystems (Adger *et al.*, 2005).

Given this multiplicity of actors, levels and interactions, a further characteristic of the multi-level governance of natural resources is that it faces challenges of inadequate accountability, legitimacy and transparency (Poteete, 2012; Termeer *et al.*, 2010; Wyborn and Bixler, 2013). This is due to the range and diversity of actors and interactions, obscuring responsibility for decision-making and

reporting. Investigation of the activities and performance of actors and systems within a natural resource governance context has taken place through the development and application of sets of governance principles (Lockwood *et al.*, 2010; Springer, 2016). Such principles include accountability, representation and legitimacy; assessment of a governance system against these principles enables analysis of how a governance system is arranged and working, and working for whom.

This review of the key characteristics of, and challenges for, multi-level governance suggests that a guide to facilitate the analysis of the landscape of multi-level governance should enable analysis in three areas:

1. Multiplicities of levels, actors and institutions.
2. The existence of, opportunities for and challenges to vertical and horizontal interactions.
3. Assessment of governance performance through application of governance principles.

The components of each of the three sections of the guide are identified and elaborated on in the following section.

3. Developing a guide for analysing the multi-level governance landscape of renewable natural resources

This section identifies and examines critical components of each dimension that should be encapsulated within the guide, drawing on literature that suggests how actors and levels can be identified and understood, how institutions may be categorized, what may constitute interactions between actors, what challenges may be experienced in interacting in a coordinated and effective way and how the performance of the governance system may be assessed in terms of governance principles. The findings from this review are presented in the final section in the form of a guide in Figure 1, with a table setting out questions to inform data collection and analysis.

3.1. Multiplicities of levels, actors and institutions

In the previous section, it was observed that multi-level governance is characterized by multiplicities of levels, actors and institutions. The purpose of this section is to investigate how these levels, actors and institutions can be identified, categorized and analysed.

In terms of levels, these can be viewed in two ways: as administrative levels and in an analytical sense. In referring to levels as "administrative", these reflect the levels of national administration determined by a government (national, district and village, for example), as well as beyond the national level to regional and international levels. It is assumed that these are linked together, often
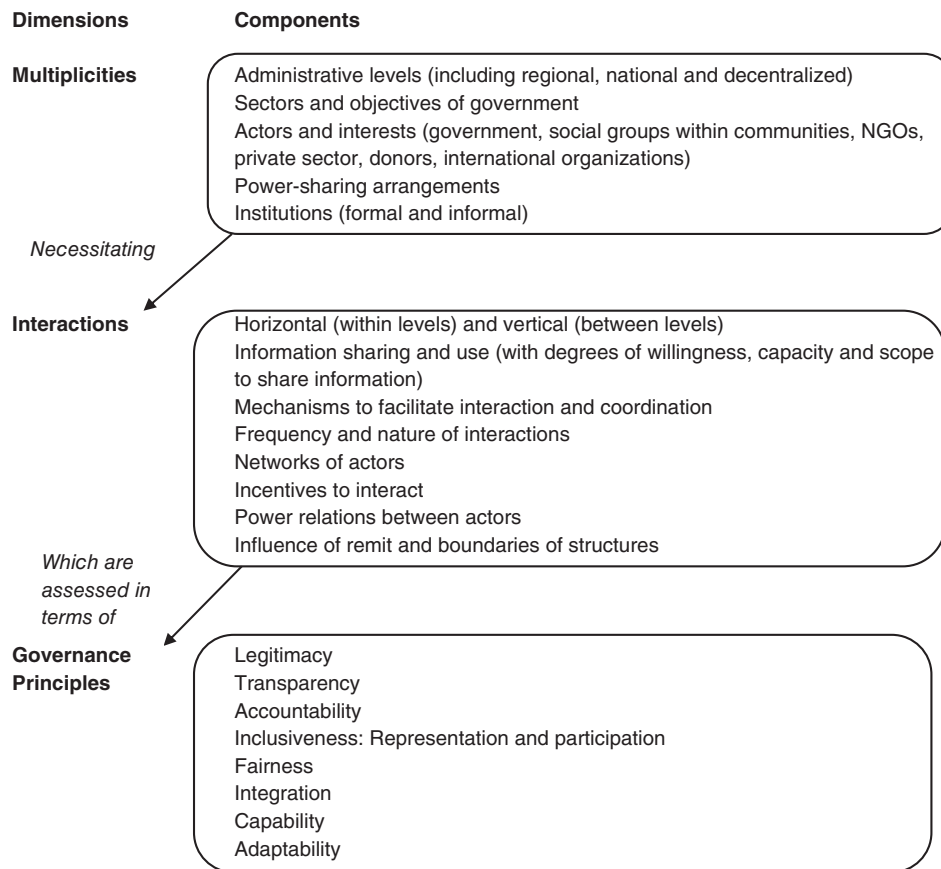
Dimensions	Components
Multiplicities	Administrative levels (including regional, national and decentralized) Sectors and objectives of government Actors and interests (government, social groups within communities, NGOs, private sector, donors, international organizations) Power-sharing arrangements Institutions (formal and informal)

