TOPIC GUIDE:
Governance of Natural Resources

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Summary and key lessons

Renewable natural resources form a key part of economic and social systems in many developing countries, contributing to livelihoods, food security and the green economy, as well as generating trade and enterprise at local, national and international levels. The governance of these resources is complex, with a myriad of competing rights, users and governance structures across a broad range of temporal and geographical scales. Several dimensions of governance have been found to be key in delivering appropriate benefit-sharing, ensuring sustainable exploitation, minimising conflict over access and control, and maximising the contribution of these resources to economies.

In this Topic Guide these critical aspects of natural resource governance are examined, to help guide practitioners on how to approach this complexity. Following an introductory section on '**Why governance of natural resources?'** Section 2 shares essential lesson-learning from **Decentralised and collaborative natural resource governance.** Decentralised forms of natural resource governance are widespread but face challenges associated with power sharing, participation and accountability. Financial assistance for the creation and operation of natural resource governance structures is essential over many years, as is strong, appropriate support by central government through legislation and technical support. 'Bridging' organisations, such as non-governmental organisations (NGOs), can be helpful in the formation process by building trust between government and resource users, as well as by reducing the potential for capture of community-based structures by those with more power and wealth.

In Section 3 **Multi-level and adaptive governance,** the guide provides an overview of the governance landscape of renewable natural resources. Many natural resources provide multiple benefits – drinking water, irrigation, fish, for example – and cross administrative boundaries. Decision-making happens at multiple levels and by different actors, including different parts of government. Yet, governance is often fragmented, with little coordination and cooperation. Mechanisms and resources are needed to support this coordination and sharing of information and plans. Linked structures are often formed at different levels, in the forestry and fisheries sectors, for example, connecting groups at village, district and national levels. Attention should be given to how user groups are represented in such systems, including by occupation, ethnicity, age and gender, as well as to directions and forms of accountability, and resource and information sharing. Mechanisms to develop horizontal linkages between natural resource governance structures (e.g. user groups) and local government can prevent compartmentalisation and the creation of silos.

Section 3 also considers how to respond to change, and how natural resource governance approaches need to be able to adapt to accommodate a fluid landscape, be it political, ecological or social. This section also reflects on how interventions need to be refined as the understanding and evidence base builds around particular natural resources and the systems that they support. Support for designing and implementing systems to collect, share and use information can enable a more flexible, adaptive approach to governance, where actors are able to make decisions in a more informed, timely and effective way. Social learning approaches – where learning takes place beyond the individual, within groups and in the wider society – can help people to learn lessons from practice and cope better with uncertainty and change.

Section 4 looks at the role of **Institutions and politics** in the governance of natural resources. Politics is of course integral to natural resource governance, affecting who is involved, who benefits and who stands to lose. The institutional contexts of decision-making

and livelihoods associated with renewable natural resources are complex, with informal institutions interacting with formal structures and policies. Mapping institutional context through political economy analysis and 'thinking and working politically' will generate understanding of interests, power and opportunities for change. A gendered perspective is essential if initiatives are to encourage the development of equitable and inclusive governance systems.

SECTION 1

Why governance of natural resources?

1.1 Introduction

Renewable natural resources are essential elements of economic and social systems globally. They are often vital to the livelihoods of people in less developed countries, particularly in rural areas, as well as to local and national economies, contributing to employment, government revenue and exports. For example, in terms of direct dependence on natural resources, the FAO estimates that around 40% of the population of less developed countries cook with woodfuel (FAO, 2014a) and that over 58 million people are engaged in the primary sector of capture fisheries and aquaculture (FAO, 2014b). Renewable natural resources underpin many of the Sustainable Development Goals (SDGs) and their effective governance is essential for delivering climate change and green economy objectives.

Yet there are growing concerns about increasing scarcity and degradation of renewable natural resources, with decreased capacity of some resources to be replenished (ODI et al., 2012), threatening the potential achievement of the SDGs. Degradation of renewable natural resource systems has the potential to directly impact the livelihoods of many people. Increasing scarcity and degradation of environmental resources are strongly linked to governance; in a report feeding into the 2002 World Summit on Sustainable Development, DFID et al. (2002, p25) argued that “many of the underlying causes of poverty and environmental degradation are related to issues of governance and politics”. In addition, appropriate and effective governance systems and processes for renewable natural resources are seen as essential for moving towards collaboration rather than conflict, particularly in fragile and transition settings (UNDG, 2013).

Improving the governance of renewable natural resources has not always received the attention and support needed. The forestry and fisheries sectors do not attract the financial resources needed from governments, despite licensing and taxation revenue from these sectors, as they compete with other sectors, such as health and education (AGFCPF, 2012). The OECD-DAC (2015) reported, for example, that the ‘agriculture and rural development’ sector received 8-9% of official development assistance, with most of the funding going to agriculture, leaving 8% to forestry and 3% to fisheries in 2012-2013.

The purpose of this Topic Guide is to identify key components and issues concerning the governance of renewable natural resources to guide the design and operation of interventions and support. The guide focuses only on renewable natural resources and does not cover non-renewable natural resources. Renewable natural resources include land, water bodies, fisheries, forests and wetlands, whereas non-renewable natural resources are those not able to replenish themselves, including oil, gas and minerals. Approaches to the governance of renewable natural resources are quite different to those associated with non-renewable ones, though they share common concerns around accountability, transparency and participation.

1.2 Characteristics of renewable natural resources

The governance of renewable natural resources is particularly complex and challenging due to a number of characteristics:

- Governance of natural resources often includes the pursuit of multiple objectives. Not only may there be more than one policy objective but objectives may also be in conflict with each other. Objectives may include allowing access to resources for subsistence, maximising livelihood benefits, alleviating poverty and providing employment, raising revenue for government and ensuring sustainable management so that the resources are replenished and available for future generations. This last objective may not always be compatible with maximising benefits to livelihoods and raising government revenue, for example.

- Many stakeholder groups may be involved, as direct or indirect users of resources or as part of the governing system that affects decision-making and access to them. These stakeholder groups are likely to have different interests, objectives and degrees of power that in turn influence their potential for participating in, and benefiting from, natural resource governance. Men and women are likely to have different degrees of participation in, and power over, governance systems, especially at the local level.

- Many formal and informal institutions affect the nature and performance of natural resource governance, from formal policies and structures to kinship, gender norms and power relations. The institutional picture may therefore be complex, with people navigating or drawing on multiple institutions forming 'bricolage' arrangements to claim benefits from natural resources and to make and implement management decisions.

- Trade-offs may therefore be required between objectives. Yet there may not be the scientific data or a political consensus on how much can be sustainably extracted from a resource. It may be appropriate to draw on local knowledge and use different forms and sources of information to inform negotiations and decision-making.

- Even if data is available on the need to place restrictions on use to ensure sustainability, political opposition or political influence may negate progress in limiting access to natural resources. Limiting access is very often unpopular locally and could prevent politicians from being re-elected.

- Many natural resources span administrative boundaries, requiring cooperation and coordination within and between multiple levels of government administration, sometimes even between countries. The issue of scale and associated multi-level governance is critical.

- Many natural resources, including in developing countries, are 'common pool resources'; this category of economic good is characterised by high costs of exclusion (it is difficult to exclude people from using the resource) and high levels of subtractability (the consumption by one user will reduce the quantity available for others).

While there are many challenges to effective, equitable and just governance of natural resources, it can also offer opportunities, benefits and lessons for wider governance. Collaborative natural resource governance has given many people the opportunity to participate in decision-making, experience elections at the local level, represent a particular stakeholder group and call committees to account, and secure or maintain social, cultural and economic benefits. Such experiences and knowledge can be transferred to other areas.

Much practice in relation to renewable natural resources has focused on natural resource management rather than governance. There are clear links between governance and management, but it is useful to recognise the differences. Management is seen as being concerned with technical issues and implementation, for example setting extraction limits for a forestry or fishery, or implementing enforcement mechanisms. Béné and Neiland (2006) in a review of governance and participation in small-scale fisheries set out clearly the differences between management and governance:

> …management is about action, governance is about politics. Management is about the implementation – in a technocratic sense – of decisions and actions in accordance with rules... Governance is about sharing responsibility and power; it is about setting the policy agenda and objectives and about the processes of implementing management actions.
>
> Béné and Neiland (2006, p10)

This Topic Guide provides an introduction to the broad, diverse area of governance of natural resources. The guide aims to generate lessons and insights - that can be considered when designing interventions - into how the governance of renewable natural resources can be improved to provide economic and social benefits for local people. There are a number of complementary EoD Topic Guides which provide more detailed coverage of some issues touched on here. These include the Topic Guides on Conflict, Climate and Environment, Ecosystems and Land.

Box 1 provides an example of a governance failure in relation to a renewable natural resource that had consequences for the livelihoods of resource users as well as for the sustainability of the resource. The example demonstrates how governance arrangements can fail and the consequences that can ensue.

Several points emerge from this example: the design of the community-based approach did not adequately consider the political and economic interests of local people and how these would affect committee membership, legitimacy and effectiveness; there was inadequate sustained technical and financial support from government or the NGO to maintain momentum; the redeployment of the District Forestry Officer not only removed technical support but also affected trust and cooperation between resource users and government; and, there were no systems in place to link the committee to government at the local and national levels, apart from links with the District Forestry Officer. The experience led to a lack of enforcement and monitoring, and unlimited cutting of trees and extraction of fuelwood.

Box 1 How governance of natural resources can fail: mangrove forests in Zanzibar

Mangrove forests across the world are being lost and degraded, largely through conversion to aquaculture, and urban, coastal and agricultural development (Van Lavieren et al., 2012). The forests provide multiple benefits to local people and nations in the form of timber, fish habitats and spawning grounds, coastal protection and carbon storage. Despite the wide range and extent of benefits, sustainable use and protection has been hard to achieve. This has largely been due to competing demands and interests, as well as constraints and challenges associated with national and local governance arrangements. The case of mangrove forest governance in Kisakasaka village in Zanzibar illustrates some of the challenges, particularly the challenges associated with efforts to encourage community engagement in natural resource governance, illustrative of many natural resource situations.

Kisakasaka village was chosen in 1996 to serve as a pilot project for community-based management of the nearby 400 ha of mangrove forest. Forest and coastal marine resources contribute significantly to livelihoods in the area and it was felt that the small population (around 750 people) and contained location meant that it was a good place for trying out a new community-based management approach. The Forest Management and Conservation Act of 1996 provided the legal remit for communities to manage forestry resources and so a village conservation committee was formed.

While the committee initially worked well in controlling the amount of timber and fuelwood extracted, over a few years the work of the committee was undermined by several factors. These included:

- waning support from the government department, related to the cessation of donor support to the forestry sector and to the redeployment of the District Forestry Officer who had been instrumental in getting the pilot going and providing ongoing support to the committee;
- the end of funding for an NGO that had provided technical support to the committee;
- limited turnover of committee members, with no system in place for new elections;
- the limited participation of community members, as most members of the committee were appointed by the elected executive members;
- suspicion and dissatisfaction with the committee because of the political affiliations of committee members and other community members; and,
- questions about the financial accountability of the committee.

In 2001, the committee was dissolved at a community meeting and replaced. Soon after, the pilot project came to an end and the ministry abandoned the community-based natural resources management (CBNRM) initiative. Evidence of the change in forest cover between 2001 and 2005 showed that there had been extensive cutting since the CBNRM initiative ended. Little or no enforcement of rules to stop illegal logging during that period reduced the forest area and led to degradation.

