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Diagnosing Watersheds in India: Integrating Power and Politics in the Analysis of Commons Governance

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ABSTRACT: The experience of watershed development and management in countries of the Global South highlights significant challenges to governance. Establishing the overlap between watershed and commons, this paper identifies some of the most critical challenges to watershed governance in India, which follow from the uneven power relations and politics among diverse watershed actors. Common issues are faced in the implementation of the adaptive, polycentric governance regimes that are recommended for governing complex social-ecological systems like watersheds. Popular approaches in the commons literature that are focused on institutional analysis, however, do not adequately engage with the power and politics in natural resource governance; indeed, power relations and politics around a watershed can be better analysed using a social constructionist approach to natural resource governance. As has been attempted in some recent commons scholarship, this should include perspectives from political ecology, feminist political ecology, and critical human geography. Such an approach can help explain the historical emergence of the watershed through multiple socially constructed processes. It can also facilitate investigation into the relationship between watershed governing institutions and the changing human subjectivities of watershed actors that underlie dynamic scalar commoning. This paper discusses the potential, challenges and limitations of a social constructionist approach to the comprehensive diagnosis of watersheds; it also highlights some key questions that can be addressed through future research.

KEYWORDS: Watershed governance, watershed and commons, scalar dynamics, power and politics, socially constructed commons, human subjectivities, India

INTRODUCTION

A healthy watershed provides multiple ecosystem services; it supplies water for agricultural and domestic uses and facilitates biodiversity preservation (Postel and Thompson, 2005; Kerr, 2007). Healthy watersheds assume significant importance for a country such as India, where agriculture depends heavily on monsoon rains (GoI, 2020). In developing countries, since at least the 1970s, watershed development and management programmes have been part of government strategies; even before that, traditional, independent and community-managed interventions have contributed to the development and management of watersheds (Mishra, 1993; Kerr, 2002; Darghouth et al., 2008; GoI, 2018).

In India and globally, however, the experience of watershed programmes since the 1970s has presented significant social, economic and political challenges in terms of governance. Among these challenges are ensuring equity in the distribution of costs and benefits, and addressing the issues of scalar dynamics as they arise among diverse stakeholders at different levels and scales of governance (Kerr, 2002; Kerr et al., 2007; Berkes, 2009; Cohen and Davidson, 2011). These issues complicate watershed governance and make it challenging to successfully replicate watershed programmes (Kerr, 2007). This paper argues that many of these challenges relate to structural issues embedded in the unequal power relations and politics among the diverse watershed actors; it further suggests that a comprehensive diagnosis of watershed governance requires an investigation into the play of power and politics around

the watershed, which manifests through the watershed's governance structure, the actions of its diverse actors, and the discourses at different scales and levels.

Watershed analysis can benefit from the commons theory that deals with community-based natural resource management; this theory recommends the optimal institutional arrangements for effective governance of a natural resource (Berkes, 2009; van Laerhoven et al., 2020).[1] In the commons literature, there is an abundance of empirical enquiries into forests, pastures, irrigation systems, fisheries and water management, much of it focusing on the analyses of small-scale locally governed resources (van Laerhoven et al., 2020). Large-scale complex natural resources, however, have not received as much attention in the commons literature, though a few studies suggest responses to the challenges posed by the complexities and uncertainties of the social-ecological system surrounding large-scale resources (van Laerhoven and Ostrom, 2007; Araral, 2014). A watershed, as van Laerhoven and Ostrom (2007) acknowledge and Kerr (2007) highlights, is an interconnected system of multiple social-ecological systems such as forests, pastures, water (both surface and groundwater), and farmland. Since each of these influences the watershed differently, its governance is more complex than that of individual resources; an analysis of watershed governance using a commons approach can thus add to the existing literature on the commons.