Necessitating

Interactions	Horizontal (within levels) and vertical (between levels) Information sharing and use (with degrees of willingness, capacity and scope to share information) Mechanisms to facilitate interaction and coordination Frequency and nature of interactions Networks of actors Incentives to interact Power relations between actors Influence of remit and boundaries of structures

Which are assessed in terms of

Governance Principles	Legitimacy Transparency Accountability Inclusiveness: Representation and participation Fairness Integration Capability Adaptability

Figure 1. Guide for analysing multi-level governance of natural resources. *Source*: Author.

with legal mandates, setting out functions, resources and remit. In an analytical sense, levels refer to "the units of analysis that are located on the same position on a scale", where "scale" refers to "the spatial, temporal, quantitative, or analytical dimensions used to measure and study any phenomenon" (Gibson *et al*., 2000: 218).

Within these levels, there may be multiple actors, associated with institutions that are territorially or functionally defined (Poteete, 2012), with Poteete (2012) suggesting that two types of actors can be identified: the actors directly involved in institutional design – government agencies and departments, non-governmental organizations (NGOs), interest groups and international organizations and those affected by institutional design, often identified by socially disaggregated categories, for example by gender, age, ethnicity and livelihood strategy. There could, of course, be overlaps between these categories, with actors both involved in and affected by institutional design. Further guidance on how to identify actors within multi-level governance is provided by the observation that civil society actors often play a vital role in facilitating interactions between actors both across and within levels (Sattler *et al*., 2016). In situations where the private sector and international organizations are involved in natural resource governance, such as in certification and PES schemes, additional actors may enter the governance system. However, the state

still plays a strong role in these initiatives, influencing the uptake and direction of such schemes, and so remains within the governance system (Giessen *et al*., 2016; Matzdorf *et al*., 2013).

A key challenge in identifying which actors are relevant within the context of multi-level governance of natural resources is whether the governance system "fits" with the biophysical system. The "problem of fit" suggests that very often governance systems do not match onto the biophysical system, leading to challenges in the effectiveness of governance systems and the need for bridging organizations, coordination arrangements or the formation of collaborative structures (Cash *et al*., 2006; Guerrero *et al*., 2015; Sayles and Baggio, 2017). The formation of networks may also be a response to the problem of fit, with actors seeking out other actors through formal or informal networking (Pittman and Armitage, 2017).

As governance arrangements and performance are affected by the "distribution and exercise of power" (Barnes, 2014: 3), power will influence which actors are involved in decision-making, what decisions are made and with what consequences for the natural resources and for different groups of people. Power within natural resource governance may be manifested in formal power-sharing arrangements between actors and levels and in interpersonal relations. The degree of, and arrangements for,

power-sharing between central and local governments, and between governments and resource users, is a significant concern as central governments, or other powerful actors, often hold onto power, for example in relation to allocating access or collecting revenue (Poteete and Ribot, 2011; Ribot, 2003). "Elite" individuals within a community, perhaps having more power and wealth and a higher social status, may capture community-based structures to protect or promote their own interests (Child and Barnes, 2010; Muyengwa *et al.*, 2014). In addition, manifestations of social power affect how actors interact and the subsequent outcomes (Pansardi, 2012). The nature of power sharing and power relations are interlinked and may change over time and space (Raik *et al.* 2008). Linkages and interactions in a multi-level governance context may lead to shifts in power dynamics related to decision-making, the flow and sharing of resources and the reshaping of alliances (Poteete, 2012). The identification and analysis of actors then should recognize the nature and influence of power and include analysis of the dynamics of power relations. Methods such as stakeholder analysis and social network analysis have been widely used to identify stakeholders and their ties, or interactions, within natural resource governance settings, thereby identifying the centrality and importance of certain stakeholders within a governance context (Bodin and Crona, 2009; Prell *et al.*, 2009; Reed *et al.*, 2009).