Source: Saunders et al. (2010)

1.3 Structure of the Topic Guide

The concerns raised by the case study in Box 1 reflect the kinds of issues, concepts and responses covered in this Topic Guide, which is structured as follows:

1. **Decentralisation of natural resource governance**, to lower levels of government, to communities, or to collaborative arrangements, has been increasingly common since the 1980s. Analyses of decentralised natural resource governance have focused on forms of representation, distribution of power and mechanisms, and accountability. Challenges, opportunities and lessons associated with decentralised governance of renewable natural resources are reviewed in Section 2.

2. **The scale of many natural resources and the associated complexity** have called attention to structures and processes that constitute multi-level governance and to the potential for governance to be 'adaptive', allowing for lessons learnt to be considered in future decision-making. The involvement of many policy areas, agencies and types of stakeholders means that many 'levels' of governance often impact on a natural resource system and its users. This, and the fact that natural resources often transcend administrative boundaries, mean that mechanisms that enable vertical and horizontal links are essential. However, very often governance within and across levels is fragmented, with limited or no coordination and sharing of information and plans. Section 3 presents a framework for analysing the multi-level landscape of natural resource governance to identify weaknesses and opportunities for joined-up governance. Multi-level linkages are part of an adaptive approach to governance, though 'adaptive governance' also requires that systems and processes are flexible, able to respond to change, learn lessons and cope with uncertainty. There is a growing body of evidence about adaptive governance in developed country contexts. While this evidence is not currently available for less developed countries, key points from the literature and empirical evidence on the experience of, and potential for, adaptive governance are reviewed in Section 3.

3. **The nature of 'access to and control over' natural resources is influenced by governance systems and processes, and mediated by institutions**, with implications for livelihoods. Formal and informal, or bureaucratic and socially-embedded, institutions affect who benefits from natural resources, whose voice counts, and what and whether change can happen. Social differences, such as gender, age and ethnicity, are manifested in, and influenced by, a range of institutions, and have implications for who is involved in and who benefits from the governance of natural resources. Section 4 of this Topic Guide focuses on socially-embedded institutions, or 'informal' institutions, and how these interact with bureaucratic, or 'formal' institutions through processes of institutional bricolage or legal pluralism. Recognition of the influence of institutions implies that analysis is needed of the political and power context, including of gendered relations, of and within natural resource governance.

Given this last point, throughout the Topic Guide it is critical to keep in mind that access to and control over natural resources is experienced differently by different groups of people and that this may change over time due to age, changes in the environment or changes in social norms. Gender norms and relations have received particular attention in relation to natural resource-based livelihoods, but less so in relation to governance. Box 2 indicates gaps in the consideration of gender and natural resource governance in research and practice.

The Topic Guide concludes in Section 5 by identifying recurring themes from the previous sections and evidence gaps for which further research and reflection are needed.

Box 2 Gender, natural resources and governance

Interventions and literature concerned with gender and natural resources have tended to focus on livelihoods; how access to and control over natural resources and associated products is mediated by gender norms and relations, and governance systems and processes. While attention has been given to the role of women and men in forest governance structures, the question of gender and governance has received less attention in other natural resource sectors. A search, for example, on women or gender and fisheries co-management reveals very little in the way of large sample size research into the participation and impacts of women and gendered relations on co-management structures, processes and outcomes. This is a significant gap in evidence and understanding of how women are engaging with, and affected by, natural resource governance systems.

Key Resources 1

Barnes, G. and Child, B. (2014) *Adaptive Cross-Scalar Governance of Natural Resources*, London: Routledge.

Coyle, I. and Bruch, C. (2014) *From Fragility to Resilience: Managing Natural Resources in Fragile States in Africa*, Tunis: African Development Bank Group.

United Nations Development Group (2013) *Guidance Note: Natural Resource Management in Transition Settings,* New York: United Nations.

SECTION 2

Decentralised and collaborative natural resource governance

2.1 Key points

1. In many countries, much of the governance of natural resources is decentralised, often with lower levels of government taking responsibility together with resource users in collaborative arrangements. Yet, in many cases, decentralisation has been imperfect; often it has not been supported by adequate power and resources, either due to central government holding onto these or to a lack of resources within the sector to sustain devolved processes.
2. Community-based natural resource management (CBNRM), where powers and responsibilities are devolved to resource users, has been widely adopted, particularly in relation to national parks and forestry. However, even in CBNRM devolution of powers and responsibilities is not always fully carried through in practice, and government actors still play active roles.
3. Experiences of community-based and collaborative forms of natural resource governance have raised concerns about the nature and extent of power-sharing between government and resource users, and about shortcomings in accountability. Such experiences have led to perceptions that community structures within natural resource governance are, at times, no more than an extension of central government 'command and control'.
4. Elite capture is frequently associated with CBNRM, reflecting pre-existing power relations within communities and the capture of benefits by state actors within state-governed regimes. Elite capture may not, however, be permanent, or prevent sustainable natural resource governance. It is likely though to reduce opportunities for greater equity in the distribution of costs and benefits and hence poverty reduction.
5. Community-based and collaborative forms of natural resource governance offer opportunities for 'collateral success', where lessons from one natural resource situation are transferred to other situations. However, evidence in this area is very limited.

2.2 Introduction

Since the 1980s, much governance of renewable natural resources has involved decentralisation in line with broader civil service and governance reforms (Larson and Soto, 2008; Larson and Ribot, 2004; Ribot, 2002). Decentralisation has largely been adopted in the belief that management closer to resource users, and in collaborative and community-based forms involving users, would lead to more accountable and effective governance. In some countries forest offices, for example, report directly to the ministry whereas in other countries forest officers are part of local government and report to the locally elected body. Forest officers may, in turn, work with user groups in collaborative arrangements or community-based groups may themselves have governance responsibility.

Decentralised governance has not consistently delivered greater sustainability of the resource base and/or improved livelihoods and greater equity. Instead, elite capture and incomplete decentralisation are common (Larson and Soto, 2008; Ribot, 2002). The situation in natural resource sectors reflects the wider experience of decentralisation, which, in turn, may reflect the performance of governance at a national level. As noted by DFID (2010, p46) "effective decentralisation requires an effective state"; if the state is not operating effectively, then decentralised systems cannot be expected to be as effective as desired.

Theory on the decentralisation of natural resource governance is closely related to common property theory. This body of theory is particularly associated with the work of Nobel Prize winner Elinor Ostrom and concerns identification of conditions under which collective governance of common pool resources are most likely to succeed and be effective. Common pool resources have two key characteristics: it is difficult to exclude people from their use (they are highly 'non-excludable') and extraction by one person affects the availability of the resource for others (they are highly 'subtractable'). One of Ostrom's key contributions to common property theory was the identification of a set of rules, or principles, that are associated with successful commons governance – success being measured largely by sustainability. These are set out in Box 3.

Box 3 Ostrom's design principles for effective common property regimes

1. Clearly defined boundaries
2. Rules governing use or provision of the resource must be appropriate to local conditions
3. Collective-choice arrangements
4. Monitoring of rules and use: by users or accountable to the users
5. Graduated sanctions
6. Conflict resolution mechanisms
7. Recognition of legitimacy
8. Nested enterprises (for common property resources that are part of larger systems)

Source: Adapted from Ostrom (1990, p90)

Research and practice have tested and further developed this list of principles or rules, with scholars identifying further factors that are essential for effective commons governance (see Agrawal, 2001, for example). The rules have informed the development of a range of analytical frameworks. These analyse, variously, the institutions involved in common property governance and outcomes (see Nunan, 2015, for details of such frameworks), the development of community-based natural resource management approaches and collaborative forms of governance (Fabricius, 2004; Roe et al., 2009), and the operation of multi-level governance (see Section 3), where higher levels of rule-making create boundaries and opportunities for rule-making at lower levels. Ostrom later emphasised that the rules should not suggest that one approach fits everywhere, arguing that there are 'no panaceas' (Ostrom, 2007); different responses are needed in different situations and points in time. She advocated that

> "We should stop striving for simple answers to complex problems – no panaceas. Instead, we need to recognize and understand the complexity to develop diagnostic methods to identify combinations of variables that affect the incentives and actions of actors under diverse governance systems" (Ostrom, 2007: 15181).

It is, then, widely accepted by natural resource governance scholars that there is no one approach to governing natural resources sustainability that will work everywhere, but that the local circumstances and context must be understood. However, Ostrom's rules or principles

have informed much thinking and policy on natural resource governance. This will be seen in the following sections, in which the characteristics, experiences and challenges of two major approaches in decentralised natural resource governance – community-based natural resource management and collaborative governance – are reviewed. Common themes from the experience of both approaches – power and power-sharing, representation, accountability and trust – are then examined.

2.3 Community-based natural resource management

In the 1980s community-based natural resource management (CBNRM) was seen as a way of empowering people living close to, and depending on, a natural resource. It has been defined as "the management of resources such as land, forests, wildlife and water by collective, local institutions for local benefit" (Roe and Nelson, 2009, p5). It was envisioned that people would develop a greater sense of ownership and stewardship by being involved in the management of the natural resources on which they depend and would, in turn, benefit more from the resource; CBNRM was seen as leading to a 'win-win' situation of greater sustainability of the natural resource and reduction of poverty or improvement of livelihoods.

CBNRM initiatives are particularly associated with wildlife management (national parks and protected areas) where benefits accrue from park entrance fees, trophy hunting and related tourism services. Reviews of CBNRM initiatives note achievements in generating income, empowering disadvantaged groups and improving the productivity of resources (see, for example, Roe et al., 2009). However, serious challenges have also been observed. Many CBNRM initiatives are actually a form of co-management in which the government continues to play a strong role. In addition, NGOs often operate as brokers between communities and government and private sector companies may be part of the governance framework, particularly through tourism operations. Although strong involvement of government is not necessarily a problem, often little power and resources are actually shared with local communities. A further challenge is that some institutions associated with CBNRM are driven not by equity and effectiveness concerns, but by the desire to promote personal or powerful interests. This limits the scope for benefits to be received by many in a community and makes accountability difficult.

Many reviews and reflections have been undertaken to identify lessons that can be learnt from CBNRM. One example of these is the comprehensive review of community management of natural resources in Africa led by the International Institute for Environment and Development (IIED) (Roe et al., 2009), which made three key observations:

- "The transfer of authority from central government to a diverse range of co-management arrangements has had both successes and has faced many challenges.
- Developing strong and resilient community organisations for the management of land and natural resources will take generations to accomplish.
- The challenges to successful devolution include elite capture of opportunities and benefits, corruption and mismanagement. In some cases, these problems have been used by central government as a reason to abort devolution and reclaim rights over land and resource management" (Roe et al., 2009, pp121-122)."

These challenges are further explored in the section on key themes associated with both collaborative and community-based forms of natural resource governance below. Further lessons from community-based governance initiatives are set out in Box 4 from a DFID-funded International Union for the Conservation of Nature and Natural Resources (IUCN) project to improve governance of natural resources and reduce rural poverty.

Box 4 Lessons from the IUCN Natural Resource Governance Project 2009–2012

Between 2009 and 2012 DFID supported the IUCN 'Implementing Natural Resource Governance for Rural Poverty Reduction' project. The project included a portfolio of ten sub-projects in Africa, Asia, South America and West Asia, and involved protected areas, community lands, watersheds and landscapes. The overall project aimed to build the capacity of resource users to engage with governance processes and strengthen their voice, increase participation of all stakeholders, and improve income generation and livelihoods. Surkin (2011) identifies lessons from the project, including:

- Awareness of rights empowers local people to engage in governance, particularly given that people are often unaware of their rights as defined in laws and regulations.
- Without tangible livelihood benefits, governance can be abstract for local communities.
- Natural resource governance can be a mechanism to address sensitive political and social issues, such as gender and ethnic equality.
- Governance principles should reflect local cultural practices and values.
- A combination of statutory and customary law can be effective in enabling natural resource governance.
- Capacity building is essential and should be targeted and appropriate.
- Technical support for government institutions can be a vehicle for enabling institutions to influence policy.
- Involvement of government actors at all levels is vitally important for natural resource governance.