Literature that addresses the intersection of watershed and commons points out that polycentric and multilevel forms of governance (governance that extends beyond the watershed boundaries) may be better equipped to deal with the complexities of governing a watershed (Bakker and Morinville, 2013). Scholars, however, have identified multiple challenges in the implementation of a well-functioning polycentric governance system; these arise primarily from unequal power relations and scalar politics in the existing governance arrangements, which render the governance system nonparticipatory and bureaucratic (Huitema et al., 2009; Narayanan and Venot, 2009; McGinnis, 2016). Within the commons literature, popular institutional approaches to dealing with the governance of complex social-ecological systems provide valuable insights, but do not adequately attend to the multilevel and multiscalar power and politics that surround a natural resource (Clement et al., 2019). More recent commons scholarship, however, borrows from political ecology and feminist political ecology perspectives and, with help from the analytic of scalar politics, is able to bring in a much more nuanced analysis of these dynamics as they affect polycentric watershed governance; it does so by centring analysis around power relations and politics in the context of pre-existing structural issues of inequity (Nightingale, 2014; Rudestam et al., 2015). This paper discusses these alternative approaches, their benefits, and the challenges of applying them in the diagnosis of watershed governance.

The paper has four major sections. The following section revisits the concepts of the watershed and the commons; it explores linkages between the two in order to improve the understanding of watershed governance. The subsequent section identifies the complexities of watershed governance, including the challenges posed by inequity in access to the commons and by scalar dynamics. Following this is a discussion of the relevant approaches found in commons literature and of the limitations of these approaches when dealing with power and politics; this section also explores more suitable alternatives. The final section considers the challenges to these alternatives; it offers suggestions for future research work that can help address these challenges.

WATERSHEDS AND COMMONS

Both watersheds and commons are associated with multiple concepts. In order to appreciate the ensuing discussion on the complexities and diagnosis of watershed governance, a review of some of these concepts – those that are relevant for this study – is critical. Some of these concepts are highlighted in

[1] According to Cumming et al. (2020: 27), "Institutions are the laws, rules, norms and customs governing human behavior and human-environment interactions".

the following two subsections, the first touching on essential concepts related to the watershed, and the second identifying the interconnections of the watershed with various concepts from commons theory.

Revisiting the concept of the watershed

The Oxford Advanced American Dictionary (2020) defines a watershed as "a line of high land where streams on one side flow into one river and streams on the other side flow into a different river"; however, a watershed, as the concept is used in the context of natural resource conservation, has come to signify the geographic area that drains to a common point. In this usage, a watershed supplies water to a given drainage system or body of water, which can range in size from a small stream to an ocean (Darghouth et al., 2008). Watersheds can thus be of different sizes; they can range from geographically small micro watersheds to much larger river basins, with a geographically larger watershed composed of multiple smaller watersheds.

The Food and Agricultural Organisation (FAO) defines a watershed as "the geographical area drained by a watercourse" and watershed management as "any human action aimed at ensuring the sustainable use of watershed resources" (Heal, 2019: 2). Kerr (2007) identifies watershed development and watershed management separately. The former, for Kerr, refers to the technical interventions aimed at increasing the productivity of the watershed resources and bringing water resources under control; he defines the latter as the management of hydrological relationships within a watershed, which involves the conservation of resources. Highlighting watershed development and management as crucial strategies, Kerr identifies their objectives as conservation of natural resources, productivity enhancement of natural-resource-based activities, and poverty alleviation among those dependent upon these resources for their livelihoods. Management is critical for sustaining the technical interventions under watershed development; management, however, is contingent on institutional arrangements for watershed governance (ibid).

Commons connection of watersheds

Watershed governance translates into the governance of its constituent natural resources, many of which are also common pool resources or commons. Elinor Ostrom (1990) defines common pool resources as the resources exhibiting high subtractability (that is, use of the resource by any one person reduces its availability to the rest of the users) and a high cost of exclusion (which is to say it is difficult to exclude any potential user from access); both of these are exhibited by the land and water resources in a watershed. Building on Ostrom's definition, Kerr (2007) introduces the watershed itself as a common pool resource with hydrological linkages between its different natural resources. Kerr suggests that these linked natural resources must be managed through collective action by all watershed users. However, in this paper, common pool resources refer specifically to those constituent resources of the watershed that exhibit high subtractability and high cost of exclusion; the paper uses the terms commons and common pool resources interchangeably.