To identify and analyse the multiplicity of institutions that inform governance arrangements and performance, recognition of different types of institutions is essential. Institutions may be categorized as "formal" and "informal", or bureaucratic, "formalized arrangements based on explicit organisational structures, contracts and legal rights" and socially-embedded, "based on culture, social organisation and daily practice" (Cleaver, 2002: 13). These categories are not entirely separate and institutions may form that borrow from both; they may interact or be pieced together through processes of bricolage (Cleaver, 2002). Ostrom (1990: 51) takes a different approach, viewing institutions as "sets of working rules" that "are nested in another set of rules that define how the first set of rules can be changed". This "nesting" of rules, or institutions, suggests that whilst institutions should be identified and analysed at all levels, connections between them, vertical as well as horizontal, should be identified and investigated as well, as observed within literature on polycentric governance (Gruby and Basurto, 2013). Analysis of institutions can be informed by both approaches.

This section suggests that identification of relevant administrative levels and jurisdictions is needed in an analysis of multi-level governance, with actors and their interests within each level identified, noting that there may be multiple actors and interests within as well as beyond government. A diversity of institutions that form part of the governance landscape should be identified and analysed, with analysis of manifestations of power that influence the structures, processes and outcomes of governance.

3.2. Vertical and horizontal interactions

The second dimension concerns the existence of, opportunities for and challenges to vertical and horizontal interactions. Whilst interactions and linkages are referred to in literature on multi-level governance of natural resources, there are few examples given of what these are and how they may take place. One mechanism seen as facilitating interaction is the participation of actors from lower levels in higher level decision-making, often through systems of representation. Such interaction should assist with the sharing and flow of information and the dissemination of decisions. The establishment of feedback loops can facilitate the generation, sharing and use of information, with information feeding back into decision-making. Feeding information from outcomes or consequences into decision-making is a key characteristic of adaptive governance and builds the capacity of governance systems to adapt to new situations and information (Pahl-Wostl, 2009).

Interactions associated with planning, budgeting, revenue generation and expenditure may also take place between actors in natural resource governance, often within a context of legal mandate, but also dependent on willingness, incentives and capacity to interact. The frequency of interactions may be quite varied and there may or may not be mechanisms that enable interactions, such as officers with an appropriate remit, regular meetings, dedicated committees and reporting requirements (Nunan *et al.*, 2012). Interactions may or may not take place as required by legislation, and the extent and nature of interactions may be influenced by informal institutions.

The occurrence of interactions and linkages suggests there may be a need for a level of coordination between actors. Robins *et al.* (2011) observe that structures to facilitate coordination are essential for network governance, whilst others suggest that network governance itself can be "viewed as a mechanism of coordination" (Provan and Kenis, 2008: 232). However construed, coordination of actors, structures and policy across and between levels is seen as posing a significant challenge for multi-level governance because of the range and diversity of actors, interests and interactions (Hooghe and Marks, 2003; Vousden, 2016). Lessons can be learnt for multi-level natural resource governance from literature on policy coordination. The definition of policy coordination given by Lindblom (1965: 15) is useful for analysing the degree of coordination within and across policy sectors:

> *"A set of decisions is coordinated if adjustments have been made in it such that the adverse consequences of any one decision for other decisions in the set are to a degree and in some frequency avoided, reduced, counterbalanced, or outweighed".*

Peters (2013) suggests that the coordination of public policy can usefully be seen as a collective action problem; that is, a problem that when solved would benefit multiple individuals or organizations, but bringing about a solution comes with a cost, making it very difficult for individuals to take action alone. He then suggests that a collective action approach to the coordination of public policies should involve information sharing and bargaining. Information to be shared would include information on goals and priorities as well as information on the nature of the sector and trends. Once information has been shared, bargaining may commence, led by the key agency. Building on this, Peters (2013) suggests that the following elements could lead to a more fruitful approach to policy coordination: examining how problems and policies are "framed", that is, how they are explained and discussed; how networks of actors within and between policy areas influence coordination; and the potential for individuals to connect two or more organizations, referred to as "boundary spanners". In an example of analysis of the practice of policy coordination in South Africa, Kraak (2011) observes a number of structural responses to facilitate horizontal coordination within government as: informal coordination, inter-departmental committees, task teams, central agencies and coordinating and planning units in a Prime Minister's Office (PMO). These structures differ in terms of the commitment of government and their potential for enabling coordination, with the unit in the PMO seen as the most effective coordinating mechanism. Peters' (2013) observations on policy coordination and the South African example provide illustrations of how interaction could be manifested in practice and what kinds of structures and systems may be in place to facilitate coordination.