(Surkin, 2011, pp3-8)

A further review of CBNRM was undertaken by Anderson and Mehta (2013) for USAID. They categorised CBNRM initiatives according to whether they are transformational, significant, threshold, subsistence or extractive, as shown in Table 1.

CBNRM type	Definition	Examples
Transformational	CBNRM is transforming governance of the natural resource and livelihoods	Namibia conservancies, Nepal community forestry
Significant	The natural resource base is important, with sufficient natural resource governance for significant growth and empowerment	Kenya conservancies, Cambodia protected area management, Bangladesh wetlands management
Threshold/ tipping	Local benefits may help push people over the poverty threshold. Economic, governance and technological systems may not be ideal, but function sufficiently to deliver some benefits	Kenya Water Resource User groups, Cambodia eco-tourism, Senegal "Wula Nafaa", Bangladesh forestry co-management
Survival/ subsistence	Management is marginal due to economic, governance, technological or land use systems	Guatemala municipal park management, Guatemala multifunctional management of forest reserves, Cambodia community forestry
Extractive	Economic and governance system does not allow for local people to benefit. Local people worse off through CBNRM	Kenya Community Forestry

Source: Adapted from Anderson and Mehta (2013)

Table 1 Learning from CBNRM examples

Box 5 Community conservancies in Namibia

Community conservancies in Namibia were created as a result of the Nature Conservation Amendment Act of 1996 to enable local people to participate in wildlife management and to benefit from conservation. A conservancy can be registered with the Ministry of Environment and Tourism when it has:

- "A representative committee;
- A legal constitution which provides for the sustainable management and utilisation of game in the conservancy;
- A method for the equitable distribution of income from the sustainable use of wildlife and from tourism;
- A defined membership;
- Defined boundaries agreed by neighbouring communities" (Jones, 2010, p.22).

The conditions for the registration of a conservancy closely follow the design principles developed by Ostrom (1990), as set out in Box 3. By March 2013, 79 conservancies had been registered (Jones et al., 2015). The Namibian conservancy approach is widely seen as broadly successful and as a role model for CBNRM in terms of generating revenue for communities and delivering conservation outcomes through increasing the diversity and number of animal species (Binot et al., 2009). Success is attributed to a number of factors: i) the conservancies receive income from tourism and wildlife activities directly, rather than through the state, and do not share income with the state; ii) the definition of community rights over wildlife is clear, though limited and conditional; and, iii) the introduction of the approach was not externally-driven or imposed by government but driven by local people who wanted more rights and income and who received support from local NGOs to become organised so as to benefit from the 1996 legislation.

Suich (2010) documents a broad range of ways the conservancies affect livelihoods, including by generating jobs that provide income and develop skills, and by empowerment through participation in decision-making. Negative impacts such as reduced income due to human-wildlife conflicts and reduced access to land are also documented. Broader impacts on governance and engagement in development planning and management through the existence of conservancy structures are hinted at (e.g. NACSO, 2013), but have not been widely documented. Governance through the conservancies has its challenges: lack of involvement of non-committee members in decision-making, developing a constitution and approving conservancy budgets; committee members voting themselves large loans and not accounting for all money spent; and much of the revenue being spent on operational costs with little for community benefit (NACSO, 2013). Efforts to address these challenges include providing training on developing constitutions, financial management and good governance, and targeted technical support to help address conflict. However, challenges remain in some conservancies, such as issues of elite capture as noted in Table 2.

As shown in Table 1, examples of transformational CBNRM initiatives cited by Anderson and Mehta (2013) include community forestry in Nepal and wildlife conservancies in Namibia. In both cases, there were instances of challenges as well as successes in terms of delivering improvements in conservation and livelihoods. From their review of CBNRM initiatives, Anderson and Mehta (2013) identified examples of 'collateral success', where CBNRM led to improvements in livelihoods and the environment beyond those intended. This has been achieved through the application of tools and approaches in other contexts and through communities being organised and sometimes developing political movements, including in the cases of Nepal and Namibia cited above. Anderson and Mehta also give the example of lessons from wildlife conservancies in Kenya informing livestock management approaches, with benefits to livelihoods through greater resilience and productivity. Box 5 sets out further details of the CBNRM experience in Namibia, which is often seen as a model for CBNRM, though there were challenges in delivery and governance.

Lessons from CBNRM are informing approaches, such as community-based Payment for Ecosystem Services (PES) and Reducing Emissions from Deforestation and Forest Degradation (REDD+) schemes. Such schemes address one of the deficiencies of CBNRM, which is the lack of financial resources to fund management structures and processes, and incentivise and reward changes in behaviour and practice. However, PES schemes share with CBNRM the challenge of delivering on win-win objectives; a systematic review of forestry-related PES schemes suggests that they are more likely to reduce deforestation than reduce poverty (Samii et al., 2014).

2.4 Collaborative forms of natural resource governance

In many cases of decentralised governance of natural resources, local government or sub-national levels of ministries/departments work with resource users collaboratively. Examples of collaborative forms of natural resource governance include fisheries co-management and joint forest management. These arrangements differ substantially in the extent of power-sharing between government and resource users and so co-management has sometimes been portrayed as a spectrum of participation of user groups, from consultation to full responsibility.

Implementation of co-management approaches to natural resource governance has often focused on the formation of new structures; structures that facilitate the participation of users in governance (e.g. Beach Management Units in East African fisheries and forest user groups) and structures that bring users, government officers and other stakeholders together. The theory and literature on co-management have challenged this approach, arguing that it presents too static a picture, does not encourage flexibility and responsiveness to change ('adaptive governance' or 'adaptive co-management') and neglects the social networking of actors across and between levels and structures, for example through kinship, religious or familial networks. A process approach to co-management is advocated; one that focuses more on building the capacity of many stakeholders, not just those on committees, and developing systems to generate, share and act on information.

An example of the evolution of fisheries co-management over time is given in Box 6. The experience of co-management in the Philippines has been drawn on by many other countries as it has been going on for several decades, provides examples of success and challenges, and has been widely adopted throughout the country.

Lessons from co-management approaches more broadly include:

1. Delegation of power and authority to user groups is often too limited and not backed up by adequate resources and support (including capacity building). A lack of resources and support limits what community-based co-management structures can do and dampens motivation.
2. Multiple parts of government may be involved. As government is not monolithic, different parts and levels may have different priorities, capacities and levels of performance, and they may not coordinate their policies or interaction with users. This makes working with government challenging for resource users and opportunities for change may be missed.
3. Meso-level government officers (e.g. at district level) may experience the challenge of dealing with the potentially conflicting demands of multiple masters, including resource users, the centre (ministry or department) and line managers within the authority.
4. Trust between stakeholders is a determinant of success in many cases of co-management. Trust between government officers and resource users must be built over time; effective communication is essential. Building trust may require, or benefit from, the involvement of bridging organisations, such as a community service organisations or projects trusted by both sides, particularly where there is a lack of trust between resource users and government.
5. Not all stakeholders may fully appreciate that co-management evolves over time. Arrangements, systems and processes may change and adapt. Experimentation should be encouraged, particularly in finding ways to enable greater and more effective participation of all stakeholder groups.
6. 'Benefit' is important as an incentive for collaboration. If resource users do not perceive that they are benefiting, or benefiting sufficiently, motivation will be problematic.

The CGIAR Strengthening Aquatic Resource Governance project provides further lessons for the practice of collaborative governance. Ratner et al. (2014) suggest that multi-stakeholder dialogue is essential and that this should be supported and encouraged through a structured process, rather than left to chance. They emphasise the need to create space for people to contribute who may not feel comfortable in speaking out in some group settings. Gender norms and power inequities may prevent some women and people from more marginalised groups from participating effectively. Separate meetings and the use of different tools (for example, using existing groups, such as women's savings and credit groups, or participatory tools or games) should be utilised to create space for all stakeholder groups to participate effectively. A further lesson involves the building of cross-scale linkages so that there is awareness of and support for local initiatives and, if there are problems between resource users and local levels of government, actors at a higher level of governance can intervene and facilitate dialogue.

Box 6 Fisheries co-management in the Philippines

Community-based co-management of fisheries and coastal resources has a long history in the Philippines, with much experimentation and lesson-learning. Community-based initiatives began in the 1980s in response to concerns about depleting stocks and were supported by NGOs. As more power was devolved to local government, and community-based structures began to appreciate support from government, the approach evolved into co-management. Co-management was legalised in the Fisheries Code of 1998, which allowed for the establishment of Fisheries and Aquatic Resources Management Councils at national and municipal levels, formed of fisher organisations, cooperatives and NGOs, with assistance from local governments. The councils have a mandate to carry out a number of management advisory functions. These include: assisting in the preparation of Municipal Fishery Development Plans, recommending the enactment of fishing and coastal resource management ordinances, and working in close collaboration with local government units in enforcement of fisheries regulations. The 1991 Local Government Code and 1997 Agriculture and Fisheries Modernization Act of 1997 also form the legislative basis for co-management in the country.

Factors that have contributed to the relative success of co-management in the Philippines include:

- The lengthy period over which co-management has evolved, with much experimentation and sharing of lessons.
- Support from a range of NGOs (for example, NGOs for Fisheries Reform) and donors over the last few decades for community-based co-management that has provided not only technical and financial resources, but has provided bridges between government and communities and across communities.
- Good relations between co-management structures and local political figures has been very important. Good relations have not always existed and inconsistent political support has been a problem at times and in some locations.
- Over time the scope of co-management has expanded, for example into eco-tourism in marine protected areas, bringing greater benefits and reducing dependency on fisheries. While this has not always been easy, this illustrates how organisation through collaborative governance structures can enable communities to benefit from other social and economic activities.
- Examples of scaling up from the local level have strengthened fisheries management, for example by clustering structures across political jurisdictions and creating protected area networks covering larger ecoregions.

Source: Maliao et al. (2009); Pomeroy et al. (2010); Ratner et al. (2012b)

2.5 Key themes in CBNRM and collaborative management

A number of common and important themes can be identified from the above review of CBNRM and collaborative management, or co-management, of natural resources.

Power and power-sharing

The distribution and use of power is central to any consideration of governance. Some actors will have more power than others. Some actors may have power in one situation and not in another. Power can be destructive and prevent participation of certain groups but power can also be positive and empower people to speak up, be heard and benefit more from decisions. Political economy analysis and power cube analysis, both of which are explained in Section 4, can provide an understanding of the nature and distribution of power. Power has been seen to be critical in a natural resource governance context in many ways, but particularly in terms of:

- **Limited power-sharing between government and users**: often government fails to devolve adequate power, authority and resources to user groups. Power-sharing does not imply equal power. Government officials and non-state actors may use a range of tactics to prevent or limit delegation of power and resources. Poteete and Ribot use the term 'repertoires of domination' to describe "the myriad tactics government officials and non-state actors use to limit meaningful shifts of authority associated with decentralization" (2011, p440). Where limited powers are devolved and there is imbalance of power between government and resource users, the formation of local groups to participate in natural resource governance has been characterised as an "extension of command and control" (Anderson and Mehta, 2013, p26) rather than as a genuine measure to promote power-sharing and ownership. The motivation for limiting power-sharing stems in part from concerns among government officers that their roles will be threatened if resource users participate in governance. There is often a lack of clarity about changing roles and there are often differences in the understanding of, and attitudes to, the status of community-based structures.