Garret Hardin (1968) popularised the concept of the commons and coined the phrase 'the tragedy of the commons', predicting their ultimate depletion. Since then, however, commons theory has undergone significant changes. Elinor Ostrom and other commons researchers critique Hardin's proposition, demonstrating through multiple case studies that communities can successfully govern natural resources as commons; they make a case for successful community governance of watersheds (Araral, 2014). A natural resource can fall under four different property regimes; these regimes determine the rights around it, either individually or in combination. The regimes are open access, private property, state property, and common property (Berkes, 2009).[2] A watershed can be a mosaic of resources under

[2] Open access refers to a situation in which a resource is open to all, with no property regime in place; in a private property regime, an individual or a corporation holds the rights to the resource; in a state property regime, only government has exclusive

different de jure and de facto property regimes; it can include, for instance, government-owned forest, privately owned farmlands or orchards, communally owned surface water streams, and open access pasture lands. Different individuals or collectives, furthermore, can hold different de jure and de facto rights over each of these resources; Schlager and Ostrom (1992: 252) define this as "bundles of rights" around the commons.[3]

These different property regimes and the different bundles of rights create diverse – and at times competing – demands on watershed resources; these various demands can render their management complex. Turner (2017) argues that recognition of the property rights of individuals and groups around a resource is subject to the relative strength of their claims among the various competing claims; this, according to Turner, makes property rights "inherently relational and thus deeply political" (ibid: 3). In order to ensure the sustainability of watershed resources, watershed governance arrangements need to account for these complexities and their inherent politics.

Watershed governance thus plays a crucial role in the management of a healthy watershed and in ensuring the success of watershed programmes. The overlap between the watershed and the commons that is alluded to in this section expands the possibilities for applying insights from commons theory to watershed governance. The following sections elaborate further on some of the complexities of watershed governance and the approaches from commons scholarship that may help uncover them.

COMPLEXITIES OF WATERSHED GOVERNANCE

Watershed governance in India is confronted with several challenges which influence the outcomes of watershed development or management programmes; these challenges are not limited to the different property regimes and rights around a watershed's constituent resources (Kerr, 2002, 2007; Reddy et al., 2017). Shah (2019), in the Indian context, identifies multiple issues in the present paradigm of water governance which he holds responsible for the situation of water scarcity in India.[4] Most of these issues are equally valid for watershed governance, as they relate to the biogeophysical characteristics of the resource, to equity of access, to institutional arrangements for its governance, and to stakeholder participation.

The following two subsections highlight some fundamental challenges that are responsible for many of these issues adding complexity to watershed governance: unequal distribution of costs and benefits; inequity in access to commons; and the scalar dynamics that determine institutional fit and institutional interplay. These challenges relate to the structural issues of unequal power relations and politics among watershed actors in the broader socio-ecological context of the watershed. Understanding these challenges and how they manifest in the watershed programmes in India can facilitate better analysis of watershed governance and can help improve existing governance arrangements.

rights to the resource; and in the case of a common property regime, a group or community of users holds the rights (Berkes, 2009).

[3] Schlager and Ostrom (1992) identified four different categories of rights holders, each of which has a different bundle of rights to the resource. These categories and their associated rights, in order from least to most authority, are: an authorised user having the right to access, and withdraw from, a resource; an authorised user who is also a claimant with the right to manage the resource; a proprietor who holds rights similar to those of a claimant, and who also has the right to exclude others from the resource; and an owner who has complete authority over the resource, including the right to sell or lease it.

[4] Shah identifies 12 key characteristics of the existing paradigm around water in India: 1) a command and control approach to water governance; 2) bureaucratic governance; 3) no reference to hydrological entities such as aquifers or river systems; 4) uni-disciplinarity, which is manifested in the use of only engineering and hydrology; 5) consideration of water only as an economic resource, ignoring its other dimensions; 6) consideration of surface water and groundwater in silos; 7) an instrumental view of water, especially rivers; 8) a supply-side focus with no attention to demand management; 9) no reference to sustainability of the resource; 10) discrimination and lack of equity in access to water; 11) lack of transparency and of access to water information; and 12) an unfair colonial framework of water governance (Shah, 2019: 344-345).