Research into policy coordination has identified a number of barriers, including differences in the way that a policy area or problem is understood, sectors not wanting other sectors to have influence on "their" area of policy and a lack of willingness to share information (Peters, 2013). There can also be concerns about the financial implications of coordination, with any shift in policy remit potentially having implications for the allocation of budgets. In a similar vein, Poteete (2012) identifies two types of problems that may emerge in relation to coordination between multi-level actors: firstly, securing agreement across actors is challenging, given the multiplicity of actors, structures and interests; and, secondly, actors at different levels may fail to acknowledge one another in their decision-making and action. There may, instead, be competition between actors, organizations and decisions. Competition between different parts of government, for example, may result from the desire to capture funding (Poteete, 2012). The extent and effectiveness of cross and within-level interactions are highly dependent on the extent and effectiveness of coordination and cooperation. The identification of barriers to, and challenges facing, coordination can inform the identification and analysis of challenges to interaction within multi-level governance.

In an analysis of the landscape of multi-level governance of natural resources, this review of within- and between-level interactions and policy coordination suggests that past and ongoing interactions between actors should be identified and understood, as well as opportunities for, and challenges to, interactions and linkages. Understanding is also needed of how interactions are facilitated and who benefits, informed by analysis of power dynamics that shape, and are shaped by, interactions (Raik *et al.*, 2008).

3.3. Governance performance through application of governance principles

The preceding components of the guide focus on the arrangements, structures and systems of multilevel governance. Within any arrangement or system, assessment of how the system is working and performing can be undertaken in relation to certain "good governance principles". For multilevel governance, this is particularly important because the complexity of the system may challenge perceptions of, and delivery on, participation, equity, transparency and accountability. Termeer *et al.* (2010: 6), for example, note that "multilevel governance can result in a lack of transparency and democratic legitimacy" given the involvement of many actors at different levels, not all of whom can be held accountable by all other actors involved.

Sets of principles of good governance have been developed by many international and national agencies to guide analyses of governance performance and the design of policy and interventions, with a varied number and phrasing of principles (Gisselquist, 2012). Within natural resource governance, examples of two sets of governance principles are Lockwood *et al.*'s (2010) set of eight principles of legitimacy, transparency, accountability, inclusiveness, fairness, integration, capability and adaptability, and Springer's (2016) set of 12 principles of inclusive decision-making, recognition and respect for legitimate tenure rights, devolution, diversity of cultures and knowledge, strategic vision, empowerment, coordination and coherence, sustainable resources and livelihoods, social and environmental accountability, protection of the vulnerable, rule of law, and access to justice. Table 1 sets out the principles taken from Lockwood *et al.* for use as a starting point in the guide, recognising that the set of principles used in an analysis will vary depending on the context and analytical interest. A set of key questions that could be asked in relation to principles has been generated based on Lockwood *et al.*'s (2010) text, with a deeper reflection on three key principles, providing further insight. These three principles are elaborated on as they are highlighted in literature on multi-level governance (Poteete, 2012; Termeer *et al.*, 2010; Wyborn and Bixler, 2013). These are: representation and participation of resource users; accountability, in terms

Table 1. Key questions to investigate good governance

Principle	Questions to be asked
Legitimacy	• What legal mandate does each actor and structure have within the context of natural resource governance? • How committed are actors to the multilevel governance systems and processes, and how is this demonstrated? • What are the perceptions of legitimacy by actors within and beyond the governance system?
Transparency	• How visible are decision-making processes, and is information available to stakeholders on the governance system? • Are reasons for decisions communicated to stakeholders?
Accountability	• What are the systems and processes for holding actors and structures to account, and how frequent and effective are these? • How well are they working and why? • What evidence is there of downward accountability as well as upward?
Inclusiveness	• Are mechanisms available to enable all groups of stakeholders to participate in and influence decision-making processes and outcomes? • What is the basis of representation at all levels? • How and why does representation change between levels, and with what implications?
Fairness	• Have the interests of all stakeholders been sought and considered? • Is there any bias towards a particular group/interest in decision-making? • How are the costs and benefits of decisions distributed?
Integration	• Is there coordination between and within levels of governance? • How do information and resources flow? • Do priorities, plans and activities within and across levels of governance fit together?
Capability	• Do those involved in governance have the skills, resources, experience, and knowledge needed? • Are there systems in place that enable effective governance?
Adaptability	• How do the governance structures seek and respond to new knowledge? • How is uncertainty coped with? • How are problems and issues anticipated and managed? • Do individuals and structures reflect on and learn from performance?