- **Elite capture**: more powerful actors within communities often find ways of preventing real change, maintaining the status quo and promoting their own interests. Elite capture is viewed as a common issue for CBNRM and collaborative management, and often reflects pre-existing social and power structures that are difficult to counter. Muyengwa et al. (2014) identify five mechanisms elites use to capture CBNRM initiatives and control allocation of resources: establishing entitlements (e.g. cash transfers to elites), making demands, influencing allocation decisions, stating preferences (for committee members, use of funds and projects to be initiated) and misappropriation of funds. Table 2 presents an overview of examples given by Muyengwa et al. (2014) from national parks in four countries, Botswana, Namibia, Zambia and Zimbabwe.

Elite capture is not necessarily a permanent situation and does not always have detrimental outcomes. Such capture can lead to wider community benefits and can be mitigated through developing counter power and involving external agencies. Saito-Jensen et al. (2010), for example, trace the evolution of joint forest management in a village in Andhra Pradesh, India, and demonstrate how elite capture that initially developed was countered because the CBNRM system did not address the interests of marginalised groups. These groups were able to mobilise and challenge the dominant actors through election to the management committee. Support from a community service organisation (CSO) that had worked in the area for many years then helped to broker consensus on executive committee positions. The role of external agencies in reducing or challenging elite capture is confirmed by Persha and Andersson (2014). Their analysis of 174 community groups across four countries (India,

Kenya, Nepal and Uganda) revealed that the involvement of an external agency in CBNRM reduces the risk of elite capture. They argue, however, that there is insufficient evidence of how elite capture in natural resource management decentralisation "might be created, sustained, or avoided. Guidance on how to avoid elite capture therefore remains extremely limited" (Persha and Andersson, 2014, p266).

Country	Defining features	Elite capture
Botswana	Controlled Hunting Areas established which community-based organisations may register to govern as trusts.	Very little record keeping and accountability of committees. Appropriation of vehicles by community leaders.
Namibia	Communal conservancies are legal entities with clearly defined boundaries, roles and membership; each has a constitution and committee.	Instances of committee members using the constitution to support their interests, but claiming them illegitimate when they clash with their interests. Payments to traditional leaders formalised to prevent *ad hoc* access. Traditional leaders decide on senior appointments in conservancies rather than the committee.
Zambia	Two CBNRM programmes began in 1990s with benefit-sharing between government and communities; Zambia Wildlife Authority changed system in 2002 to form six Community Resource Boards.	Honorarium paid to chiefs to counter requests for money; sitting allowances and other fees paid to committee members and employees.
Zimbabwe	CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) Authority to govern national parks devolved to Rural District Councils, with local CAMPFIRE committees; changes in programme processes, structures and outcomes changed over time with wider political developments.	Traditional leaders claim allowances, regular payments and game meat.

Source: Muyengwa et al. (2014)

Table 2 Elite capture of CBNRM

Representation

Representation of a range of interests and voices is usually necessary in natural resource governance systems as not everyone can be involved in all decision-making. A system of representation becomes even more essential when there are multiple levels of structures in place and the number of representatives per interest group and/or location decreases. Key issues in building a representative system include:

- Definitions of the users and stakeholders: where does legitimacy come from in defining users and stakeholders?
- Nature of representation of users and stakeholders: should it be by organisation, geographical area, occupation, gender, age?
- Level, frequency and extent of representation and involvement: what does the representation work involve?
- Processes of representation: to be effective, representatives need to consult with, and be accountable to, their constituents. It may not always be clear who a representative is speaking for – themselves or their constituents. It may be difficult to hold representatives to account and to ensure that representatives reflect the views and concerns of all the people and groups that they represent.

Some natural resource governance systems require that a certain number or percentage of committee places go to groups of people who may not have been, or would not be, adequately represented. This strategy is often used to encourage the participation of women in committees, but requirements may also be set for certain ethnic groups, people from certain locations or occupational groups. These requirements are rarely adequate to ensure

effective participation and representation in themselves; other mechanisms are needed, such as training, accountability mechanisms and procedures, to encourage genuine participation.

This can be seen in relation to the role of women in natural resource governance. The role and impact of women specifically in natural resource governance systems is most fully addressed in literature focussing on the forestry sector; while there is literature on fisheries and rangelands and women, this tends to focus more on livelihoods than on governance. Box 7 sets out key findings on the extent of involvement, role and impact of women on forest governance structures at the community level.

Box 7 Women and community-based forest governance structures

Research on the level of participation of women in forest management committees and the impact of that participation on forest sustainability and livelihoods has found mixed experiences and impacts (Tole, 2010). In many cases, women continue to be either excluded from forest management committees or involved in a nominal way that meets the minimum number that must be involved but limits opportunities to be heard. This often reflects social norms and gendered relations, where it is not expected that women will speak in the presence of men or that women will challenge the views and decisions of men. Agarwal (2009, 2010) carried out research into the level of participation of women in forest user groups in India and Nepal that tested the relationship between the number of women on the committees of forest user groups against the 'strictness' of rules. She found that the participation of women in community forest institutions generally, but not always, led to stricter rules, but noted that other factors influenced this as well. The other factors include the age of women, their class, the products extracted from the forest to which the rules applied and the availability of that product. Coleman and Mwangi (2013) took Agarwal's analysis further, using household survey data from two datasets. From their analysis they conclude that "institutional factors, such as rules that require membership fees or that permit women's participation or that determine how individuals are assigned council positions, and individual characteristics, such as education and wealth inequality, are the significant predictors of women's participation in forest management institutions"

(Coleman and Mwangi, 2013, p202).

Accountability

The direction, extent, frequency and mechanisms for accountability are essential components of analysis of natural resource governance. Accountability may be upwards (towards higher-level authorities), horizontal (within the same level, possibly includnig other sectors or localities) and downwards (to resource users and other community members). Many cases of decentralised governance of natural resources have too often exhibited upward accountability without complementary downward accountability towards resource users. Forms of accountability will vary in strength and frequency and the capacity of those holding structures and actors to account will vary. The distribution of power will influence the capacity and willingness to hold structures and actors to account.

Whilst electoral processes are often cited as a form of accountability within decentralised governance, Agrawal and Ribot (1999, p478-479) suggest many more, including:

- "procedures for recall;
- referenda;
- legal recourse through courts;
- third-party monitoring by media, NGOs, or independently elected controllers;
- auditing and evaluation;
- political pressures and lobbying by associations and associative movements;
- provision of information on roles and obligations of government by the media and NGOs;
- public reporting requirements for government;
- education;
- embeddedness of leaders in their community;
- belief systems of leaders and their communities;
- civic dedication and pride of leaders;
- performance awards;
- widespread participation;
- social movements;
- threats of social unrest and resistance;
- central-state oversight of local government; and
- taxation".

This long list of mechanisms that could be developed or utilised to increase the accountability of natural resource governance structures and systems suggests that the capacity of many actors and processes can be developed to demand greater accountability.

Trust

The concept of trust has received little attention in natural resource governance literature and practice, yet establishing trust is key to achieving effective social relationships, cooperation and collaboration. Stern and Coleman (2015, pp118-119) define trust as "a psychological state in which one actor (the trustor) accepts some form of vulnerability based upon positive expectations of the intentions or behavior of another (the trustee), despite inherent uncertainties in that expectation". They further identify key components of trust theory as including "characteristics of the trustor, the trustee, the interactions and relationships between them, the particular set of actions in question, and the context in which trust (or distrust) is developed" (Stern and Coleman, 2015, p119). Characteristics of trustees are discussed in terms of three elements of trustworthiness:

- Ability: this refers to the confidence the trustor has in the trustee's capabilities to carry out the expected actions effectively.
- Integrity: refers to the perceptions of the trustor of the trustee's value systems.
- Benevolence: refers to the perceptions of the trustor that the trustee feels positively towards the trustor and is likely to act upon that.

The definition and characteristics above bring out the nature of vulnerability that the trustor may have and the existence of uncertainties in relation to the behaviour and actions of the trustee. Reducing the vulnerability and uncertainties within the relations of trust would be important in building trust, confidence and good working relations.

Despite the lack of attention to the details of trust and trustworthiness in natural resource governance literature and practice, there is at least recognition that trust between stakeholders is important for collaboration and that building trust takes time and deliberate

action. Processes of, and space for, effective and frequent dialogue between stakeholders, particularly community members and government officers, should be developed, with effective systems and processes for representation and accountability of governance structures. Multi-stakeholder platforms that facilitate dialogue between stakeholders could be one approach to this (see, for example, Brouwer and Woodhill, 2015) and more local, individual approaches, sometimes facilitated by NGOs (see, for example, Ratner et al., 2014, on the experience of Collaborating for Resilience).

Box 8 sets out an example of support provided to a fishers' society in Bangladesh which addressed some of the challenges in these key themes, including representation, accountability and elite capture.

Box 8 Strengthening devolved power in natural resource governance: the case of Melandi Fishers Society, Beel Mail floodplains, Bangladesh

Ratner et al. (2012a) report on the case of the Melandi Fishers Society (MFS) in the Beel Mail at Rajshahi, a seasonal waterbody in Bangladesh. Despite gaining legal access to the waterbody for a three-year period, members of the Melandi Fishers Society were effectively excluded by more economically and politically influential people. The Society was not represented in decision-making bodies and was itself weakly governed. The government's Department of Fisheries also had weak lines of accountability to local communities.

Between 2005 and 2010, the CGIAR Challenge Program on Water and Food supported the MFS to develop much stronger representation and the Department of Fisheries to become more accountable to local communities. The project sought to address the problem of weak downward accountability and elite capture through direct and indirect approaches. Researchers working on the programme drew on many years of experience of working with stakeholders and so there was trust and good communication. The approach involved supporting marginalised households to assert their rights to use the floodplains by encouraging them to actively participate in floodplain management. Better-off fishers were encouraged to invest in initiatives to benefit the wider communities, such as fish fencing, stocking and management; this was encouraged through the more active engagement of all members and led to improved management of the floodplain, which was in everyone's interests.

An issue that has not always received significant attention in research and practice related to natural resource governance is corruption. Research has shown a strong link between corruption and deforestation, for example (Koyunen and Yilmaz, 2009), but there have been few empirical investigations into the nature and implications of corruption in the fisheries sector (Sundström, 2012). It is not easy to collect data on the scale, nature and impacts of corruption, meaning that little empirical evidence is available (TI, 2007). However it is recognised that corruption in forestry ranges from petty bribes to payments for timber concessions (Kishor and Damania, 2007) and in fisheries affects enforcement of regulations (Sundström, 2015). Addressing corruption has been undertaken within governance reforms, but there remains scope to generate further evidence on its scale, nature and impacts. In addition, corruption within natural resource sectors has been linked to organised crime, including drug-trafficking (UNDP, 2014), illicit trade in arms and money laundering (WWF et al., 2013), demonstrating a further urgent need to support attention to natural resource governance.

2.6 Lessons for practice

Despite the plethora of concerns and challenges associated with collaborative and community-based governance of natural resources, no serious alternatives have been proposed. Involvement of a wide range of stakeholders, particularly resource users, in natural resource governance is still seen as essential. This is because of the spatial dimensions of many natural resources, often over many kilometres, access which is sometimes challenging, limited government resources and the need to include a diverse range of stakeholders to inform decision-making and build ownership of decisions and actions.

