ICIMOD

FOR MOUNTAINS AND PEOPLE

Unpacking the Governance Conundrum for Better Natural Resource Management

About ICIMOD

The International Centre for Integrated Mountain Development (ICIMOD) is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalayas (HKH) – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – based in Kathmandu, Nepal. Globalization and climate change are having an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream and downstream issues. ICIMOD supports regional transboundary programmes through partnerships with regional partner institutions, facilitates the exchange of experiences, and serves as a regional knowledge hub. It strengthens networking among regional and global centres of excellence. Overall, ICIMOD is working to develop economically- and environmentally-sound mountain ecosystems to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now and in the future.

Unpacking the Governance Conundrum for Better Natural Resource Management

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Foreword

Any organization working in the field of natural resources in the Hindu Kush Himalayan region must underscore the importance of governance institutions. Governance issues are especially important in the context of natural resources because of their very nature. Although most natural resources provide products that are of direct and immediate use for local populations, the ecosystem services they provide are for wider use and, hence, entail global concern. Therefore, the sustainability of natural resources, which requires that resources are used efficiently and the benefits accruing from resources are shared equitably, is of prime concern for both local and global communities.

In simple terms, governance is the ability to make, enforce, and monitor rules and deliver services. In this regard, the more pertinent issue is about who should be making and monitoring the rules. Good governance ensures that political, social, and economic priorities are based on broad consensus in society and that the voices of the poorest and the most vulnerable are heard in decision making. ICIMOD firmly believes that good governance is a common denominator to ensure transparency and inclusiveness in ecosystem management planning, decision making, monitoring, knowledge outreach and access, and benefit sharing at all levels. There are now enough studies showing that there is a variety of institutions that could be involved in the function of governance. This publication highlights various forms of such governance institutions.

The authors indicate the principal building blocks of governance – institutions, actors, policy, knowledge, and power. With several examples from ICIMOD's work, they bring out how these components are distributed across multiple spatial levels – local, state, national, regional, and international – with complex linkages within and between these levels. They also emphasize the fact that good governance of natural resources is crucial, because the lives of rural people continue to depend substantially on them in major parts of mountain economies of the Hindu Kush Himalayas. At the same time, increasing variability in temperature and precipitation, a typical indicator of climate change, is making the lives of the rural poor more difficult. The ability of governance systems to deal with this uncertainty is an essential requirement for sustainable societies in the region.

ICIMOD considers governance issues as cross-cutting and has made governance a strategic institutional function in its medium term action plan (2013–2017). Accordingly, governance issues have been integrated in several initiatives across the Centre's regional programmes. This publication is partly based on lessons learned and partly serves as guidance to the Centre's future work. I am confident that this publication will prove to be a step towards a better understanding of governance issues and will help in designing institutional mechanisms that are more equitable and sustainable.

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Acknowledgements

1. Introduction

Development versus conservation has long been a topic of heated debate. Despite efforts to bring the two perspectives together on a common platform, no universally-accepted approach has been found. It is increasingly being realized that the global population and its aspirations are growing manyfold, putting natural resources under serious stress due to increasing competitive uses. It is no more just about 'conservation or development', it has become about 'whose development' and 'how much (intensity of) development'. And, thus, one enters the realm of governance.

In development literature today, governance is a key theme and is seen as being core to the success of interventions to improve the quality of societal and environmental wellbeing. Governance deals with questions such as: How are development priorities decided upon? Who designs the competent authority to manage natural resources at various scales? How do power relations determine who benefits and who bears the cost? Those working in the arena of conservation are no longer able to escape these questions, as it is neither practical nor ethical.

ICIMOD encounters a wide range of governance issues at multiple levels in its work dealing with natural resources. For instance, in promoting conservation in transboundary landscapes we may have to reconcile diverging and even conflicting policies, ownership and use rights, and resource management structures, as well as political, economic, social and cultural factors that influence resource management and use in different countries that share the landscapes (see Box 1). Similarly, when researchers are working to enhance the capacities of local communities

Box 1: ICIMOD's support of rangeland management in China, Nepal, and Pakistan

China

ICIMOD's Regional Rangeland Programme strongly supported the co-management of rangeland resources in the Hindu Kush Himalayan (HKH) region. In Maqu in Gansu Province, China, government agencies and local communities were involved in implementing an Oxfam Hong Kong pastoral development project with technical support from ICIMOD. According to local authorities, in the three years of programme implementation, the community's average income has increased by 119%, rangeland vegetation cover has increased by about 13%, and, although plant species richness has remained the same, the ratio of nutritional perennial species has increased. Maqu is an excellent example of a project turned into a people's programme.

Source: Zhaoli (nd)

Nepal

ICIMOD has been supporting work on rangeland policy in the HKH for the past two decades. In Nepal, ICIMOD supported the promulgation of the Nepal Rangeland Policy in 2012 and has continued to support efforts to put this policy into practice, helping to scale up approaches and promote a collaborative decision-making process among stakeholders – from local herders to policy makers.

Source: ICIMOD (2013)

Pakistan

In Pakistan, the Pakistan Agriculture Research Council (PARC), the apex body for national agriculture research, has been engaged in partnership with ICIMOD for the sustainable use and management of rangelands. Through this partnership, PARC and ICIMOD have jointly identified the policy issues in rangeland management in Pakistan. Following their recommendations, a road map was developed and task force constituted jointly by PARC and the Ministry of Environment for the formulation of the policy. The Ministry of Environment and PARC requested ICIMOD to be part of the task force and ICIMOD provided its technical input in terms of bringing regional experiences and mountain perspectives. Meanwhile, the 18th Amendment to the Constitution has made rangelands a provincial subject. The province of Khyber Pakhtunkhwa formulated its rangeland policy in 2014, while Gilgit-Baltistan is currently in the process of policy formulation.

Source: Ismail et al. (2015)

Figure 1: **Conceptual framework for thinking about governance**
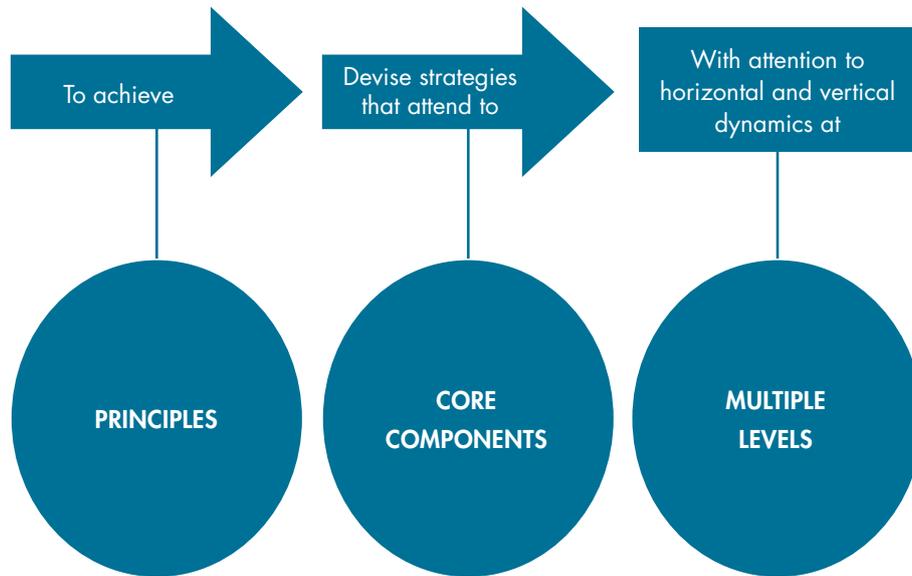
to adapt to climate change, they may find themselves dealing with culturally-embedded coping mechanisms that communities have traditionally used in times of economic and environmental stress. Although these coping mechanisms may not be well suited to respond to current challenges, they nevertheless embody ways of decision making and collective action that have a bearing on the local situation. At the same time the policies and practices of present governments may not be compatible with traditions, limiting the success of either.