Inequity and access to commons

Uneven distribution of the costs and benefits associated with watershed programmes poses a significant challenge to successful achievement of their objectives (Kerr, 2002; Reddy et al., 2017; Kumar et al., 2019). Kerr (2002), in an empirical study of watershed outcomes in India, observed that this uneven distribution harms the poor and vulnerable sections of local communities, including landless people, herders and women. This unequal distribution of costs and benefits severely affects access to watershed resources when competing property rights claims are at play within a watershed. The upper catchment of a watershed requiring development and management usually consists of degraded lands and poor quality soil; this area often constitutes common pool resources such as pastures and forests, which are not privately owned. Kerr observed that these resources are accessed by the poor and vulnerable sections of society for diverse purposes, including livelihood generation. Watershed programmes that aim to facilitate rejuvenation of these resources and thereby reduce soil erosion and prevent silting of downstream water harvesting structures, also restrict people's access to these resources (ibid). Kerr notes that in the short term, the restrictions lead to a loss of access to these resources for the poor, with insufficient compensatory alternatives, even though in the longer term they increase the productivity of the resource and benefit all watershed users.

Daftary (2014), on the other hand, argues that enclosure of the commons in a watershed programme is itself primarily aimed at improving the productivity of privately owned farmlands. In her analysis of watershed programmes in the western Indian state of Gujarat, she observes that, since the 2000s, the focus of these programmes in India – both in policy articulation and in practice – has started tilting "in favour of individuals, better-endowed households and value-generating agriculture", and has moved away from the earlier focus on treating common and public resources (common lands, forests, and common water structures) (ibid: 1000). This shift in focus, which Daftary argues is in line with the neoliberal economic reforms put in place in India from the 1990s onward, risks excluding economically deprived, landless and assetless sections of local communities from the watershed development discourse (Daftary, 2014). According to Chhotray (2011a), improvements in the productivity of privately owned farmlands through watershed programmes could, in fact, adversely affect the poor and vulnerable, since these improvements take place in a context of unequal landholdings, pre-existing inequalities, and the imbalance of power relations that lies at the intersection of caste, class and gender. The latest Common Guidelines for Watershed Development Projects – 2008 (Revised Edition – 2011) by the Government of India acknowledge this concern by putting explicit emphasis on "Equity and gender sensitivity" (GoI, 2011: 8) as a guiding principle for implementation of these projects.

Chhotray (2011a) argues, however, that the watershed project guidelines – starting from the first such guidelines in 1994 – have remained silent on how equity is to be achieved in watershed outcomes. People experiencing inequity are also less likely to participate in, and support, watershed conservation activities. As a potential solution to this issue, scholars have suggested approaches to account for (internalising) the offsite impacts (externalities) of the actions of diverse watershed users (Calder et al., 2008; Reddy et al., 2017; Singha, 2020); however, a study of several approaches to the internalisation of externalities in the Indian context (in densely populated watersheds with diverse and conflicting resource use patterns) suggests that it is challenging to manage externalities generated from the activities of a watershed programme in a way that helps the poor through the use of popular approaches (Kerr et al., 2007).[5]

Cases nevertheless exist in India where externalities have been managed successfully in a watershed while addressing equity concerns around commons; examples of this include Sukhomajri, Pani Panchayat,

[5] Kerr et al. (2007) identify ten theoretical approaches to managing externalities in a watershed; they discuss their feasibility in India through the use of multiple case studies. These approaches are: 1) moral suasion and social conventions; 2) regulatory limits and economic penalties; 3) taxes on negative externalities; 4) tradable environmental allowances; 5) investment subsidies; 6) indirect incentives; 7) mergers; 8) payments for environmental services; 9) changing and/or strengthening property rights and liability systems; and 10) facilitating negotiation and conflict resolution (Kerr et al., 2007: 267).