Key lessons for supporting decentralised natural resource governance are:

1. Developing effective collaborative forms of natural resource governance is a process that can take many years and requires strong support over this time. Financial and technical support may be needed for extended periods, depending on the 'starting point'. The needs for support must be considered when planning interventions.
2. Power-sharing between government and resource users should be agreed through dialogue. This can help to build trust and understanding, as well as to reach agreement on roles and responsibilities with all stakeholders. The involvement of 'bridging' organisations, such as NGOs, may be needed, particularly where there is mistrust between parties and government and/or legislation are not seen as legitimate.
3. User groups and committees are often formed as part of decentralised governance. Options for the legal status of user groups and committees should be agreed by all concerned parties. Often, user groups are viewed by government as an extension of their departments, rather than as independent bodies. This approach limits room for decision-making and action; the status of such groups therefore affects their activities and how they are treated – independence should be assured from the outset.
4. Community-based structures for natural resource governance are susceptible to capture by local 'elites' – those with most power and wealth. The potential for this to happen can be explored through an analysis of the distribution of power, and the findings fed into the project design process; appropriate mechanisms should be developed and agreed for elections, accountability, participation, transparency and monitoring. Evidence suggests that the involvement of an external agency, such as a civil society organisation, reduces the potential for elite capture.
5. Reform should build on and learn from existing, often customary, institutions, as well as consider other governance structures and systems that are in place. This is essential to build understanding of the potential impact of, and response to, interventions and to encourage greater coordination between governance systems.
6. Governance systems should include structures and processes that encourage and accommodate representation by all stakeholder groups, whether on the basis of gender, age, occupation or ethnicity. Equitable representation requires more than setting a minimum number of places on committees. Tools and approaches should be used that enable participation of actors from marginalised groups.

Key Resources 2

Anderson, J. and Mehta, S. (2013) *A Global Assessment of Community Based Natural Resource Management: Addressing the Critical Challenges of the Rural Sector*, Washington, D.C.: USAID.

Barnes, G. and Child, B. (2014) *Adaptive Cross-Scalar Governance of Natural Resources*, London: Routledge.

Ribot, J.C. (2002) *Democratic Decentralization of Natural Resources: Institutionalizing Popular Participation*, Washington, DC: World Resources Institute.

Roe, D., Nelson, F. and Sandbrook, C. (eds.) (2009) *Community management of natural resources in Africa: Impacts, experiences and future directions*, London: IIED.

SECTION 3

Multi-level and adaptive governance

3.1 Key points

1. Attention to decentralised forms of natural resource governance have not always considered the wider landscape of governance that affects natural resources and have tended to be sector-based and focused.
2. Yet, many natural resources are shared by multiple place-based communities and cross administrative boundaries. Multiple uses and users mean that many agencies and actors impact independently on the governance and sustainability of the resources. This suggests that analysis of the many levels and sectors of actors and agencies, and the interactions within and between them, is essential to fully appreciate the governance landscape.
3. Mapping the governance landscape – by identifying actors at multiple levels and interactions within and between levels, and assessing governance performance – can provide an assessment of how multi-level governance is working and can identify challenges and opportunities for greater coordination and cooperation.
4. While it is important to have a detailed picture and understanding of the governance landscape of a natural resource, this does not imply that governance at the multiple levels is coordinated and coherent; it may be fragmented, with little coordination of objectives, strategies and actions.
5. Given the complexity of many natural resource situations – in terms of both the natural resource and social systems – interest in an 'adaptive' approach has grown, rooted in ecological theory and practice. An adaptive approach to the governance of natural resources implies paying greater attention to lesson learning and flexibility. This implies focusing on processes rather than structures, building the capacity of many stakeholders, building mechanisms for generating, sharing and using information, and building systems that are able to respond quickly to change.

3.2 Introduction

Many renewable natural resource systems are complex; both in terms of the natural system and the social situation. The complexity of natural systems stems from the interactions of species, through ecosystem functions and processes. Very often there is insufficient understanding of a system and uncertainty about how a natural resource system will respond to change. Complexity within social systems stems from the diversity of uses, users and agencies involved in governance, with differences in power and resources influencing decision-making and sustainability. Governing systems associated with renewable natural resources therefore very often traverse multiple levels of administrative systems and involve many agencies and stakeholders, with potentially differing scales of operation, objectives and values (Cash et al., 2006). Multi-level governance arrangements bring both additional complexity and provide opportunity for responding to complexity.

Given recognition of the complexity of natural and social systems, and their interactions, increasing attention has been given to how governance could be made more adaptive.

‘Adaptive governance’ involves developing systems and processes that enable stakeholders involved in governance to respond to and cope with change and uncertainty, conflicts and disagreements. These two approaches – multi-level governance and adaptive governance - are the focus of this section on how the governance of renewable natural resources can respond to the challenges of scale and complexity.

3.3 Responding to scale: multi-level governance

The term ‘multi-level governance’ has been used and defined in different ways. Some uses and definitions imply that governance is coordinated and coherent within and between levels. This is apparent in the Termeer et al. (2010, p5) definition of multi-level governance as “a process of continuous interactions among governments and private entities, operating at, and between, several administrative levels and ultimately aiming at the realization of collective goals”. This is a rather normative definition, inappropriate in many cases; interactions may be sporadic and opportunistic rather than continuous, there may be little coordination between and within levels and goals may not be collective, but multiple and diverse, and even in conflict with each other.

An alternative view of multi-level governance is as a framework to identify and analyse the full range of actors and agencies that influence the governance of a natural resource. In a review of the governance of ecosystems, Greiber and Schiele (2011) suggest that the institutional framework for the governance of ecosystems has vertical and horizontal dimensions; they provide useful definitions that reflect multi-level governance. The vertical dimension refers to “a hierarchy of international, national, regional, and local levels” whereas the “horizontal dimension distinguishes institutions by different sectors, such as ministries of environment, agriculture, water, energy, economy, and finance” (Greiber and Schiele, 2011, p9). They go on to note that at each level “there are different types of institutions, encompassing the broad spectrum of actors on the governmental, inter-governmental, non-governmental, and private sectors as well as civil society” (ibid).

So, multi-level governance of natural resources can be considered as the full set of actors and agencies, institutions and processes (formal and informal), which decide on, or affect decisions on, how natural resources are used and managed. There may or may not be coordination between these actors and agencies and interactions may range from occasional to regular. Mechanisms may be in place to encourage or facilitate multi-level governance, such as the formation of working groups or cross-ministerial committees, though having mechanisms in place does not guarantee effective coordination and collaboration.

One specific mechanism associated with multi-level governance is ‘nested structures’ (Ostrom, 1990; Poteete, 2012). These are created to facilitate vertical and horizontal flows of information, plans and resources and involve participation of representatives of and from the multiple levels. A structure at the lowest level will send representatives to the next level and so on, in accordance with agreed rules for representation. For example, the rules may specify a number of representatives from each location and level, and the stakeholder groups from which they should come. A system of nested structures should facilitate information sharing, planning, implementation and accountability, but may face challenges. These may include inadequate representation of all groups and interests, insufficient transparency in decision-making and in sharing power and resources, and the creation of silos of interest more concerned with upward reporting than horizontal cooperation.

Bearing in mind that investigating the multi-level nature of governance does not imply that such governance is coordinated, effective or coherent, analysis of multi-level governance of natural resources would imply attention to the following:

1. **Multiplicity of scales, levels, sectors of government, actors and institutions.** Governance is characterised by a multiplicity of scales and administrative levels (including regional, national and decentralised), that may or may not be linked together. There may be multiple sectors (ministries, departments, agencies, authorities) of government involved, having multiple objectives, sometimes overlapping and sometimes in conflict. There are also often multiple actors, in addition to government, at the different levels, including NGOs, the private sector, donors and international organisations and community-based organisations, with a range of interests, incentives and ways of working. This plurality of levels, interests and scales poses challenges for interaction and coordination, particularly given differences in the jurisdictional areas of agencies.

2. **Vertical and horizontal interactions.** A wide range of interactions – sharing plans, data and technical capacity with the different actors and mechanisms involved – may (or may not) take place across levels and sectors (vertical) and within levels and sectors (horizontal) at different frequencies and with different implications. A number of mechanisms have been developed to enable interaction, such as assigning officers with a remit for cross- or between-level interaction, arranging regular meetings and establishing working groups and committees. Though such mechanisms may be set up, their effectiveness will be dependent on factors, such as their remit and strength, the interest of participating parties, and incentives for coordination and cooperation. The nature of interactions may be influenced by informal institutions and networks of actors as much as by formal requirements. Kinship, political affiliation, religion and friendship, for example, may influence connections within and between levels that facilitate, or constrain, interaction. Other factors that may constrain cross- and between-level interactions include lack of remit for cooperation, unwillingness to dedicate sectoral resources for cross-sector purposes and a desire to attribute outputs and outcomes to the one sector or actor. Coordination of policy and implementation and cooperation with others can bring benefits, but can also be perceived by individuals and organisations as threatening their remit, power, budget and capacity.

3. **Governance components.** The components of governance that are critical for analysis in a multi-level context include: the distribution and exercise of power; mechanisms for, and experience of, representation and participation; the directions, extent and frequency of accountability and mechanisms for accountability; inclusivity of the structures and processes; trust between actors; and mechanisms and incentives to encourage and enable reciprocity.

These three areas provide a framework for the analysis of the nature of, or potential for, multi-level governance. Table 3 sets out examples of the types of questions to ask in generating an understanding of the multi-level nature of governance.

Dimension	Questions to ask
Multiplicity of levels and types of actors	What is the geographic scale of the natural resource system? Which administrative levels and boundaries have a remit on the spatial area and natural resource system? Who are the actors and agencies that use or make decisions that impact on use of the natural resource? What are the policies (including international obligations), legislation and plans that have an impact on the use and management of the natural resource? How do these fit together?
Nature and performance of vertical and horizontal interactions	Do actors/organisations interact with other actors/organisations 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? If actors/organisations do not interact, why? 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?
Mechanisms and processes of governance	Which actors/organisations are more powerful than others? Where does this power come from, how is it manifested and what are the impacts of differences in power? What mechanisms and systems exist for representation, participation and inclusion of actors/organisations/communities at the different levels? What mechanisms exist to require accountability and in which directions is there accountability? What are the challenges for effective accountability? Is there trust between actors/organisations within and across levels? How was that trust created or why has trust not been developed? Is there reciprocity between actors/organisations? What are the mechanisms that enable this and what are the challenges for reciprocal action and benefits?

Table 3 Analysing multi-level governance

Table 4 provides an example of analysis of a multi-level governance context. Mt Marsabit in northern Kenya plays a critical role in hydrology far beyond the mountain. Parts of the mountain are designated as a national reserve and a forest reserve, but the governance of the entire ecosystem has never been brought together, posing challenges for coordination and effectiveness. An analysis of the multi-level governance landscape provides a broader perspective and identifies challenges and opportunities for coordination and effectiveness.

Dimension	Examples	Characteristics
Multiplicity of levels and actors	Kenya Forest Service (KFS), Kenya Wildlife Service (KWS), County Council, Provincial Administration, Location level Environmental Management Committees (EMCs), Non-state actors, Traditional institutions	Ecosystem crosses ward and county boundaries with different agencies/actors having different geographic areas of responsibility, making coordination and collaboration difficult
Vertical and horizontal interactions	Between-level interactions strong at the district level; limited interaction between district committees and EMCs. Good interaction between EMCs and traditional institutions. Dedicated mechanisms to enable interaction and coordination include: District Steering Group, District Environment Committee, District Security Committee	Community representation at the district level is minimal. Limited cross-level interaction and mechanisms for enabling this. Horizontal interactions more apparent between government actors and NGOs Lack of coordination at community level between EMCs and the Community Forest Association: each operates under separate regulations and reports to different ministries. Infrequent meetings of committees
Governance components	Limited participation of community members above the very local level. EMCs lack authority, but have a good reputation in communities and are reasonably accountable. Community members' perceive legitimacy of traditional institutions as higher than government agencies	Limited representation and voice of poor and vulnerable groups in district committees Mechanisms of accountability include time for community member questions at EMC meetings and elections for councillors. Limited downward accountability from KFS and KWS

Source: case study information taken from Robinson (2013) and Robinson et al. (2014)

Table 4 Multi-level governance of Mt Marsabit: ecosystem-based management

The example of Mt. Marsabit demonstrates how challenging multi-level governance can be, particularly if there is no one agency clearly leading, or if there is competition between agencies. Interactions between levels appear to be particularly limited, with insufficient interactions between community members and government officers. Mechanisms to encourage greater communication and cooperation between sectors, actors and levels are needed to develop more integrated and effective governance of natural resources.