In another context, researchers at ICIMOD are working on measures to address the problem of black carbon. While, in many countries, the issue of black carbon lies within the mandate of environmental ministries, the causes of the problem often fall outside the ministry's purview, and sometimes beyond the national government's purview. As the structure of government does not naturally lend itself to interministerial or intergovernmental coordination, organizations like ICIMOD are required to find ways to bring about convergence.

All of these scenarios concern the ways in which decisions are made and implemented, along with who is (or is not) involved. And therefore, they embody a governance mandate.

The aim of this paper is to provide a succinct introduction to available literature on governance, with particular reference to natural resources. As a subject area, governance is vast, multi-layered, and complex. It is, therefore, useful to rely on a conceptual framework to organize these multiple ideas into a coherent structure. The conceptual framework developed for this paper has at its core the goals of natural resource governance, which are often articulated as the normative principles of good governance (Figure 1). Achieving these goals requires strategies that attend to the principal building blocks of governance – institutions, actors, policy, knowledge, and power. These components are distributed across multiple spatial levels – local, state, national, regional, and international – with complex linkages within and between these levels. Hence, the governance of natural resources is essentially a multi-level endeavour.

This paper is organized into four sections. The next section provides a definitional overview of governance and environmental governance. Thereafter, the paper deals with the elements of the framework, with sections on the principles of good governance, its key components, and spatial dimensions. It is hoped that this paper will be of use to researchers and practitioners within and outside ICIMOD who are working across natural resource governance sectors, such as water, forests, and grasslands, and on thematic issues such as climate change mitigation and adaptation, livelihood enhancement through value chains, biodiversity conservation, and ecosystem services.

2. Defining Governance and Environmental Governance

Although the term governance is ubiquitous in the available literature, there is no single definition of the concept. Governance has been variously referred to as a process, mechanism, institutional capacity, and the existence of rules, as well as a more general state of relations within a society (Box 2). To some, governance connotes a complex set of structures and processes, whereas to others the term is synonymous with government and its public functions (Weiss 2000). Since the 1980s, use of the term governance, particularly in development literature, has implied a decentring of political power from the state (formal) to other societal actors, such as citizens, the private sector, or civil society (informal) (Rhodes 1996; Graham et al. 2003).In this new configuration, power is also exerted by transnational movements that transcend the territorial boundaries of the nation state to form associations at local, national, and global scales (Gravel and Lavoie 2009). The shift away from government, however, does not mean that the state has become any less relevant to the practice of governance. Rather, it only implies an altered role for the state, wherein its principal responsibilities rest in creating the conditions necessary for enhanced governance. These include providing a political and legal environment for sustainable growth and the sharing of the resources and benefits thereof; providing opportunities for all stakeholders to contribute to policy; and ensuring peace and security.

Box 2: **Definitions of governance**

- **Governance is** the emerging pattern (or order) of a system that is both the outcome of social processes (interactions) as well as the medium through which actors can act and interpret this pattern (Kooiman 1993).

- **Governance is** the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions have agreed to or perceive to be in their interest (Commission on Global Governance 1995).

- **Governance is** a mechanism through which citizens and groups articulate their interests, exercise their rights and obligations, and reconcile their differences (UNDP 1997).

- **Governance is** the institutional capacity of public organizations to provide public and other goods demanded by a country's citizens or their representatives in an effective, transparent, impartial, and accountable manner, subject to resource constraints (World Bank 2000).

- **Governance refers to** how the institutions, rules, and systems of the state – the executive, legislature, judiciary, and military – operate at the central and local level and how the state relates to individual citizens, civil society, and the private sector (DFID 2001).

- **Governance is** the formation and stewardship of the formal and informal rules that regulate the public realm, the arena in which states, as well as economic and societal actors, interact to make decisions (Hyden et al. 2004).

- **Governance is** the ability of government to develop an efficient, effective, and accountable public management process that is open to citizen participation and that strengthens rather than weakens a democratic system of government (USAID 2005).

- **Governance refers to** the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored, and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them (Kaufmann et al. 2010).

- **Governance is** the ability to make rules, enforce and monitor rules, and deliver service (Fukuyama 2013).

Governance through which society determines and acts on goals related to natural resources is called environmental governance (IUCN 2014). It includes "all kinds of measures deliberately taken to prevent, reduce, and/or mitigate harmful effects on the environment" (Driessen et al. 2012, p 144). Environmental governance is important in all situations where natural resources are intentionally used or appropriated, as well as in those situations where human actions produce unintended impacts on the environment (Young 2011). Governance of natural resources is somewhat different from their management. While the former takes into account the different actors and networks that help formulate and implement environmental policy or policy instruments, the latter is focused on specific activities such as analysis and monitoring, and developing and implementing measures to keep the state of a resource within desirable bounds (Pahl-Wostl 2009). However, for the most part these terms are used interchangeably in the literature on natural resources.

It is now well accepted that environmental problems are not just ecological challenges that can be resolved through technical and administrative interventions. Rather they incorporate political, economic, and social dimensions; are associated with divergent and often conflicting interests; and involve the exercise of power in achieving these interests. As Bryant and Bailey (1997) explain, the impacts of environmental changes are unequally distributed in society depending on extant political, social, and economic differences. When efforts are made to address environmental change, they inevitably alter the political and economic status quo, along with the distribution of power. Hence, merely informing people of what is right and what is not in the use of ecosystems, and penalizing them if they do not follow the right practice, is not enough to manage natural resources (Lebel et al. 2006). Effective natural resource management requires interventions that alter environment-related incentives, knowledge, institutions, decision making, and behaviours (Lemos and Agrawal 2006).

A core challenge in environmental governance concerns trade-offs. It is now well recognized that environment and development goals are intertwined, and that achieving both is necessary for sustainable development and poverty alleviation. However, environment and development interests cannot be simultaneously maximized, and trade-offs are inherent in environmental governance.

Let us explain this with the example of forest governance. Forests provide a variety of services including watershed management, climate amelioration, fuel and food provision, soil conservation, and the maintenance of biodiversity (MEA 2005). Some of these services are tightly intertwined with the lives and livelihoods of millions of poor who depend on forests for food, fodder, fuel, and wage labour (Gadgil and Guha 1992; Capistrano 2008). Some other services provided by forests are core to the economic development strategies of developing countries, such as the provision of land and minerals for development projects. At the same time, forests provide critical defences in dealing with the global problems of climate change and biodiversity loss (INCCA 2010).

Thus there are diverse expectations of forests in terms of conservation and development attached to different state and societal interests (Lele 1994). However, not all expectations can be simultaneously met through forest management, and trade-offs must, therefore, be made. These trade-offs may be between environment and development objectives, as and when economic activities such as agriculture, mining, cash cropping, and industrial development compete with conservation interests (Campbell et al. 2010, Sandker et al. 2012). They may also emerge when interventions to increase the flow of some ecosystem services lead to reductions in other services, thereby impacting the environment as well as development outcomes (Lele 1994; Holling and Meffe 1996). For instance, increasing carbon sequestration services from forests may lead to reductions in provisioning services, such as for fuelwood and timber.