and Ralegan Siddhi (Kerr, 2002; Kerr et al., 2007). Highlighting the institutional arrangements leading to equity in these cases of community-based natural resource management, Kerr (2002) identifies institutions as being critical to sustainable watershed governance. The natural resource governance literature also places a significant emphasis on the role of institutions in sustainable governance (Ostrom, 1990; Cumming et al., 2020). The Pani Panchayat experiment from the 1970s attempted to address water scarcity by governing water as a common property; micro watersheds were managed by community institutions known as *pani panchayats* or local water councils (Thakur and Pattnaik, 2002). Thakur and Pattnaik (ibid) identified multiple institutional arrangements guiding the operations of pani panchayats; these were aimed at ensuring community participation in water governance and equity in the distribution of costs and benefits (such as provision of irrigation water for the landless). Water conservation works carried out by pani panchayats led to increased income from rainfed agriculture due to the additional water available in many locations for protective irrigation. Kerr (2002) argues that the failure to replicate these institutional arrangements in many of the later watershed programmes is a reason for the poor performance of these programmes in terms of poverty alleviation outcomes.

Over time in declining pani panchayats, however, scholars have identified problems related to equity in cost– benefit distribution that have harmed landless households (Thakur and Pattnaik, 2002; Keremane et al., 2006). Encountering issues of inequity and declining community institutions in one of India's best known cases of community-based watershed governance is a telling sign of the poor ability of well-conceived institutions to deal with inequity and exclusion in a common property regime (Nightingale, 2014). Dealing more effectively with these issues requires a much more robust engagement with pre-existing issues of power and politics both around the watershed and in the broader societal context (Chhotray, 2011a).

The state watershed project guidelines nevertheless propose that non-elected local community institutions, namely watershed committees, should take up the central role in planning and implementing participatory watershed projects; under these guidelines, the watershed committee takes precedence over the democratically elected gram panchayat, or local political body (GoI, 2011). The guidelines express a conviction that local communities are able to form institutions that will "address common issues and facilitate collective action" around watersheds (Chhotray, 2011a: 72); Chhotray (ibid) sees this as a move to depoliticise participatory watershed programmes, arguing that it circumvents the realities of local politics and the power relations that shape structural inequities.

Scalar dynamics

Cohen and Davidson (2011) argue that the understanding of watershed governance requires consideration of the different scales of watershed governance, and that these should be considered separately from the watershed as a technical tool. Cash et al. (2006) define scales as the different dimensions by which to measure and study a phenomenon, including spatial, temporal, quantitative or analytical. They identify multiple levels on each scale, while defining levels as the units of analysis located at different points on the scale; a scale representing spatial habitations, for instance, can have levels that range from a small neighbourhood to a large district, state or nation. Watersheds are governed at different levels and across different scales such as spatial, temporal, jurisdictional and institutional (ibid). Scalar dynamics refer to the interactions among different scales and levels, which can positively or negatively influence watershed governance. Such scalar dynamics pose significant challenges to watershed governance (Berkes, 2009; Araral, 2014). Cash et al. (2006) highlight the diverse challenges emerging from cross-scale and cross-level interactions in a social-ecological system. This subsection, however, limits itself to two significant challenges to watershed governance that are due to scalar dynamics: the institutional fit around watershed boundaries, and institutional interplay.

Choice of watershed boundaries and institutional fit

Watershed boundaries do not correspond to existing administrative jurisdictions; decision-making at the watershed level and accountability to these decisions thus present a challenge (Cohen, 2012). For effective watershed governance it is therefore essential to ensure compatibility, or 'fit', between the biogeophysical properties of a watershed and its governing institutions (Moss, 2012). Even though, as identified by Cash et al. (2006) and Moss (2012), there exist different categories of fit between different scales, this paper focuses only on the spatial fit between the boundaries of a watershed and the boundaries of its governing institutions. The choice of watershed boundaries is critical to this fit. The first of Ostrom's (1990) eight institutional design principles for sustainable commons governance systems also identifies the need to clearly define both the boundaries of a natural resource and its users.[6] The choice of watershed boundaries, however, is a complex political decision as these boundaries influence who can participate in decision-making processes and whose issues and concerns will be accorded priority in a watershed programme (Blomquist and Schlager, 2005). Moss (2012) points out this challenge as it affects implementation of the European Union Water Framework Directive, which attempts to organise the management of water resources around river basins. This reorganisation, though it resolves the spatial misfit between the biophysical boundaries of the water resource and the jurisdiction of its governing institutions, creates new spatial misfits with policy fields that influence other geographical areas.