3.4 Adaptive governance

As both the social and ecological components of natural resource situations may change over time, it has been recognised that governance and co-management need to be *adaptive*; systems should have the capacity to respond to, and cope with, uncertainty, complexity and change (Folke at al., 2005). An adaptive approach has also been described as one that encourages "simultaneously managing and learning about natural resources" and is noted as having been advocated for the last few decades (Williams, 2011, p1346). The call for adaptation stems from two key sources: the adoption of an ecosystems-based management approach and climate change.

Creating adaptive governance is a considerable challenge as the characteristics of an adaptive approach differ considerably from most established governance approaches. Adaptive governance is closely linked to multi-level governance, as governance systems and processes are needed at multiple scales and levels to enable appropriate responses; links and coordination are essential for sharing information to inform adaptation. Adaptive management approaches are also linked to the concept of resilience and collaborative governance of natural resources (Tompkins and Adger, 2004).

Literature on adaptive governance suggests that systems and processes should:

- Have the capacity to be flexible and to be able to respond to change; taking a 'learning by doing' approach
- Generate, use and share knowledge, with systems for feedback and iterative decision-making
- Encourage horizontal integration for greater coordination and cooperation between sectors and actors
- Enable broad stakeholder participation
- Facilitate behaviour change
- Emphasise processes rather than structures (Chaffin et al., 2014; Williams, 2011; Folke et al., 2005).

An approach closely related to adaptive governance is 'adaptive co-management' (Armitage et al., 2007), which emphasises collaboration and power-sharing between key actors, following on from collaborative governance and co-management as discussed in Section 2. Adaptive governance and adaptive co-management are not widely adopted in practice, though the approaches are increasingly being advocated. UNEP (2012, p29), for example, suggests that adaptive governance is the approach that should be taken for coastal zones, defining adaptive governance as "a flexible, integrated and holistic form of governance that takes into account the inherent problems of complexity, uncertainty, change, and fragmentation associated with the interrelated social, economic and environmental systems of the coastal zone". Adaptive governance is recommended as the approach provides the flexibility needed to deal with the diverse range of pressures, concerns and systems inherent in coastal zones.

An adaptive governance approach is also advocated for transboundary water governance in responding to climate change (Sanchez and Roberts, 2014). In an IUCN report on

transboundary water governance and climate change, Troell and Swanson (2014) point out that although transboundary water agreements allow for some flexibility and change in water availability, they are usually developed on the assumption of things staying broadly the same and do not have the flexibility and scope to deal with uncertainty. They also highlight the 'siloed' nature of water governance as being problematic and call for greater multi-level governance and vertical and horizontal integration to encourage greater coordination and cooperation between sectors.

Evidence for the adoption and success of adaptive management or governance of natural resources in developing countries is currently limited. One source that reviews relevant experience of natural resource management to extract adaptive and collaborative dimensions is Ojha et al. (2012). The text brings together evidence from the DFID 'Research Into Use' programme, providing examples from forest governance in Nepal, action research, farmer field schools, floodplain management in Bangladesh and the experience of the Center for International Forestry Research. While Ojha et al. make clear that there is scope for generating further evidence, they emphasise that the fundamentals of adaptive governance – learning and collaboration across stakeholders at all levels – should be a core element of natural resource governance.

3.5 Multi-level and adaptive governance

As can be seen from the review of multi-level and adaptive governance, there are strong overlaps between them. Multi-level governance should have the capacity and ability to adapt. A characteristic of adaptive governance is that there should be vertical and horizontal interactions that take a multi-level perspective. There are strong connections between the approaches, reflecting the interconnection between scale and complexity. Ideally then, governance of natural resources should take a multi-level, adaptive approach.

Treaty mechanisms	**In treaty?**	**Status**
Water allocation method	No	Unresolved, ongoing preparation
Extreme events provision	Yes	Proactive planning approach, including authority to respond
Joint monitoring and information exchange	Yes	Ongoing and improving
Enforcement	No	Integrated approach, but trade-offs yet to be delineated
Dispute resolution mechanism	Yes	OKACOM charged with conflict prevention and resolution; consensus; negotiation
Joint management	Yes	OKACOM
Iterative processes for adaptive management	No	Not explicit in treaty but may be in governance framework
Adaptive governance principles	**In governance framework?**	**Status**
Overlapping levels of control	Yes	Stakeholders at multiple scales have input
Horizontal and vertical information flow	Yes	Robust data sharing
Meaningful public participation	Yes	Advanced participation methods
Local capacity building	Yes	Local contractors prioritised; collaboration with local stakeholders
Authority to respond	Unknown	Not yet tested

Source: Adapted from Green et al. (2013, p6)

Table 5 Okavango River Basin: an example of adaptive multi-level governance

The analysis of the Okavango River Basin by Green et al. (2013) provides an example of both the multi-level nature of governance and the capacity for adaptive governance. Table 5 examines the transboundary river basin management agreement and assesses the adaptive nature of the governance arrangements. The river basin is shared by Angola, Botswana and Namibia, in southwestern Africa, and provides water to an otherwise arid region. The Okavango River Basin Water Commission (OKACOM) was set up in 1994.

3.6 Lessons for practice

1. Mapping the multi-level and multi-sectoral governance landscape of natural resources will identify more structures and processes that impact on a natural resource, the benefits derived and how those benefits are shared than a sector-based approach.
2. Support should be provided to ensure dialogue, information sharing, and coordination and cooperation in policy-making and implementation within and between sectors and levels.
3. Governments should adopt different approaches to cross-ministerial working, including forming inter-ministry working groups, giving executive agencies responsibility for coordinating work between ministries and allocating officers within ministries to lead coordination. Lessons learnt from experience in cooperation and coordination in other sectors should feed into the design of more effective approaches.
4. Nested systems of governance are often developed to help manage flows of information between different stakeholder groups. Examples include local level fisheries and forest user groups linked to district level and national networks. Where nested systems are developed, attention should be given to representation of stakeholder groups, including disaggregation by occupation, ethnicity, age and gender, directions and forms of accountability, and resource and information sharing.
5. Natural resource governance structures must interact and work with existing structures at their own level, such as village and sub-district governments, as well as with structures at other levels. The potential for horizontal linkages must be considered to prevent compartmentalisation and the creation of silos.
6. Adaptive governance approaches should be encouraged and supported, so that sufficient emphasis is given to processes of governance which may change and adapt over time. In many governance approaches, too much emphasis is given to what structures should be like and how they should function; structures may be too narrowly defined and take time to change.
7. Support for the design and implementation of systems to collect, share and use information can enable a more flexible, adaptive approach to governance, where actors are able to make decisions in a more informed, timely and effective way. Social learning approaches can help actors to learn lessons from practice and cope better with uncertainty and change.

Key Resources 3

Armitage, D., Berkes, F. and Doubleday N. (eds.) (2007) *Adaptive Co-management: Collaboration, Learning, and Multi-Level Governance,* Vancouver: UBC Press.

Barnes, G. and Child, B. (2014) Adaptive Cross-Scalar Governance of Natural Resources, London: Routledge.

Cash, D.W. et al. (2006) 'Scale and Cross-Scale Dynamics: Governance and Information in a Multilevel World', *Ecology and Society*, 11(2): 8.

Folke, C. et al. (2005) 'Adaptive Governance of Social-Ecological Systems', *Annual Review of Environmental Resources*, 30, pp.441-73.

SECTION 4

Institutions and politics

4.1 Key points

1. Many forms of institutions matter for natural resource governance; they may both enable or constrain governance, smooth the way or block action. While definitions of institutions vary greatly, they are often viewed as being in one of two categories. Binary categories include formal and informal and bureaucratic and socially-embedded.
2. People may draw on institutions that fall within both formal and informal categories and/or produce new institutional arrangements that have elements of both.
3. Institutions may enable perpetuation of power and influence, but may also enable change.
4. Institutions beyond those specifically created for natural resource governance are often important. These may include friendship, kinship and power relations within a community.
5. Identifying and understanding the range of institutions that may be important in a particular situation is a challenge and takes time. Political economy analysis, 'thinking and working politically', and power analysis can help identify and analyse institutions and power relations.
6. DFID has a wealth of experience in political analysis, from 'drivers of change', to country governance analyses and political economy analyses. This experience should inform the design and implementation of support for the governance of natural resources.

4.2 Introduction

Access to, and control over, natural resources is mediated by a range of institutions. Access to natural resources has been defined as "the ability to benefit from things – including material objects, persons, institutions, and symbols" (Ribot and Peluso, 2003, p153). The 'ability to benefit from things' may vary from an official title deed for a piece of land to local norms on gendered access to forest products. Access may be for a specific period of time, location, activity or type of product. Institutions of many forms shape the degree and nature of access to benefits from natural resources and the extent of control that people have over natural resources and associated decision-making.

Institutions are widely recognised as the mechanisms that facilitate and constrain governance. In a wider report on governance, DFID acknowledges that further research is needed into the "relative importance of informal institutions" (DFID, 2010, p7) and that the role of informal institutions is a key theme in discussing political settlements and state-building. The report states that "research shows that informal institutions and personalised relationships are pervasive, powerful and, in some circumstances, can contribute to progressive outcomes in poor countries" (DFID, 2010, p18). The same report notes that having effective informal institutions in place does not imply that formal state institutions are defective, but that informal institutions are more effective and 'acceptable' when 'they supplemented and interacted with effective formal institutions' (DFID, 2010, p50). Informal

institutions clearly have an important role in governance and may provide opportunities to enable greater inclusion of, and/or benefits for, poor people.

The same observations apply to natural resource governance. Institutions matter; informal institutions in particular. Personal relationships, gendered relations, power relations, kinship, norms, beliefs and taboos influence access to and benefits from natural resources, who participates or influences decision-making, whose voice is heard and, in turn, the condition of the natural resource. Identifying and understanding relevant institutions is essential for understanding how different people are benefiting from a natural resource and why, why certain decisions have been made and what might be some of the challenges for change.

This section sets out how institutions are understood within the context of natural resource governance, what the implications are of the institutional landscape and approaches that enable the analysis of institutions.

4.3 What are institutions?

The term 'institution' is widely used but understanding and use of the concept can differ. Within literature on natural resource governance, institutions are seen as "regularized patterns of behaviour between individuals and groups in society" (Leach et al., 1997, p5) and "arrangements between people which are reproduced and regularized across time and space and which are subject to constant processes of evolution and change" (Cleaver, 2012, p8). These definitions reflect the meaning of institutions given by North in his oft-quoted definition as "the rules of the game in a society, or more formally, are the humanly devised constraints that shape human interaction', which 'reduce uncertainty by providing a structure to everyday life'" (North, 1990, p3).

These definitions are helpful, but a more explicit definition was given by March and Olsen (1989, p22) that sets out examples of what they refer to as institutions. They define institutions as "the routines, procedures, conventions, roles, strategies, organizational forms, and technologies around which political activity is constructed. We also mean beliefs, paradigms, codes, cultures and knowledge, that surround, support, elaborate, and contradict those roles and routines". This definition reflects the breadth of forms that institutions can take and to assist in institutional analysis, institutions are often associated with two broad categories: formal and informal, or modern and traditional. Cleaver (2002) puts forward an alternative terminology of 'bureaucratic' and 'socially-embedded' institutions with the following definitions:

> Bureaucratic institutions are those formalised arrangements based on explicit organisational structures, contracts and legal rights, often introduced by governments or development agencies. Socially embedded institutions are those based on culture, social organisation and daily practice.
>
> Cleaver (2002, p13)

The benefit of this terminology is that in some contexts it can be difficult and unhelpful to distinguish between 'formal' and 'informal' as the distinction may not be clear. Even in using the categories of 'bureaucratic' and 'socially-embedded' it is recognised that there may be overlap between these categories.