When trade-offs are made, they manifest in winners and losers who are dispersed across spatial levels. For instance, the conservation of forests which leads to enhance carbon sequestration benefits the global community. However, such conservation may entail direct and indirect costs at the local level (Ghate 2003). Explicitly addressing trade-offs is recognized as an important step not only for improving the quality of conservation decision making through comprehensive ecosystem planning, but also for reducing the risk of disappointment and disillusionment in policy implementation (Hirsch et al. 2011; Vira et al. 2012).

However, 'choice making' is not merely a technical, scientific process, but is subject to political, economic, and administrative considerations (Berkes 2010). Appropriate policies and innovative institutional arrangements need to be explored to achieve an optimal solution. Furthermore, in keeping with the principles of equity, participation, and inclusiveness, environmental governance requires that potential winners and losers from across spatial levels are involved in decision making and implementation so that at least the net gain is optimized. This adds considerably to the challenge of good environmental governance.

Governance of the environment and natural resources involves all measures that are "deliberately taken to prevent, reduce, and/or mitigate harmful effects on the environment" (Driessen et al. 2012, p 144). It is increasingly accepted that environmental problems are not just technical, nor are they administrative challenges devoid of politics. Instead, they are mainly the result of governance failure, i.e., the absence of environment-related incentives, knowledge, institutions, and decision making. Hence, solving environmental problems necessitates attention to ecological principles, respect for basic human needs, appropriate temporal cycles, and territorial interdependence, especially in the case of transboundary landscapes such as rangelands and river basins (Gagnon and Fortin 1999).

3. Principles of Good Governance

The idea of governance embodies a strong normative agenda. The focus on governance in the development sector has mostly consisted of efforts to achieve an ideal type of 'good governance', which calls for:

> *…improvements that touch virtually all aspects of the public sector —from institutions that set the rules of the game for economic and political interaction, to decision-making structures that determine priorities among public problems and allocate resources to respond to them, to organizations that manage administrative systems and deliver goods and services to citizens, to human resources that staff government bureaucracies, to the interface of officials and citizens in political and bureaucratic arenas."*

(Grindle 2004)

At the heart of good governance are certain fundamental, inter-related principles (presented in Figure 2). These principles are: participation, accountability, transparency, rule of law, effective and efficient governance, responsiveness, equity and inclusiveness, and consensus oriented governance. Each of these principles is complex and multi-dimensional and, from an operational perspective, subject to intense debate. For instance, in the case of participation, serious questions may arise about who participates and how participation is evoked as well as the impact of such participation on outcomes (Chaturvedi 2004). Similarly, adherence to the rule of law may be

Figure 2: **Principles of good governance**
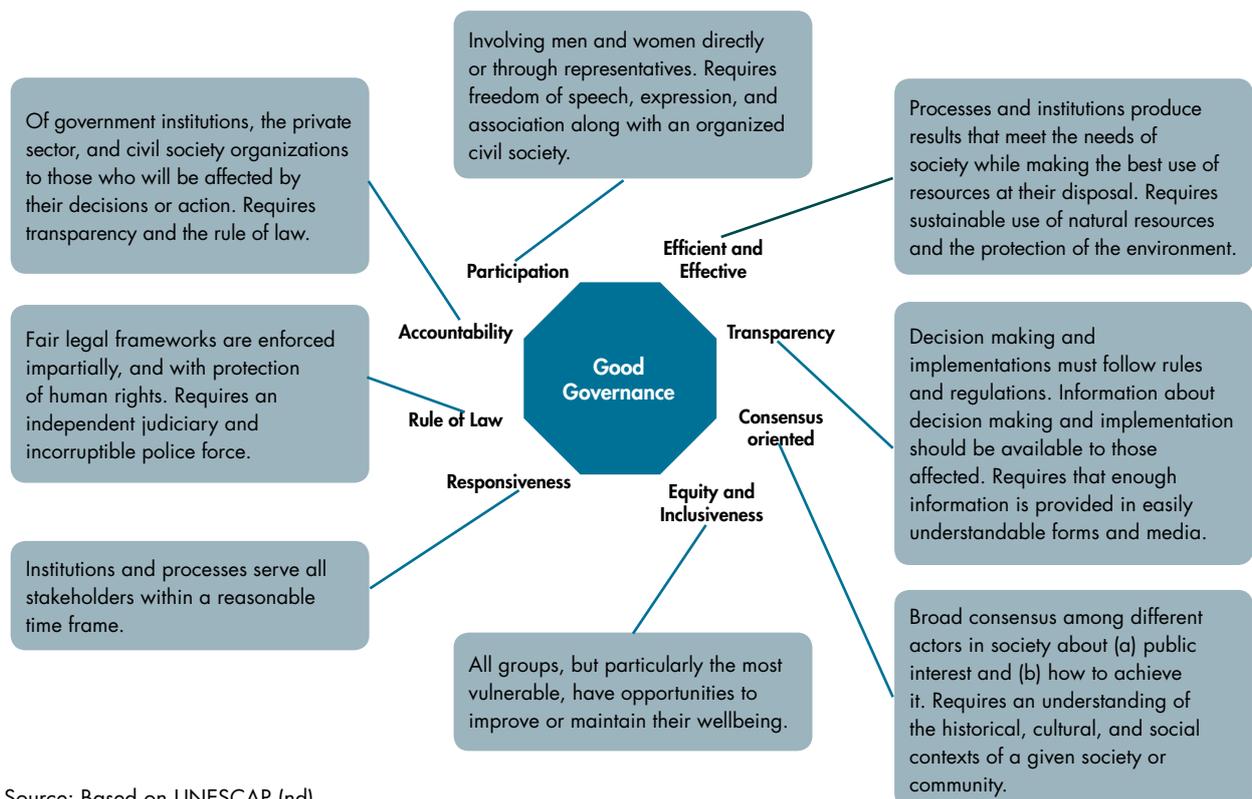
Source: Based on UNESCAP (nd)

controversial in cases where law and the legal process are themselves contested. Forest laws in Bangladesh, India, Myanmar, and Pakistan for instance, have a strong colonial legacy; these laws were enacted to enable the state to legitimately acquire large tracts of valuable forests to meet its timber requirements. In the process, customary access and use of forests was denied. Many of the social movements post-independence, especially in India, have focused on the processes of dispossession perpetuated by the colonial legal framework and have advocated for its repeal; instead, they want new laws that give primacy to community rights.

Achieving all the dimensions of good governance together is a tall order and difficult to achieve in totality. Scholars have, therefore, advocated for 'good enough governance', which emphasizes the minimal conditions necessary for development to occur (Chaturvedi 2004). Such an approach calls for a more nuanced assessment of governance requirements in development practice, keeping in mind the constraints on time and resources. In the process, it explicitly acknowledges the trade-offs that must be made among the different governance priorities if development objectives are to be achieved. The emphasis is on targeting fewer, more useful, and more feasible interventions that can bolster specific development goals.

4. Key Components of Governance

Moving away from the conceptual discussion on governance, practitioners have found it useful to disaggregate governance into its operational components (Kishor and Rosenbaum 2012). In the context of natural resources this draws attention to the ensemble of rules and institutions that determine the ways in which decisions are made, along with the decisions themselves, the role of actors and stakeholders, and the flow of knowledge and power. These operational components are discussed below.