Source: Adapted Nunan (2015) and Lockwood *et al.* (2010).

of the direction, extent and frequency of, as well as mechanisms for, accountability; and legitimacy.

The form and extent of representation is critical within natural resource governance systems because not all resource users can be involved in decision-making. At the community level, there may be an elected user group or committee, which sends representatives up to the next decision-making level, which may be a sub-national level, such as district or county, reflecting a "nested" system of governance (Ostrom, 1990; Poteete, 2012). Representation of resource users may, according to Jentoft *et al.* (2003), be on the basis of function, territory or virtue and wisdom, or a combination of these. They go on to pose four questions regarding representation in fisheries co-management that have relevance to the analysis of representation in multi-level governance: who can legitimately claim to be recognized as a user or stakeholder; in what capacity should users and stakeholders be represented; how much involvement should there be; and how should representation be carried out, in terms of how should the representatives consult with, and be accountable to, the wider community (Jentoft *et al.*, 2003).

An analysis of the multi-level governance landscape should seek to investigate the basis, performance and outcomes of representation at all levels, seeking evidence of equity and fairness in terms of participation and representation of all relevant social groupings, whether on the basis of occupation, location, age, gender or ethnicity. Such an analysis should be informed by appreciation of the nature and manifestation of power, as the distribution and utilization of power influences who is involved, why and with what consequences (Few, 2002). In terms of representation from the community level, attention should be given to how different groups are represented at higher levels, given that there are fewer representatives at higher levels and that there is potential for more marginal groups, including women, to be inadequately represented.

The systems and performance of representation of interests at all governance levels clearly brings into question the direction and nature of accountability. Accountability is concerned with how responsibilities have been distributed and met (Lockwood *et al.*, 2010). Within literature on the decentralization of natural resource management, a key concern raised is the lack of downward accountability to resource users (Larson and Soto, 2008; Ribot, 2003). Actors in devolved levels of governance tend to report upward rather than downward to communities, though the same would apply to actors and structures at the national and regional levels. A lack of accountability then, particularly horizontally to actors at the same level and downward to lower levels, is a concern for multilevel governance. The distribution of power within a governance system will affect the potential to hold actors and structures to account, particularly those at a higher level. Many mechanisms could be employed to encourage accountability, though they vary in terms of frequency of operation and effectiveness. Whilst elections are often held up as a way of enabling accountability, elected officials may not be readily held accountable to their constituents, and elections are too infrequent to be very effective in delivering on accountability. Ribot (2003: 58) identifies non-electoral mechanisms

for increasing downward accountability of decentralized authorities as including "third-party monitoring by media, NGOs or independently elected controllers; auditing and evaluation; political pressures and lobbying; media/NGO provision of information on roles and obligations of government; taxation; embeddedness of leaders in their community; and belief systems of leaders and their communities".

The question of representation at all levels of governance is also closely linked to perceptions of legitimacy of structures, actors, processes and decisions. Legitimacy may first stem from the legal mandate that structures and processes have. Structures in place to enable interaction and coordination, for example, will not be able to enforce decisions if they do not have a legal basis on which to do so. However, legality as a source of legitimacy is insufficient on its own. Legitimacy has also been seen as "socially constructed" (Mcloughlin, 2015: 348), with sources or manifestations of legitimacy differing between situations and contexts. Acceptance by stakeholders of the authority of those involved in governance also provides legitimacy (Lockwood *et al.*, 2010; Sandström *et al.*, 2014). Jentoft (2000) usefully distinguishes between "internal" and "external" legitimacy, recognising that groups beyond resource users are also concerned with, and affected by, the legitimacy of governance arrangements for a natural resource. Systems of participation and representation of resource users may increase internal legitimacy, whilst reducing external perceptions of legitimacy. In investigating legitimacy in five coastal co-management cases in Sweden, Sandström *et al.* (2014) conclude that the past and present institutional landscape, the choice of actors to become involved in the governance system and the degree of commitment to the arrangements by government actors can influence stakeholders' acceptance. These findings suggest that building legitimacy can take time, that sources of legitimacy may vary and that actor commitment to the governance system is important.