4.4 Institutions and natural resource governance

Institutions are clearly important for the governance of natural resources. They may both facilitate and constrain, or control, access to and benefits from natural resources; different people will have different experiences. Box 9 demonstrates how socially-embedded

institutions are critical for effective pastoralism and how these institutions have increasingly been impacted, and in some cases eroded, by new institutions brought in by the state.

Box 9 Customary institutions, natural resource governance, conflict resolution and pastoralism

Customary institutions are critical for effective pastoralism. Such institutions are instrumental in negotiating and securing access to grazing land, ensuring availability of water, avoiding high concentrations of animals at water sources and avoiding conflict. Customary institutions allow for flexibility and reciprocity between groups to reflect seasonal availability of grazing land and water – ever more critical as climate change impacts become apparent. Where mobility is unhindered, pastoralists are more resilient and able to cope with droughts. Despite evidence that shows how well pastoralist systems can, and do, work, Hardin's Tragedy of the Commons-type thinking, with assumptions that pastoralists are incentivised to graze as many livestock as possible, has influenced drylands policy in many countries.

Within a region, clans or sub-clans are associated with specific areas, with access to land and water within an area negotiated by other groups as necessary, including across borders, such as the Kenya-Ethiopia border (Pavanello and Levine, 2011). A plethora of rules and regulations modulate access to land and water, and have the flexibility to respond to availability and needs. In Ethiopia, customary institutions have been recognised as critical for effective rangeland governance, but they have not been effectively utilised or built on in developing new institutional arrangements (Nassef with Belayhun, 2012; Wassie, 2014). State-led Water User Associations and the Core committees of Peasant Associations have bypassed customary institutions, such as the *Gadaa* system of the Borana, which has clear structures and rules based on kinships and social ties. This weakening of customary institutions, through privatising the ownership of land, reducing the availability of grazing land, and establishing new governance structures and rules, has contributed to increasing conflict, a decline in livelihood assets and a reduction in the social support available to poor and women-headed households (Wassie, 2014).

Customary institutions in pastoralist societies are, however, recognised as not only able to facilitate conflict resolution, but also to initiate conflict. Pressure on young men to prove themselves and gain higher status through raids and revenge attacks leads to conflict; engaging elders in a resolution process would use customary institutions in an effective way to discourage such attacks (Glowacki and Gönc, 2013). Multiple pressures on pastoralism, including climate change, fragmentation of access to grazing land and pressure to sedentarise, means paying greater attention to customary institutions is particularly appropriate, given the apparent flexibility and adaptability these institutions have shown over time (Galvin, 2009).

The case of pastoralism in Box 9 shows how institutions may clash with or erode other institutions, resulting in new conflict or perhaps opportunities. Another perspective on the interaction between bureaucratic and socially-embedded institutions is provided by the concept of 'institutional bricolage' (Cleaver, 2012), defined as "a process through which actors consciously and unconsciously reshape or piece together different arrangements at hand" (de Koning and Cleaver, 2012, p281). People may draw on both forms of institutions to either navigate through situations to secure benefits from natural resources or to form new institutional arrangements.

Box 10 Institutional bricolage and the work of Environment Officers in Kenya

At the time of the research reported in an article by Funder and Marani (2015), between 2005 and 2013, the remit of the environment sector fell under the Ministry of Environment and the National Environment Management Authority (NEMA). Environment Officers (EOs) had devolved power, and reported to NEMA and the Ministry rather than decentralised government, as had been the case since the County Governments Act of 2012. The research was carried out in a rural district, with poor roads, many remote communities and a variety of land uses, ecosystems and environmental issues. Given the distance from NEMA headquarters, most decisions were made by the EOs themselves, drawing on their own interpretations of rules and regulations. Several EOs were in post over the period of the research, during which fieldwork was carried out in 2005, 2012 and 2013.

Overlapping mandates with other officers (e.g. water, forestry and agriculture), the relatively low status of the environment sector compared to other government sectors, and complex local power relations made for a challenging context for an EO's work. EOs were expected to work closely with the local Environment Committee, but high meeting costs and conflict led to EOs relying on informal liaison with specific committee members outside meetings. These committee members were people viewed as 'constructive', as compared to other members who were viewed as 'uncooperative', and the informal consultations produced a parallel structure alongside the Environment Committee. A similar approach was adopted in trying to influence planning processes; informal engagement with planning officers rather than taking matters to the County Planning Committee.

An example of an informal agreement was the banning of non-residents from undertaking sand mining, in response to concern about the level of sand mining in the area. This ban was not formalised for several years, during which time local communities were encouraged to form sand mining cooperatives so that local people benefited, but the activity was monitored and kept at a manageable level.

A further example in the paper concerns conflict between farmers and fishers around Lake Jipe. Farmers were moving closer to the lakeshore and drawing water from the wetlands and river, leading to concerns about water levels and agricultural pollution. As the situation escalated, the EO was keen to contain the conflict and avoid attracting the attention of higher levels of government, who would view open conflict between the fishers and farmers as a failure on the part of the EO to effectively undertake the job. The EO worked with other government officers to facilitate negotiations, using the local Chief as a mediator between the Community Fisheries Cooperatives and farmers' community-based organisations. Through this process areas where farming was or was not permissible were agreed. Land title deeds were offered for land further away from the lake, which was attractive to the farmers. Agricultural extension officers used funding they had secured for small-scale water development schemes to support the move. No formal processes or plans were followed, but personal networks, relations of trust and traditional institutions were drawn on to support processes of mediation and negotiation.

Source: Funder and Marani (2015)

Box 10 sets out an application of the concept of bricolage to the work of Environment Officers in Kenya. Environment Officers use a range of bureaucratic and socially-embedded institutions to cope with insufficient resources and power. The research identified three strategies the Environment Officers employed: "(i) working through personal networks, (ii) tailoring informal agreements and (iii) delegating public functions and authority to civil society" (Funder and Marani, 2015, p95). The case is an illustration of decentralised governance of natural resources and of multi-level governance, as well as demonstrating the range of institutions that enable officers to undertake their work.

The concept of institutional bricolage parallels 'legal pluralism', which refers to situations where multiple legal systems operate at the same time in a locality. In general, legal pluralism refers to the co-existence of state systems and customary, or traditional, legal systems. For example, in the case of land, there may be a system of formal title deeds as well as access through customary arrangements. Multiple legal systems may operate independently of each other, with little interaction, or there may be a degree of integration and recognition where systems work together.

Benjamin (2008, p2268) suggests though that legal pluralism concerns more than the existence of multiple legal systems, stating that "it may involve multiple versions of customary law, different local interpretations of the legitimacy of rule systems, and potentially conflicting ideas about who has legitimate rulemaking authority". This observation reflects the complexity of legal pluralism and of the institutional context of natural resource governance. Using a lens of legal pluralism or institutional bricolage, therefore, enables identification and analysis of a broad range of institutions and how, and to what extent, these interact and are used by people, who may be engaged in 'forum shopping', using the system that works best for them, and with what implications. It offers a way of looking for opportunities for empowerment and change that may not be apparent if institutional analysis focuses on formal, bureaucratic, institutions alone.

4.5 Political economy analysis

Institutional analysis is a key component of broader political economy analysis (PEA) widely used in development practice. PEA reflects the observation that "the single most important lesson to emerge in international development thinking and practice over the past two decades is that institutions matter for development, and that behind institutions lie politics" (Menocal, 2014, p2). Collinson (2003) defines PEA as being:

> concerned with the interaction of political and economic processes in a society. It focuses on the distribution of power and wealth between different groups and individuals, and on the processes that create, sustain and transform these relationships over time.
>
> (Collinson, 2003, p10)

DFID has a wealth of experience in PEA; its approach to political analysis can be traced to 'drivers of change' analyses early in the first decade of the 2000s, and country governance analyses in the middle and PEA in the later years of the decade (Yanguas and Hulme, 2014). In 2009, DFID produced a 'How To Note' on PEA, which set out three areas of focus for PEA:

- "The ***interests and incentives*** facing different groups in society (and particularly political elites), and how these generate particular policy outcomes that may encourage or hinder development.

- The role that ***formal institutions (e.g. rule of law, elections) and informal institutions social, political and cultural norms*** play in shaping human interaction and political and economic competition.
- The impact of ***values and ideas***, including political ideologies, religion and cultural beliefs, on political behaviour and public policy." (DFID, 2009, p4).

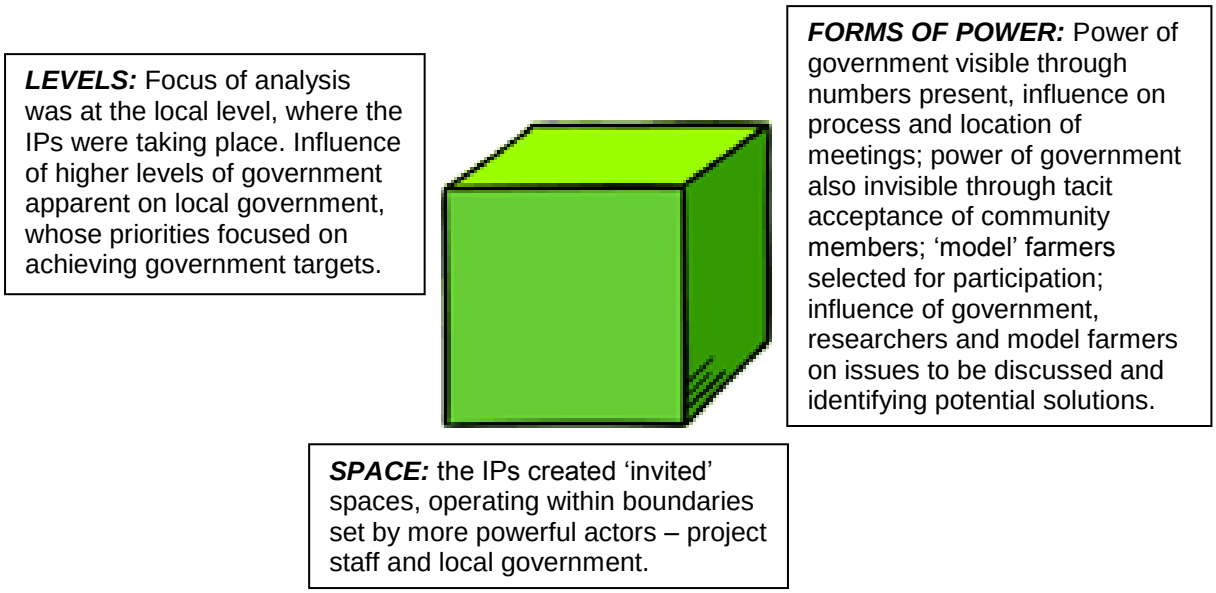
Although PEA represents a broader analytical approach than institutional analysis alone, it provides practical tools and approaches to institutional analysis that otherwise are hard to pin down. Undertaking an analysis of institutions and power is a difficult process and much time and resources may be needed to get to the nuanced relations, norms and processes that matter. Within research on natural resource governance, such analysis has utilised common property theory, critical institutionalism and political ecology (Nunan, 2015), to name a few. PEA presents a more practically-oriented approach, one that is informed by understanding and appreciation of the importance of power relations and distribution.