Institutions

In environmental governance, decision making tends to be a complex process and can differ according to the resource being governed and the scale. Institutions, or the 'rules of the game', for instance, are core structural determinants of governance. Simply put, institutions determine the rules governing the behaviour of actors and the interactions among them (North 1990; Bacho 2004). They determine who is eligible to make decisions in the different arenas, what actions are allowed or constrained, what aggregation rules will be used, what procedures must be followed, what information must or must not be provided, what payoffs will be assigned to individuals, and how outcomes and processes will be monitored (Ostrom 1991). For any environmental intervention to be effective it is important that appropriate institutions are in place and functional. It must be noted here that although the two terms are sometimes used interchangeably, institutions are somewhat distinct from organizations in that the latter simply serve to put institutions for regularizing human behaviour into practice (Bromley 1989, p 43).

A common classification of institutions is as either formal (statutory) or informal (traditional). Formal institutions are generally linked to official, governmental, or bureaucratic formalities and are usually legally binding. They include constitutions, statutes, common laws, and governmental regulations, which are externally enforced (Pejovick 1995, as cited in Bacho 2004). The various types of institutions as instruments of governance are depicted in Figure 3.

Informal institutions are loosely defined and are mainly based on social norms and socially and culturally shared understandings and rules that are not formally coded (Pahl-Wostl 2009). They include traditional authorities, indigenous groups (chiefs, clan heads, family heads etc.) and organizations, as well as societal norms, values, and beliefs. Informal institutions are often useful points of entry in the search for local options and broad-based

Figure 3: **Types of governance institutions**
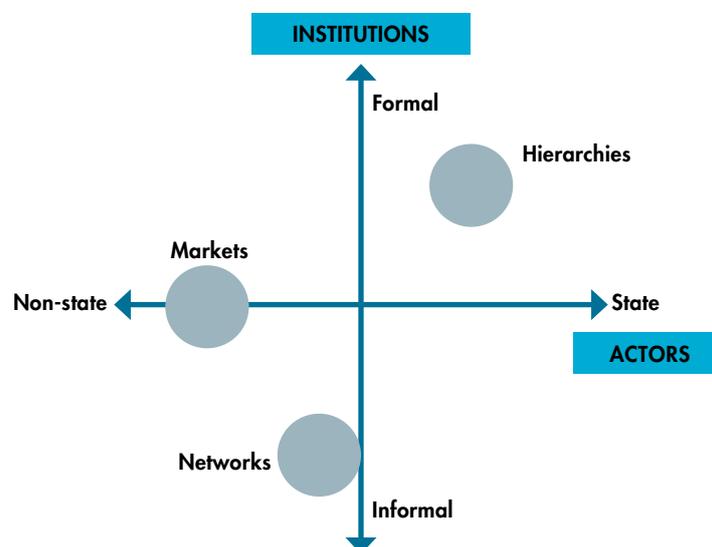
Source: Pahl-Wostl (2009)

approaches to the management of natural resources (North 1990). They are also important for conflict resolution and the enforcement of shared norms of behaviour. For example, 'sokshings' in Bhutan are informal forest management systems that have rules and practices for using forests that are commonly understood and agreed upon by the community. These are strictly observed, despite the fact that the rules are verbally passed down through the generations. Any infractions are reported promptly and dealt with very seriously (Webb and Dorji 2008). Similarly, a traditional governance structure, known as 'karez', regulates the use of groundwater sustainably through mutually agreed rules and cultural norms in the highlands of Balochistan (Jamali and Hufty 2011). This local system comprises of an elected committee responsible for management, maintenance, and dispute settlement.

Policy

In many developing countries natural resources are under the control of the state and, therefore, influenced by public policy, which may be defined as the sum total of government action or inaction (Dye 2005). It includes decisions made "on behalf of the public by means of public law (and) put into effect by public administration" (Shafritz and Borick 2008, p 8), as well as areas of non-decision or where the government decides on deliberate non-action to maintain the status quo (Howlett et al. 2009). Although there are numerous conceivable problems that need the attention of policy makers, no government has the time or the resources to attend to all probable solutions of all possible problems (Hilgartner and Bosk 1988). 'Agenda setting' is the process by which some subjects are selected for consideration of the government (Cobb et al. 1976). In the case of environmental issues, the 'means and mechanisms' by which this transition in priorities occurs include 'focusing events', such as natural disasters (Birkland 1998), that heighten media attention (McQuail 1992) and can influence public opinion (Reich 1988). India's Environment Protection Act of 1986, for instance, was a direct response to the Bhopal Gas Tragedy, in which thousands of people were killed as a result of a methyl isocyanate (MIC) leak from the Union Carbide plant.

It is important to note that the emergence of an issue on the agenda does not guarantee its resolution (Howlett et al. 2009). An illustration of this is the devastating floods that hit the northern Indian State of Uttarakhand in 2013. These floods were a powerful focusing event that brought the issue of unplanned development in the fragile Himalayas onto the Government of India's decision-making agenda (Down to Earth 2013). Deliberations were held and policy measures were proposed to address the problem. However, the costs associated with these measures along with attendant politics did not allow concrete action to be taken. As a result, the issue gradually slipped off the policy agenda.

Sometimes issues may periodically reappear on the government's agenda without being resolved (Downs 1988). At other times, the complexity of the problem or the costs associated with the solution may be too high for policy formulation to take place (Birkland 1998). And sometimes, a policy may be formulated, but the issue may reappear on the government's agenda after a period of policy stability (Baumgartner and Jones 2002; Baumgartner 2006).

In transboundary situations there is a need for harmonious relations and a policy for information sharing between the countries sharing a landscape or river basin. For example, a landslide in the Sunkoshi Hydropower project's intake site occurred in Nepal on 2 August 2014. In an instant, a 1.9 km long slope perched 1,350 m above the riverbed collapsed, creating a high dam across the Sunkoshi River. Fearing a large magnitude impact in the event of a breach of the dam, which would also affect people across the border, the Government of Nepal immediately informed the Government of India about the potential threat (ICIMOD 2014).This communication was helped by congenial relations between the two countries. Understanding how and why environmental issues appear on government agendas, how policy is made and implemented, and if and how policies are harmonized across borders in the case of shared resources are some of the questions that researchers need to engage with if they want to influence environmental governance across borders.

Actors and Stakeholders

Actors – individuals, collectives, and organizations – are core to environmental governance. They include members of legislatures, executives and bureaucracy, members of the judiciary, NGOs, activists, academics, researchers and

citizens, to name a few. Actors not only make decisions and act on them (Hindness 1986), they are also involved in the exchange of ideas, interests, and expertise (Birkland 2010). In developing countries where interest groups are few and not always powerful, policy elites (those officially charged with making decisions in government), as well as those who have access to policy elites, play a powerful role in determining policy (Box 1 shows how ICIMOD has played a proactive role in shaping rangeland policies in China, Nepal, and Pakistan). The preferences and beliefs of these policy elites 'shape and colour' the way in which they attend to and process the information and are, therefore, amply manifest in environmental governance (Grindle and Thomas 1991).

Natural resources literature emphasizes a sub-group of actors who are also referred to as stakeholders. For natural resources, stakeholders may be quite simply defined as all those individuals and groups who have rights or interests in the governance of the natural resource such that they can affect, or be affected by, the actions to enhance governance (Sarin 2005). For example, stakeholders in a forest policy might include people who live in or near the relevant forests, people who live further away who use these forests (for example, ecotourists), settlers from elsewhere in the country, small-scale entrepreneurs, forest officials, timber company managers, environmentalists, politicians, public servants, national citizens, consumers, forest authorities, central government agencies, local government agencies, national NGOs, academics and researchers, donors, consultants, international NGOs, and community-based organizations (ibid.).