Key questions arising from the brief review of these principles are set out in Table 1, as a summary of the key concerns for an analysis of the performance of multilevel governance. The choice of principles and questions to be asked will depend on the context of the natural resource governance situation and the overall purpose of the analysis; however, the table acts as a guide to the analysis of the performance of governance within the context of multi-level governance.

3.4. A guide for analysing multi-level governance of natural resources

The identification of the three components in Section 2 and analysis of concerns and variables within each component in Section 3 leads to the guide presented in Figure 1 and elaborated on in Table 2. Figure 1 shows how and why the components are linked. The figure reflects the observation that the existence of multiplicities of levels, actors and institutions within the landscape of multi-level governance *necessitates* interaction between actors and structures within and across levels and that the performance of this diversity of levels, actors and institutions can be *assessed in terms of* governance principles.

Table 2 elaborates on Figure 1 by framing the components as questions to guide data collection and analysis. The governance principles and associated questions set out in Table 1 are brought together into a more manageable set of questions for the third component. As a guide, it may be adapted and modified to reflect new evidence and different contexts, but it should also be used in a way that reflects the dynamics of any governance situation, where politics, economic conditions and many other factors may result in changes to power relations, participation, representation and outcomes. This means that it is not possible to say which questions in Table 2 are more important than others, as that will depend on the research question being asked and what is happening in the empirical situation.

4. Case study application: Gazi Bay mangrove forest, Kenya

The case of Gazi Bay mangrove forests in Kenya is given as an example of how the guide can be applied and what findings may be generated. Mangrove forests present a challenge for governance as they are located both in the sea and on land and, whilst they generally fall within the remit of forest departments, their use, status and management are affected by many other government sectors, including fisheries, coastal zone management and land use planning (Rotich *et al.*, 2016). In their review of international experience of the governance of mangrove forests, Rotich *et al.* (2016: 6) found that governance is often "constrained by lack of enforcement and implementation of established mandates, weak cross-sectoral coordination, and sometimes conflict and competition among agencies". In 2016, two workshops were held in Kenya to discuss the practice, challenges and opportunities of the multi-level governance of coastal ecosystems; the first brought together actors at the local and county (devolved) level at the coast in Kwale County, and the second brought together government departments/ministries and NGOs at the national level. Analysis from the findings of the workshop can be found in Nunan *et al.* (2016), and is drawn on here to illustrate the utility of the guide. The application of the guide can be seen in Table 3. Not all questions included in Table 2 are directly answered, but instead key points are clustered to bring out the most important and interesting points of the case.

From the table, it can be seen that the boundaries of the mangrove forest in Gazi Bay are considered to be clear and whilst two villages utilize the forest, the actors involved in the governance of the forest go up to the national level.

Table 2. Analysing multi-level governance

Dimension	Questions to be asked
Multiplicities of levels, actors and institutions	Which administrative levels and boundaries have a remit on the spatial area and natural resource system, and how well do they align?
	Which actors and agencies use or make decisions that have an impact on use of the natural resource, and where does their legal mandate come from?
	What are the policies, legislation and plans that have an impact on the use and management of the natural resource? How do these fit together?
	Which institutions (formal and informal) influence decision-making, why and how?
	What are the sources and manifestations of power of structures, actors and processes?
Vertical and horizontal interactions	Do actors/organizations interact with other actors/organizations within and between levels? If yes, how frequently, why and how?
	Is interaction formal (required and against certain expectations, e.g. in a committee) or informal (e.g. through friendship or kinship networks)?
	Do mechanisms exist to encourage interactions, what are these and who benefits from them?
	If actors/organizations do not interact, why is this? What factors prevent or constrain interaction?
	Is there coordination of policy, legislation, plans and practice? If not, how are potential differences or conflict prevented or resolved?
	What might be opportunities for enabling greater, or more effective, interaction within and between actors?
Governance performance assessed through application of governance principles	How accepted are the forms and processes of governance by affected actors and why?
	How visible are decisions and decision-making processes?
	What mechanisms exist to require accountability and in which directions is there accountability? How well do these work and why? What are the challenges for effective accountability?
	What mechanisms and systems exist for representation, participation and inclusion of actors/ organizations/communities at the different levels? How well do these work and why?
	What skills, experience, resources and information do actors have to enable their effective participation in governance?
	Do governance structures act on new information and show evidence of adapting as a result of new information?

Source: Author.