Even though PEA is more practice-oriented than many other research-oriented approaches, it has still been critiqued for failing to deliver on substantial change in donor practice. Menocal (2014, p5) suggests that this is because PEA has been seen too much as a "box-ticking exercise" rather than as an "ongoing process of thinking and reflection". PEA has become part of a broader debate about 'thinking and working politically' (TWP). Booth (2015) summarises key lessons from approaches that think and work politically as applying "iterative problem solving, or stepwise learning" and "brokering constructive relations among key players to discover shared interests and smart ways of dealing with vested interests" (Booth, 2015, p2).

Of particular relevance to the governance of renewable natural resources has been increasing attention on how PEA and TWP have neglected gender relations. Koester (2015, p1) argues that PEA and TWP approaches and debates "have been largely blind to one of the most central and pervasive systems of power worldwide: gender". Browne (2014, p1) also confirms that "gender is not systematically included in PEA". Koester (2015) puts forward two compelling reasons for incorporating a strong gendered perspective in TWP, arguing that "without thinking about gender, we are not politically smart" (Koester, 2015, p5) and that "if politically smart, we'll provide better support to gender equality" (Koester, 2015, p6). A gendered perspective, fully integrated into PEA and TWP, is advocated if the nature, influence and outcomes of power are to be well understood.

Analysing the political context of a situation involves assessing the distribution, nature and use of power. Gaventa (2006) provides a useful framework and approach to analysing power through the 'power cube', which has three dimensions – space for participation and action (closed, invited or claimed), forms of power (visible, hidden and invisible) and levels of power (including local, national and global). An example of power cube analysis in a natural resource setting is given by Cullen et al. (2014) who report on an analysis of the influence of power dynamics on the practice of 'innovation platforms'. The term 'innovation platform' is used to refer to groups of people representing different organisations and interests that meet together to diagnose problems and agree on solutions (Homann-Kee Tui et al., 2013). Such platforms were formed in three districts under the Nile Basin Development Challenge project in the Ethiopian highlands as part of a landscape approach to natural resource management and improving rural livelihoods. Figure 1 summarises their analysis.

Figure 1 Power cube analysis of the Nile Basin Development Challenge Innovation Platforms (IPs) (adapted from Cullen et al., 2014)



The analysis highlights how difficult it is to neutralise the influence of power even in spaces in which stakeholders are supposed to work together and exchange knowledge. It demonstrates the need to understand the power dynamics at work so that efforts can be made to mediate power dynamics and develop mechanisms to empower more marginalised stakeholder groups, requiring skilled and experienced 'innovation brokers' (Swanns et al., 2013).

4.6 Lessons for practice

1. Identify, understand and take into consideration a broad range of socially-embedded ('informal') institutions when supporting the development of governance systems, including the development of legislation.
2. Identify and support socially-embedded institutions, which can complement formal institutions, e.g. taboos and norms supporting regulations on where and what to fish.
3. Encourage greater 'thinking and working politically' within natural resource sectors to complement attention on management tools and approaches, drawing on DFID's long experience in PEA. This is essential in project planning, but also throughout interventions, to understand dynamics, respond to change and plan effectively.
4. A gendered perspective in institutional analysis or political economy analysis of natural resource governance is essential if new initiatives are to encourage the development of equitable, inclusive systems.

Key Resources 4

Cleaver, F. (2012) *Development Through Bricolage: Rethinking Institutions for Natural Resource Management,* London: Earthscan.

Menocal, A.R. (2014) *Getting real about politics: From thinking politically to working differently*, London: ODI.

SECTION 5

Governing renewable natural resources

5.1 Key characteristics of natural resource governance

The nature and performance of natural resource governance clearly matters for the sustainability of natural resources, the extent, nature and distribution of benefits to resource users and in preventing or resolving conflict. While many factors have been identified that affect the nature and performance of natural resource governance, it is important to remember that such governance takes place within the broader local and national governance situation. If the broad governance situation is fragmented, weak and characterised by patronage and dominant elites, it would be challenging for natural resource governance to be different. The broader context, therefore, potentially limits what can be done to improve the governance of renewable natural resources.

The previous sections have identified a number of key characteristics of natural resource governance that can be summarised as:

1. Governance differs from management, though the two are interlinked. The governance of natural resources is challenging due to the complexity of natural resources and interactions with social systems.
2. Much natural resource governance involves decentralised arrangements, but these have not always delivered improvements in natural resource sustainability, governance performance and livelihoods or reduced poverty. The failure to deliver is at least in part due to the nature and degree of power-sharing, where insufficient power and resources are devolved to decentralised structures.
3. However, where power and resources are devolved, there are many instances of capture of these by elites, reflecting pre-existing power differences in communities and groups.
4. Access to and benefits from natural resources are experienced differently by different groups of people, depending on institutional arrangements and social norms. These define and interact with social differences such as gender, age and ethnicity, differences that affect who has access to natural resources, how much and when, as well as to which natural resources in which locations.

5.2 Evidence gaps

This Topic Guide has also identified areas where further evidence and information sharing is needed to inform policy and practice. These evidence gaps include:

1. **Wider governance benefits:** There is very little evidence available on the wider governance impacts of natural resource governance. Evidence on the scale and nature of the wider benefits of reforms, for example, could lead to greater support for natural resource governance initiatives and support that is better designed and leads to further wider benefits.

   What are the wider governance benefits from natural resource governance experienced at different levels and by different stakeholder groups?

2. **Coordination of policy and practice:** Policy and practice is often fragmented between different sectors and parts of government and between levels and actors. Lack of, or ineffective, coordination can lead to policies and practice in conflict with one another and at least which do not support and reinforce each other. More evidence is needed on how effective coordination of policy and practice can be encouraged.

   What incentives and arrangements could encourage greater, more sustainable, coordination and cooperation between government sectors and levels?

3. **Interactions between levels of governance**: Not enough is known about how actors and organisations interact between and within levels and sectors, and how effective interaction for long term governance and poverty reduction could be encouraged.

   How do government and non-government actors interact within and between levels and sectors, and what can be learnt from the range of formal and informal interactions utilised?

   Which institutions affect the nature and extent of interaction between actors and with what implications for governance processes and outcomes?

4. **Accountability:** Whilst lack of accountability in general is perceived as a common problem in natural resource governance, lack of downward accountability, to resource users, is noted as a particular challenge. More needs to be known about how to generate or induce demand for accountability, both by village-level constituencies from district authorities, and by the districts from the centre, and what mechanisms can be used to deliver accountability.

   What mechanisms can be developed to induce and/or deliver greater downward accountability to resource users?

   What factors would enable or constrain the effective working of those mechanisms?

5. **Elite capture and corruption:** There is some research on the potential benefits of short-term elite capture and how elite capture can be overcome, but more evidence is needed. There has been little research into the scale, nature and impacts of corruption within natural resource governance.

   How can the potential for elite capture of the systems and benefits of natural resource governance be minimised and overcome?

   What is the scale and nature of corruption in natural resource governance, what are the implications and how can corruption be addressed?

6. **Conflict and renewable natural resources:** With increasing attention on renewable natural resources and the extent and nature of competition and conflict, further evidence is needed on the role of collective management of a natural resource asset in conflict and conflict resolution.

   What mechanisms are effectively used by collective and collaborative governance systems of renewable natural resources to deal with competition and conflict over resources?

7. **The sustainability and adaptive capacity of participatory governance:** Community-based and collaborative forms of natural resource governance have existed for many years; it is critical that the longer-term impacts are understood and responded to. Investigation is needed into whether these forms of governance can consistently and effectively deliver multiple, equitable benefits in the long term, and how they cope with changing environments/ecosystems.

   How have forms of community-based and collaborative governance changed over time, why and with what consequences for livelihoods and natural resources?

8. **Gender and natural resource governance:** A fair amount of research has been undertaken on the role of women in forest user groups and committees and the impact of women in these structures on forest governance outcomes. This has not been the case in other sectors and more research could be done more generally on gender relations within governance structures and systems. This gap is supported by an initiative of the International Institute for Environment and Development launched in July 2015 to collate evidence on gender balance and resource governance, focusing on forestry and fisheries (IIED, 2015).

   How are women involved in natural resource governance systems and what factors enable or constrain their participation?

   What impacts does the involvement of women in natural resource governance have on the processes and outcomes of governance?

   How does the participation and representation of women resource users change within nested multi-level systems of governance?

   What are the gendered relations within governance structures and systems and how do they affect governance processes and outcomes?

SECTION 6

Further resources

This section provides links to examples and publications on the governance of renewable natural resources.

Governance of natural resources

- **Collaborating for Resilience.** An initiative led by the CGIAR Research Program on Aquatic Agricultural Systems working with a number of partners to share information and experience between researchers, practitioners and policy stakeholders on supporting dialogue and collaboration for natural resource governance. See http://coresilience.org/

- **Governance of Forests Initiative** of the World Resources Institute, designed to support the improvement of participation, transparency and responsiveness of government practices that impact forest land allocation and use in Brazil, Cameroon and Indonesia. See http://www.wri.org/our-work/project/governance-forests-initiative.

- **OECD Programme on Water Governance** promotes recognition of the water crisis as a governance crisis. As well as a Water Governance Initiative policy forum, the programme has developed 'Principles on Water Governance' that provide generic guidelines. See http://www.oecd.org/env/watergovernanceprogramme.htm

Renewable natural resource, conflict and peacebuilding

- **EU and UN Partnership Toolkit and Guidance for Preventing and Managing Land and Natural Resources Conflicts**
  The EU and UN formed a partnership in 2008 for building capacity in land, natural resources and conflict and have produced practical guidance notes and training material on land and conflict, extractives and conflict, renewable resources and conflict, capacity building for natural resource management and conflict prevention in resource-rich economies.

  http://www.un.org/en/land-natural-resources-conflict/index.shtml

  Reports include:
  UN (2013) Natural Resource Management in Transition Settings, UNDG-ECHA Guidance Note, United Nations.

  EU and UN (2012) Toolkit and Guidance for Preventing and Managing Land and Natural Resources Conflicts: Renewable Resources and Conflict

  EU and UN (2012) Toolkit and Guidance for Preventing and Managing Land and Natural Resources Conflicts: Land and Conflict
  http://www.un.org/en/land-natural-resources-conflict/pdfs/GN_Land%20and%20Conflict.pdf

EU and UN (2012) Toolkit and Guidance for Preventing and Managing Land and Natural Resources Conflicts: Strengthening Capacity for Conflict Sensitive Natural Resource Management

- **UNEP Environmental Cooperation for Peacebuilding**
  The programme assists countries, regional organisations and the UN system to assess and transform potential sources of conflict over natural resources into an opportunity for cooperation and a platform for peacebuilding. The programme consists of four pillars which link to the main peace and security communities of practice across the UN system: Conflict Prevention, Peacebuilding and Natural Resources; Greening Peacekeeping Operations; Environmental Diplomacy and Mediation; Legal Protection.

  http://www.unep.org/disastersandconflicts/Introduction/ECP/whatisecp/tabid/105949/Default.aspx

- **UN Postconflict**
  United Nations Department of Political Affairs and United Nations Environment Programme (2015) Natural Resources and Conflict: A Guide for Mediation Practitioners

  http://postconflict.unep.ch/publications/UNDPA_UNEP_NRC_Mediation_full.pdf
  http://postconflict.unep.ch/publications/UNEP_UNDP_NRM_DDR.pdf

  UNEP (2009) From conflict to peacebuilding:
  http://postconflict.unep.ch/publications/pcdmb_policy_01.pdf

  UNEP, UN Women, PBSO and UNDP (2013) Women and Natural Resources: Unlocking the Peacebuilding Potential, UNEP, Nairobi.

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