Multiple actors who play a role in environmental governance may be linked together in networks, on the basis of shared beliefs about problems and solutions, codes of conduct, and established patterns of behaviour (Sutton 1999). These collectives can take various forms depending on the extent to which there is a shared purpose and ideology as well as stability in the network. And many networks transcend geographical boundaries to include actors at local, regional, national, and international levels. Thus, there may be issue networks formed around a particular problem (Heclo 1978) or shared knowledge of communities bound together by similar training and a belief in the value of particular knowledge systems in understanding complex problems and their solutions

(Haas 1992). Networks can also be formed around advocacy coalitions of individual actors who share core normative and causal beliefs and are involved in coordinated action over long periods to influence policy making (Sabatier and Jenkins-Smith 1993). Whatever the form of the collective, networks compete with each other to translate their beliefs and preferences into decisions (Sabatier 1988).

Power and Knowledge

Actors operate through the exercise of power, which can be derived from different sources such as the possession of resources, capabilities, wealth, and knowledge or membership of collective organizations. The power of actors may manifest either in their ability to bring about desired outcomes or in their ability to deliberately change the incentive structures of other actor(s) to achieve outcomes (Dowding 1991). Identifying who is powerful and how power is exercised is a basic tenet of understanding environmental governance. But this is a complex task, as power is not always exercised in directly observable ways.

Actors and their power share a reflexive relationship with knowledge, which influences not only how problems are labelled and described, but also the solutions that are perceived to be feasible and acceptable (Kingdon 1984). Knowledge may be presented as scientific fact, legal arguments, personal anecdotes, or empirical evidence (Bryant 2002) (see Box 3, which depicts how knowledge of the valuation of ecosystem services can influence policy making). 'Causal stories', as Stone (1989) describes, are a powerful way of influencing environmental policy. These stories convincingly demonstrate that a given environmental problem may lie within the remit of human control. In doing so, they not only identify particular actors as being responsible for causing the problem, but also legitimize the role of other actors as potential 'fixers' of the problem (Stone 1989, p 295). Debates on climate change, for instance, emphasize the anthropogenic nature of the problem of global warming and, as the problem is widely perceived to be manmade, solutions for climate change also concentrate on human action.

Box 3: Ecosystem services and policy implications in Nepal

In 2012, ICIMOD's study of forest ecosystem services in Nepal showed that forested areas provide immense economic benefits to the local people, even though these benefits remain unrecognized in national and local planning and development. The study estimated the economic value of the ecosystem services in order to understand the importance of services that are otherwise ignored. These estimates can indeed be used to create awareness of the importance of conservation for rural households residing in or near conservation areas. Planners and policy makers could also use the estimates in cost-benefit analyses and to support appropriate conservation decisions.

The findings had a number of policy implications. The total estimate of the value of the ecosystem services showed that the economic benefits supplied by the corridor were immense and that local people depended heavily on the ecosystem services for their livelihoods and wellbeing. If the flow of ecosystem services from the corridor deteriorated, it would adversely affect the lives and livelihoods of a large number of people who depend on the forest in a multitude of ways. In the study, policy makers were advised to take into account the value of the corridor in development planning and decisions on resource allocation, and to take adequate measures for the conservation of the corridor to ensure that the flow of ecosystem services is sustained. It was also suggested that attention be paid to continuing participatory approaches and including the decision-making processes of local people in conservation measures to ensure that the local population receives adequate benefits from the ecosystem services through better management. The need to develop economic frameworks and mechanisms that provide incentives to local people to support conservation measures that can improve their lives was also identified. As many of the benefits arising from the corridor, such as the conservation of biodiversity, protection of endangered species, and carbon sequestration, come at a cost to local people, the society at large, including the global community, was advised to come forward with technical and financial support for conservation of the corridor.

Source: Pant et al. (2012)

Similarly, policy narratives stabilize the assumptions underlying policy making, particularly on complex, uncertain, and polarized policy issues, and simplify the problem so that feasible solutions may be found (Roe 1994).These narratives, while powerful in their own right, are also empowered by the power of their authors and the actors who support them. In the case of forest governance in South Asia, for instance, Springate-Baginski and Blaikie (2007) illustrate how the classic forest narrative (which draws on the need to manage forests in the national interest through scientific forestry, which can only be done by the state and its agencies) is pivotal in framing forest policy. Even as the community based forest management narrative gained ground, particularly among non-governmental and international actors, the state narrative remained as strong as ever, although it may have been somewhat modified to include popular concerns (Springate-Baginski and Blaikie 2007).

In reality, however, problems do not appear in well-defined boxes (Dryzek 1997). As Hajer and Versteeg (2005, p 176) note, concepts such as sustainable development or the precautionary principle are "continuously contested in a struggle about their meaning, interpretation and implementation". Furthermore, environmental sectors and labels are not given, but are themselves discursively created (Apthorpe and Gasper 1996). The definition of a problem in a particular way is an exercise of power involving the simplification of the issue and elimination of alternate perspectives. In understanding environmental governance, therefore, it is useful to study the history of commonly employed concepts and heuristics, along with an analysis of how different types of knowledge are associated with different sets of actors, and the ways in which they are accommodated within, or marginalized by, governance processes.

5. Spatial Dimensions of Natural Resource Governance

The uneven geographical distribution of natural resources in the world requires thinking about governance to also attend to the spatial dimensions of resources. And, as space is invariably intertwined with social organization, a hierarchy emerges with at least five levels (as shown in Figure 4). At each level there may be multiple actors and institutions, with varying degrees of convergence and competition among resource-related interests and objectives. Governance, therefore, entails bringing into balance these actors and institutions to promote sustainability.

Interactions also exist among actors and institutions across different levels. In the case of climate change, for instance, the global initiative for mitigation and adaptation eventually rests on action at the local level, which is also the site where climate change impacts are most acutely felt. To capture this geographical spread of governance variables involving the full spectrum of actors (state, civil society, and business), scholars have drawn on the idea of multi-level governance. At ICIMOD, we understand this well as we work simultaneously with multiple national governments, as well as state and local governments, in both our transboundary and river basin programmes.

Much of the extant literature on the governance of the environment and natural resources has focused principally on two spatial levels: local/decentralized and global/international. Each of these commands a substantial body of conceptual and empirical knowledge and, while a rigorous examination of the literature lies beyond the scope of this paper, this section provides a brief overview of the main debates, before looking at new spatial configurations of multi-level governance.

Decentralization and Local Governance

Decentralization involves the transfer of functions and powers from central or national authorities to lower levels in a political and territorial hierarchy (Manor 1999). Through the 1980s and 1990s, decentralization was established as a mainstream strategy reflecting, in many ways, a paradigm shift from the centralized, state-controlled management of natural resources (Andersson et al. 2006). In a shift away from state-controlled natural resource management, decentralization reforms were undertaken to achieve participatory development and greater administrative efficiency, with benefits in terms of local empowerment, democratization, and accountability, and also perhaps in terms of poverty reduction and resource sustainability (Berkes 2010). This focus on the local was considerably strengthened by developments in the global arena towards balancing the needs of the environment with development.