Actors and structures from multiple sectors are involved, with the Kenya Forest Service taking the lead role. A community forest association (CFA) has been formed in the area that includes the mangrove forest of Gazi Bay. However, other sectors are part of the governance landscape owing to the strong linkages of mangrove forests with fisheries, coastal protection and other coastal ecosystems. In addition, mangrove forests can be affected by land use planning decisions, particularly in relation to urban development and tourism, as hotel development may lead to the clearance of mangrove forests. Given the number of government sectors involved in mangrove forest governance, there are many pieces of legislation and policies that affect mangrove forests, which may not always be in alignment.

In terms of collaboration and interaction between structures and actors within and between levels, this tends to be limited, with structures keeping within their legal mandates and collaboration tending to be restricted to project-led and funded activities. Community-based structures, such as the CFA and the fisheries-focused Beach Management Unit, do not regularly interact or work together and tend to report upward to government sector officers rather than horizontally or to community members. There are, however, several opportunities that could encourage greater horizontal and vertical interaction, such as the anticipated formation of County Environment Committees in accordance with the Environmental Management Conservation Act 2015, the emphasis on integration in coastal zone management and the approval of the first National Mangrove Ecosystem Management Plan in 2017. However, these all have yet to be fully implemented, raising questions about how far they can offer solutions to coordination and cooperation in practice. Horizontal and vertical interaction is also challenged by the existence of parallel systems of government in Kenya since the formation of counties following the agreement of the 2010 Constitution. Elected county governors and assemblies have formed structures and appointed sectoral officers that serve as parallel structures and systems to national government systems (Cheeseman *et al*., 2016). Forest, environment and fisheries officers, for example, may be employed by a county government or the national government and be deployed within the same county, presenting challenges to authority, coordination and performance.

Analysis of the performance of the components and systems within the multi-level landscape of mangrove forest governance in Kenya reveals that whilst legislation provides the mandate for government departments, officers and associated sectoral community-based governance structures, such as the CFAs and BMUs, legitimacy may be undermined by corruption and lack of implementation of policy and legislation. Participation and representation

Table 3. The multi-level governance landscape of Gazi Bay mangrove forest, Kenya

Dimension	Gazi Bay Mangrove Forest, Kenya
Multiplicities of levels, actors and institutions	*Administrative levels and boundaries*: Two villages in the bay, with Village Heads appointed by government; county government includes all of the bay; national government also part of the governance system; the geographical area of the mangrove forest of Gazi Bay aligns well with the two villages, though the multi-level governance system goes to the national level and relates to all mangrove forests of the Kenyan coast. *Actors and agencies* • Lead government department is the Kenya Forest Service; National Environmental Management Authority, Kenya Wildlife Service, State Department of Fisheries also involved • Devolved levels of line ministries at county level and below • County governments also have officers associated with natural resource line ministry sectors • Multiple committees found at the village level, associated with forestry, fisheries, coastal conservation and others • Legal mandate comes from associated sectoral legislation • NGOs support capacity-building and other activities according to funding and priorities *Policies, legislation and plans* • Policies, legislation, plans and strategies associated with: integrated coastal zone management, environment, fisheries, forestry, tourism, land use planning and climate change *Institutions* • Informal rules and norms influence decision-making at all levels, including personal networks, gendered relations and ways of working *Sources and manifestations of power of structures, actors and processes*: Power comes from formal positions and mandates; limited power sharing by government with user groups.
Vertical and horizontal interactions	*Horizontal and vertical interaction* • Collaboration between sectors and actors within level only generally occurs through project-funded activities • Much collaboration happens through formal requests from directors of one government department to another to request information, participation in an activity or workshop, completion of an activity or joint working • Informal contact between officers and with actors outside government occurs to exchange information and plans, through face-to-face meetings, phone calls or email • Formation of technical working groups sometimes occurs, facilitating interaction for a specific purpose • Reporting is mainly upward to sector leads/departments rather than to communities *Opportunities for greater interaction* • Environmental Management Conservation Act 2015 requires formation of County Environment Committees and development of a county strategic environmental action plan every five years • Integrated coastal zone management policy and strategy calls for an integrated, coherent approach to the governance of coastal resources • The development of the 2017 National Mangrove Ecosystem Management Plan brought stakeholders together from across sectors, and this could continue in implementation • Participation of community-based committee members in higher levels of government decision-making through representation would strengthen collaborative governance and encourage greater interaction – horizontal as well as vertical *Challenges to interacting* • Collaboration is not seen as the norm, and there is a preference for keeping within one's mandate • Funding towards the environment is not prioritized by the government, limiting the potential for support for cross-sectoral approaches • There may be differences in interpretation of certain policies and objectives between sectors and different framing of policy problems and solutions • There is a lack of information sharing within and between organizations, which reflects limited interaction • There is separate formation and functioning of committees at the local level, which limits the development of a more integrated approach • There is no forum that brings together the county and national government natural resource managers