The deliberations on sustainable development at the Earth Summit in 1992, for instance, were premised on the interdependence between the environment and development, ecosystems, various sectors (agriculture, forestry,

Figure 4: **Levels of spatial and political organization for environmental governance**

Governments	International/global	Civil society Private sector
	Regional	
	National	
	State/provincial	
	Local	

industry, etc.), and actors (Cicin-Sain and Knecht 1995). Responding to interdependence requires integrated management approaches, opportunities for which were perceived to be greatest at the local level (Swiderska 2002). Consequently, the Earth Summit witnessed large-scale legitimization of participatory and community-based forest management (Baker et al. 1997). As international agencies, including the World Bank, Asian Development Bank, and Organisation for Economic Co-operation and Development (OECD), quickly adopted the concept of sustainable development, they also inherited narratives privileging the role of communities at the local level in enhancing governance (Lele 1991). In most cases, therefore, the emphasis was on decentralization to the local level, to governments, and to community organizations. And programmatic strategies for decentralized governance received considerable infusions of funds and technical support from international donors across the world (Capistrano 2008).

In a situation where most resources are under the ownership and control of the state, decentralization has been accompanied by demands for the devolution of property rights, autonomy in institutional functioning, and participatory decision making (c.f. Ostrom 1990; Nagendra 2007; Chhatre and Agrawal 2008). Empirical evidence to support the case has emerged from studies across the world (see Box 4 for one such case in Nepal). A study comparing forestry institutions in India and Nepal, for instance, found that community-level institutions in Nepal fared better than their counterparts in India, mainly due to the autonomy of the institutions in Nepal (Ghate and Ghate 2010). Another example, from a comparison of water governance systems in Chitral, Pakistan (ICIMOD 2013), found that, in comparison to government-managed water governance systems, indigenous and modern systems ensure greater community participation because rights are clearly explained and communities have full understanding of the system. The modern system of water governance in Chitral is a modified version of the indigenous system with a formal institutional structure in the form of village and cluster organizations (ICIMOD 2013). This modern system is more flexible and enables communities to adapt to a changing water situation (ICIMOD 2013). In the community-based system in Chitral, accountability is ensured at all stages of operation and

Box 4: Towards policy advocacy: Local level water use master plan

Since 2013, ICIMOD and HELVETAS Swiss Intercooperation Nepal have been working together on a collaborative action research to develop local water use master plans (WUMPs) for the Koshi Basin Programme (KBP). Three districts – Sindhupalchowk, Sindhuli, and Saptari – representing three ecological zones of the Koshi basin have been chosen. The concept of WUMPs is based on the principles of integrated water resources management and aims to improve access to water and ensure the equitable distribution of water for improved livelihoods at the local level. The objective of WUMPs is to develop a comprehensive plan for local water use management using a participatory approach, whereby local people prepare plans for various water uses, such as irrigation, drinking water and sanitation, agriculture and disaster risk reduction.

As local water management is largely neglected in the development process, WUMPs try to influence policy in local development institutions, such as village development committees (VDCs) and district development committees (DDCs), to provide enough space, resources, and budget for local water management. WUMPs also look at the upstream-downstream linkages among WUMP VDCs so that a VDC-level plan can be upgraded to the catchment level.

ICIMOD has also been in discussion with the Department of Irrigation in Nepal to carry out some activities in small-scale irrigation systems. Field visits are being organized in Sindhuli and Saptari districts. A field visit in July 2015 aimed to understand the issues of water availability from different sources (springs, ponds, small-scale irrigation) and was helpful in understanding the current issues of the WUMP process and the challenges faced by local partners. Moreover, possible opportunities to revitalize the existing Mahuli irrigation system in Sindhuli were examined so that all four WUMP VDCs could benefit from the extended command area.

In an effort to influence policy from the local level, the action research team has selected a case study site to study upstream-downstream linkages and is providing technical input to partners on water availability, work plans, and deliverables. Similarly, two WUMP VDCs in Sindhuli District have been chosen for the water evaluation and planning system (WEAP) application, for which data has now been collected. This work to promote WUMPs provides us with insight into ICIMOD's direct involvement in programmes oriented towards policy change.

Source: Nepal (2015)

a majority of the community members are involved in the decision-making process, which builds ownership and trust in the system (unlike the token participation reported in Bangladesh under the Social Forestry programme, where people do not participate in any major planning decisions for forest management and local communities have been largely unaware of or passive towards government initiatives) (Khan and Begum 1997). However, it is important to note that decentralized community-level management may not be suitable in every situation. The type of institution must be matched with the scale of the resource, while fostering accountability and cross-scale linkages among multiple actors (Markelova and Mwangi 2013).

The field experience with decentralization resulted in mixed success, depending on the structure and form of decentralization, as well as the local context (Milner-Gulland and Mace 1998; Ribot 2003). Scholars argue that, in several cases, decentralization was partial, limited only to functions rather than the devolution of real power (Fisher 1999; Shackleton et al. 2002; Kaimowitz et al. 2004; Oyono 2004; Hajjar et al. 2012). At the local level, opportunities created as a consequence of decentralization played out variously, depending on local power relations (Pacheco 2005). Hence, institutions for decentralized and participatory forest management resulted in 'participatory exclusion', as disadvantaged sections of society, including the poor, landless, and women, were generally unequally represented in decision-making and benefit-sharing (Agrawal and Ostrom 2001; Ribot 2003).

Elite capture was also reported in cases of decentralization to local governments (as opposed to community-based institutions). As Larson's (2005) review of forestry in Africa, Asia, and Latin America revealed, while some local governments were found to be representative and accountable, others were susceptible to capture by powerful interest groups. Often these governments had little interest in resource management initiatives unless there were economic incentives for their involvement. Furthermore, interest notwithstanding, local governments generally did not have sufficient resources and capabilities to undertake resource management (Larson 2005).

Participants in an e-discussion at ICIMOD in 2010 (ICIMOD 2010) listed six root causes of poor local governance. These were: the centralization of power and resources leading to lack of inclusiveness; communication gaps

between formal and customary institutions leading to dichotomy; gaps and overlaps in responsibility within a community leading to inefficiency; organizations' insensitivity towards gender resulting in the specific needs of women being neglected; little incentive to build the capacity of local development bodies; and poor sense of responsibility and initiative among local stakeholders resulting in stagnation. However, optimism for decentralized natural governance has continued and scholars have drawn attention to the politics that shape the distribution of power and resources between the centre and the local, the state and society, and among local interests (Crook and Sverrisson 2001; Oyono 2004). In doing so they have cautioned against blueprint approaches that see decentralization as a panacea for addressing resource degradation (Ostrom et al. 2007).

Global Governance

Almost any process or structure of environmental politics that spans national boundaries can be described as part of global governance (Biermann and Pattberg 2008). Interest in global governance for the environment and natural resources is a response to the recognition that the drivers of degradation, as well as the impacts of degradation, flow across the territorial boundaries of the nation-state. For instance, human action in one part of the world (e.g., large-scale tree felling or the burning of coal for power generation), can add to the concentration of greenhouse gases in the atmosphere, thereby contributing to climate change globally. The specific impacts of climate change may be differently distributed geographically, depending on natural as well as socioeconomic variability, with some areas more affected than others.

Global governance responds to this transboundary nature of environmental degradation by promoting international dialogue, creating regulatory regimes, and facilitating cooperative action among national governments, as well as other non-governmental and private actors. ICIMOD is working towards this in its Kailash, Kanchenjunga, and Koshi basin initiatives for better cooperation and exchange of information across landscapes and river basins, as well as to extend markets for niche products from the HKH beyond national boundaries. The overriding emphasis in global governance is on developing institutional solutions to achieve collective objectives that cannot be accomplished through individual action (Young 2011).