Table 3. Continued

Dimension	Gazi Bay Mangrove Forest, Kenya
Governance performance through application of governance principles	• There are parallel systems of governance in Kenya – political and administrative – which may present conflicting views and priorities • Legislation sets out the remit of government departments and their management approaches, and provides legal mandate for collaborative natural resource governance and remit of community-based collaborative structures, such as the Community Forest Associations (CFA) and Beach Management Units (BMU). The composition of community-based committees is directed by legislation • There is acceptance of structures by affected actors, but legitimacy may be undermined by corruption and lack of implementation of policy and legislation • Little representation of communities in higher levels beyond *ad hoc* workshops and consultations • Most accountability is upward through regular reporting to the next level. CFA and BMU do not regularly report to village heads or chiefs, but involve them in some activities. Little information feeds down so decisions and decision-making is not always visible • Annual report expected from CFA through Forest Managers, but not happening. Some monitoring of CFA from KFS. BMUs report to County Fisheries Officer • Little information generation by structures or sharing between structures/sectors • Limited resources and training beyond donor project support

Source: Author.

of different groups and interests within communities may not be effective at higher levels of governance, given the limited number involved in either higher level structures or *ad hoc* workshops and consultations. At all levels, there is limited sharing of information between structures and between levels, suggesting that there is limited capacity for the governance system to be adaptive to new information and change.

From this analysis of the landscape and performance of multi-level governance of mangrove forests, it can be seen that the governance system is fragmented, with periodic, project-driven interaction between government sectors, limited information sharing and not very effective participation of community members in governance systems. By applying the guide, the lack of interaction and coordination within and between levels can be appreciated and responded to.

5. Discussion and conclusion

This article sets out to present, and provide a rationale for, a guide for the analysis of complex, multifaceted landscapes of the multi-level governance of renewable natural resources. It contributes to the literature through the development of the guide and its application, utilizing a diverse and novel range of literature. Whilst the three dimensions of the guide have been identified in previous literature, the components within them have been brought together in a unique way. It is envisaged that the guide offers a way through the complex, fragmented literature associated with multi-level governance and similar approaches and concepts (Visseren-Hamakers, 2015) and enable those involved in natural resource governance to develop a deeper appreciation of the complexities and challenges of

moving towards more integrated, coordinated and coherent policy and practice.

Three key observations about multi-level governance emerged from the application of the guide that illustrates its utility. First, there may be a multiplicity of actors, policies and management approaches *within* government, as well as a diversity of actors involved in governance. This can be accompanied by different management approaches and objectives, leading to a lack of coordination and to confusion amongst stakeholders, particularly at the local level where new structures such as user groups and committees are formed, that align to a particular sector. This observation reflects Carlsson and Berkes' (2005: 65) observation that the state is not monolithic but "has many faces" and Ballet *et al.*'s (2009) observation that governance of environment and natural resources in developing countries tends to be fragmented, owing to the proliferation of ministries, departments and agencies. Second, opportunities for and constraints on interactions between actors were identified through the guide, noting that whilst many opportunities exist on paper, interaction may be limited to activities funded by a project and are either very formal, with a letter of invitation to a director to take part in a joint activity, or based on social relations between officers of the different sectors. The guide therefore encourages identification of mechanisms that encourage or facilitate interaction, and the identification of opportunities and constraints on further interaction, coordination and cooperation. Third, the analysis of the performance of governance demonstrated the challenges that exist for accountability, legitimacy, participation and representation from an uncoordinated, fragmented system of multi-level governance, reflecting findings of Poteete (2012), Termeer *et al.* (2010) and Wyborn and Bixler (2013) that show that the multiple actors, levels and interactions taking place within multi-

level governance can obscure decision-making and reduce transparency and accountability.

In conclusion, the guide has shown itself to have potential as a coherent and effective guide for the analysis of the landscape of multi-level governance that complements and builds on literature on multi-level governance, polycentricity, network governance and others. Being informed by a breadth of insights on the trends and characteristics of natural resource governance enables the guide to capture and probe the diversity of interests, interactions and performance of governance in a multi-level context. The guide could potentially inform the analysis and deeper understanding of the context of multi-level governance whilst also identifying opportunities and challenges for more coordinated, integrated and effective governance.

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