The 1972 UN Stockholm Conference was pivotal in establishing the environmental arena as a subject for global governance (Caldwell 1996). Subsequently, the United Nations Environment Programme (UNEP) was established in 1973 to anchor global action on environmental matters. Since then, within the UN System alone, there have been a series of key moments that have shaped the form and content of global environmental governance. Some of these are listed in Box 5. These initiatives have been further supplemented by issue and sector-specific developments, such as those under global climate change and biodiversity conventions. Today, there are at least 45 UN organizations that have some relation to the environment (Lele et al. 2010).

In addition to state actors, a large diversity of non-state actors including experts and scientists, non-governmental organizations, social movements, donors and aid agencies, and business associations are involved in environmental governance. They contribute to international policy processes wherein they generate knowledge, provide policy solutions, monitor the implementation of commitments made by states, and provide feedback (Biermann and Pattberg 2008). Apart from ICIMOD, another example of a non-state actor involved in environmental governance is the Intergovernmental Panel on Climate Change (IPCC), which comprises experts who collectively exert tremendous influence over international climate change policy processes (for information on how ICIMOD brought the mountain agenda into the climate debate, see Box 6).

The proliferation of actors in global governance has led to the development of hybrid institutional arrangements that involve partnerships among public, private, and civil society actors. The Forest Stewardship Council (FSC), for instance, is a member-based, independent, and not for profit non-governmental organization for the promotion of sustainable timber. It includes prominent environmental NGOs such as Greenpeace and WWF, businesses like Tetra Pak and Ikea, as well as social organizations like the National Aboriginal Association of Canada.

Over the years, global environmental governance has also come to accommodate many parallel rule-making systems, which operate simultaneously within the global governance arena, with or without linkages among

Box 5: **Global governance of forests**

Since the 1980s, deforestation and the loss of tropical forests has been seen as emblematic of the global environmental crisis. Efforts to address forest loss have, therefore, been high on the global agenda. At the Earth Summit in 1992, deforestation emerged as a contentious issue with developed countries pressing for a legally-binding convention on forests, with developing countries, mainly the G77 along with China, opposing it (Rayner et al. 2010). At the core of dissension was the apprehension that by focusing on tropical forests, developed countries were deflecting attention from problems in their temperate forests (Rosendal 1995) and were attempting to impose a new ecological order that would legitimize external intervention in the domestic policies of developing countries (Hurrell 1992). Developing countries were also apprehensive that the localized imperatives of forest protection would have a detrimental impact on their economic development. In opposing a forest convention, the G77 along with China, asserted their sovereign right to use forests to meet national development objectives, without interference from an international body (Connelly and Smith 1999).

To circumvent proprietorial fault lines, developed countries invoked the stewardship principle, emphasizing that forest conservation was not only a moral imperative of forest rich, developing countries, but also the responsibility of the international community, which was expected to help national governments in their conservation efforts (Dimitrov 2003; Humphreys 1996). In other words, developed countries were expected to provide sufficient incentives in the form of technology and financial transfers to allow developing, forest-rich countries to meet the goals of environmental protection without compromising the achievement of development objectives. However, firm commitments to such transfers were not forthcoming from developed countries, resulting in an impasse in negotiations on forests (Humphreys 2005; Rechkemmer 2005). Even after long and protracted negotiations, consensus was reached only on non-legally binding principles for forest governance, contained in Chapter 11 of Agenda 21 and the Forest Principles.

Since the Earth Summit, international efforts to take forward the Forest Principles have continued. Between 1991 and 2004 there were at least five forest-related intergovernmental meetings across the world, each year (Mankin 2004). Within the UN system, space was provided for continued intergovernmental dialogue on forest matters. This built trust and fostered cooperation on technical issues including forest valuation, research, and participatory approaches (Humphreys 2001). By the year 2000, more than 270 proposals had been put in place for action to enhance the management, conservation, and sustainable development of all types of forests (UNFF nd). Although these proposals are not legally binding, participants involved in the intergovernmental processes are under a political obligation to implement them (ibid.). In 2007, following three years of intense negotiations, agreement was reached on a Non-Legally Binding Instrument on All Types of Forests (NLBI). The NLBI presented a framework for national action and international cooperation for managing forests sustainably (UNFF nd; Rayner et al. 2010).

In the case of forests, for instance, political consensus on a global policy has been hard won, and even today falls way short of a satisfactory international solution. Even where there is agreement, reviews by the United Nations and non-governmental organizations found that in most countries, there is no government focal point or agency for the implementation of these proposals and there is little evidence of any implementation (Mankin 2004). As Swiderska (2002) explained, national environmental departments entrusted with the translation of the Forest Principles into national policy have suffered from insufficient funds to implement this mandate and lack of power, as well as capacity, to integrate environmental concerns with developmental policy. In other words, the effectiveness of the global forest initiative has been undermined by the domestic policy scenario in many developing countries. Consequently, although some progress has been made in controlling forest depletion, the loss of forests has continued at alarmingly high rates (FAO 2010).

Box 6: **Advocating for mountains: Rio+20**

The first 'International Expert Consultation Meeting: Mountain Initiative on Climate Change' was organized by the Government of Nepal's Ministry of Environment and ICIMOD in September 2010. It brought together high-level policy makers, academics, development organizations, and national experts involved in the United Nations Framework Convention on Climate Change (UNFCCC) process to raise important mountain issues in the UNFCCC negotiations and the Rio+20 preparatory meetings and summit. The meeting aimed to provide the Mountain Agenda with increased impetus and recognition in multi-lateral environmental policy negotiations and agreements. The main purpose of the meeting was to start a process of global and regional consultations involving climate change experts to chart out a future roadmap for the Mountain Initiative (MI) and to reiterate the global Mountain Agenda in the UNFCCC and the Rio+20 process and beyond. Consequently, five significant topics in mountain areas, linked to climate and global change, were identified: adaptation programmes in mountain areas; global and regional responsibility for black carbon; maintenance of forests, agriculture, and rangelands; payment for environmental services (PES); and country positions on the Mountain Agenda. Through this meeting, action points were drawn and taken by the Government of Nepal to COP 16, COP 17 and the Rio+20 Summit in order to highlight the Mountain Agenda.

Source: Technical Expert Group of the Mountain Initiative (2010)

them (Biermann and Pattberg 2008). In the case of biodiversity, for instance, in addition to the soft forest policy instruments achieved under the auspices of the United Nations, a plethora of other arrangements influence resource management. These include the UN frameworks for climate change and biodiversity, certification regimes such as the Forest Stewardship Council, and the Programme for the Endorsement of Forest Certification (PEFC), as well as initiatives in other areas, such as mining and indigenous rights. As new institutions, with varied goals, have come to have a bearing on global forest governance, experts are calling for an 'all-round forest governance approach', called Forest+, that brings together the "full range of actors and institutions with the potential to solve forest problems" (Rayner et al. 2010, p 17).

While global governance may draw attention to the full drivers of environmental change along with potential solutions, it too is constrained by several factors. Firstly, international environmental law emphasizes the sovereignty of countries to determine the use of resources within their boundaries (Humphreys 2005). The impact of global environmental governance, therefore, rests on the willingness of nation-states to give up decision-making authority in favour of supra-national structures, as well as to decentralize operational responsibility to local institutions.

Secondly, international agreements on the environment are contingent on power distribution between different actors, and their abilities to negotiate their interests. As countries try to protect their political and economic interests, building consensus on environmental matters becomes difficult (see Box 5 for the illustrative case of forest negotiations). Thirdly, the distribution of power in the international system has favoured developed countries and donors. And, finally, the resources available to address the plethora of environmental governance issues at the international level are meagre compared to what is required (Lele et al. 2010). It is estimated that, even if existing public and philanthropic funding is doubled, meeting global requirements for conservation funding will need a further annual investment of at least USD 200–300 billion per year (Huwyler et al. 2014). As long as this shortfall is not addressed sustainably, achieving global environmental objectives will be severely challenged.

Multi-level Governance

The complexity and interconnectedness of environmental and natural resource problems and the mixed success of governance efforts at one or the other level have led scholars to conclude that initiatives at any one level will be insufficient to achieve good environmental governance (Lemos and Agrawal 2006; Andonova and Mitchell 2010). Hence, multi-level governance is advocated to reconcile territorial boundaries with ecological causal networks (Vig and Axelrod 1999).

Multi-level governance usually refers to the mutual dependency between the various tiers of government. Although multi-level governance initially focused on state actors and institutions (Hooghe and Marks 2003), the concept has since been expanded to include non-government actors at multiple levels (Arts and Visseren-Hamakers 2012). Realizing this early on, ICIMOD has increasingly explored the possibility of involving various actors, for example, in the forestry sector (see Box 7). ICIMOD has also involved the private sector in the dissemination of information to farmers under the Kailash Sacred Landscape Conservation and Development Initiative. It is expected that multi-level governance will harness and synergize existing institutional capabilities for developing win-win solutions to environmental problems (Rayner et al. 2010).

A related concept is polycentric governance, which includes multiple and overlapping centres of authority, in which different actors take different actions and reach different outcomes (Ostrom 1991). At each level there are actors who make various decisions regarding resource use; take action such as the making of rules and monitoring and sanctioning; and achieve outcomes of equity, efficiency, and sustainability. These help in the creation of the institutional dynamics important for adaptive management. They also connect different levels of governance by providing communication channels for the various parties in multi-level institutions (Wilson 2006). Polycentric and multi-layered institutions improve the fit between knowledge, action, and social-ecological contexts in ways that allow societies to respond adaptively to change (Berkes 2010). Markelova and Mwangi (2013) believe that multi-level governance needs to be promoted not only for ecological reasons, but also because shared responsibility for the management of resources creates positive incentives for sustainable use.

Box 7: **Collaboration between Government of Nepal, ICIMOD, ANSAB, and FECOFUN**

Community forestry in Nepal is an example of a decentralized system of forest governance in response to local needs and institutions. Within community forestry, the development of an internal, effective, and equitable payment mechanism is one of the most important and challenging aspects of REDD+ (Reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stock in developing countries). In 2009, ICIMOD developed a REDD+ pilot project collaborating with the Federation of Community Forestry Users Nepal (FECOFUN) and Asia Network for Sustainable Agriculture and Bioresources (ANSAB). The main objective of the project was to design and set up a governance and payment system for Nepal's community forest management under REDD+. The project sites included three watershed areas in Nepal – Charnawati in Dolakha District, Kayarkhola in Chitwan District, and Ludhikhola in Gorkha District – and covered 105 community forest user groups (CFUGs). The Forest Carbon Trust Fund was created and all the CFUGs within the pilots were involved in the REDD+ pilot project. Under the project, performance-based financial support was given to the local communities as an incentive to conserve forest and prevent deforestation. The pilot projects have provided valuable lessons for developing financial mechanisms and operating trust funds more judiciously. An examination of carbon stock increment in the REDD+ CFUGs over a one-year period suggests that carbon stock has increased by approximately 3 tonnes per hectare in the nine REDD+ CFUGs in the three districts from 2010 to 2011.

Source: Sharma et al. 2015; Acharya et al. 2015

6. Conclusion

The sustainability of natural resources is of prime concern to both local and global communities, and requires that resources are used efficiently and that the benefits accruing from them are shared equitably. Especially in countries in South Asia, where a large proportion of the rural population is highly dependent on natural resources for their sustenance, the efficient use of resources and equitable distribution of benefits are crucial for ensuring sustainability. At the same time, for the global community, the conservation of natural resources is important to ensure the continuation of the ecosystem services they provide as well as for development, as most of the raw materials for industrial production come from nature.

In the HKH, there are several niche products that have a captive, international market. At present, local communities are not able to take complete advantage of these niche products and are, therefore, not interested in ensuring the sustainable use or improvement of the resource base. These dual objectives can only be fulfilled if an intricate balance is maintained between conservation of the resource base and use of resources for livelihoods – both of which are important for short- and long-term human welfare. Achieving these objectives requires a clear understanding of the actors involved, the formulation of rules, and the monitoring of these rules. In other words, governance is core to achieving sustainability.

This paper has provided a general overview of the governance concepts relevant to natural resources and their sustainable use. In the specific case of the HKH, there are several factors that influence the governance of natural resources (See Box 8). Addressing these factors across multiple thematic sectors requires a long-term strategy that covers all of the constituent parts of the conceptual framework mentioned in Figure 1. This is a challenging, but not impossible task. What makes the task tougher is that, while incremental advances in governance may be difficult to gauge, the absence of governance is usually starkly experienced.

Incorporating governance dimensions requires attention to the dynamics shaped by interactions, the feedback of learnings, and adaptation over time among the varied actors involved in governance dispersed across spatial levels. Increasingly, policy making is becoming a coproduction process in which governments and individuals work together to produce policy outputs. Such alternative policy processes are desirable if breaking up existing self-governing institutions is to be avoided (Bickers et al. 2001). The horizontal and vertical modes of governance have become a part of environmental policy during the last two decades, and governance is increasingly relying on new modes of governance instead of depending on hierarchical structures with central representation-based decision making (Driessen et al. 2012, p. 76). Only by further developing and applying shared conceptual frameworks that take into account the real complexity of governance regimes can we build the knowledge base needed to advance our understanding and give meaningful policy advice (Pahl-Wostl 2009).

Box 8: Factors affecting the governance of natural resources in the Hindu Kush Himalayas

1. The remoteness of mountain communities and their distance from decision-making centres reduces coordination of formal and informal institutions.

2. Physical fragility has a high impact on natural resources necessitating mechanisms for quick response, which local institutions may lack.

3. Being highly dependent on nature for subsistence, restrictions on resource use by mountain communities are difficult to impose and monitor.

4. Ethnic diversity resulting in the heterogeneity of cultures, traditions, and practices can hinder consensus in decision making.

5. Lack of clear property rights over high-value niche products in mountains may lead to overexploitation.

6. The transboundary nature of natural resources places limits on effective monitoring, patrolling, and sanctions across borders.

7. The governance of resources that are transboundary in nature is limited by conflicting policies and institutions among the countries sharing the resources.

The significance of governance for sustainable development has long been accepted by governments, donors, and NGOs. Yet, just as the definitions of governance are varied, so are the operational strategies. There is no 'one size fits all' solution; thus, complexity in management needs to be accepted and appreciated. No single institutional regime can be a panacea (Ostrom 2009). Which kind of governance regime is appropriate depends on many factors, such as type of resource (forest, woodlot, pasture, water tank, river, stream, ocean) and the extent of dependence (who depends, to what extent, for what purpose, e.g., sustenance or commercial use). The regime would also depend on the size of the resource, the capacity of the resource appropriators to manage the resource, and the willingness of user groups to manage the resource.

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