In India in the 1980s, the limited success of the early watershed programmes that were organised around large macro watersheds highlighted these challenges (Kerr, 2007). These early programmes carried forward the colonial approach of centralised, top-down, technocratic governance that was organised at the macro watershed level without much regard for local community knowledge (Kerr, 2002; Chhotray, 2011a); this predominance of technical engineering knowledge does not address political-administrative and socio-economic problems (Moss, 2003). The mismatch between resource boundaries and social boundaries that is caused by organising governance around large macro watersheds that span multiple villages may instead accentuate the politics of position and the uneven power relations between upstream and downstream watershed users (Lebel et al., 2005; Kerr, 2007; Berkes, 2009).

Learning from the challenges of these early efforts, from the 1990s watershed programmes in India adopted an approach that prioritised social organisation and community participation while reducing the geographical coverage of the programmes (Kerr, 2007). Since 1994, watershed project guidelines have promoted significant community participation and decentralisation in the decision-making process, as manifested through community institutions such as watershed committees (Chhotray, 2011a; GoI, 2011). As noted in the previous subsection, however, an inability to deal with power relations and micropolitics makes this decentralised and participatory approach to watershed programmes as fragile as the earlier approach (Kerr, 2002; Chhotray, 2011a). Community institutions are embedded in local culture and reflect the same structural issues as do the broader society, including unequal power relations and local politics that favour the political elite in watershed governance (Chhotray, 2011a). Baviskar (2007) argues that selecting individual villages for watershed programmes is meant to enhance administrative convenience; she further suggests that it leads to the deliberate exclusion of the most ecologically degraded villages, which either are remotely located or are where state management of local politics is difficult.

[6] Elinor Ostrom proposed eight institutional design principles that characterise sustainable commons governance system. These design principles have been the focus of extensive study; they have found support through empirical studies on community-based natural resource governance (Araral, 2014). The principles are: 1) clearly defined resource boundaries; 2) congruence between appropriation and provision rules and local conditions; 3) collective-choice arrangements whereby an individual who is affected by the operational rules participates in the modification of these rules; 4) monitoring and accountability; 5) graduated sanctions; 6) rapid access to low-cost conflict resolution mechanisms; 7) recognition of the right of appropriators to organise; and 8) nesting of enterprises for commons governance in multiple layers of governance of larger systems (Ostrom, 1990: 88-101).

Current debates in India on the issue of institutional fit in water governance offer significant insights into the complexities of governing entire watersheds. The Government of India's twelfth five-year plan proposes an integrated approach to water governance that is organised around the four levels of river basin governance: state, river basin, sub-basin and local; it suggests suitable institutional arrangements for each of these levels (Shah, 2019). It even proposes a National Water Framework Law to operationalise the proposed changes, the draft of which is available on the Government of India's Ministry of Jal Shakti website (GoI, 2016). The passage of this bill has been stalled, however, due to opposition from numerous state governments which fear that it will infringe on their water rights while strengthening the Centre's role in water governance (GoI, 2021); moreover, because water is a state subject in India, integrated water governance poses a significant political challenge for India's many interstate rivers (Kumar, 2018; Pandit and Biswas, 2019).

An integrated and multidisciplinary approach to watershed projects, as proposed in the recent watershed guidelines of 2011, would have to face a similar challenge owing to the governance of various patches of land, water and forest in a particular watershed by different institutional arrangements (GoI, 2011). Raina (2016) further points out the instrumental values prevalent in the institutional arrangement of water governance in India, which prioritise economic returns over the ecological, social and cultural roles of water. This paradigm is reflected in the 2015 amalgamation of the state-run Integrated Watershed Management Programme (IWMP) with the Pradhan Mantri Krishi Sinchayee Yojana (literally, the Prime Minister's Agricultural Irrigation Scheme), which excludes several alternative ways of knowing and relating to the watershed, its land, water and forests (Raina, 2016; GoI, n.d.).

The economic, social, political and cultural ways of knowing and relating to a watershed include, for instance, being regarded as a sacred place of worship by its communities, as the strategic site of a dam proposed by the government, or as a wildlife abode; because of this diversity, in effect multiple watersheds are constructed whose geographies may extend beyond, rather be in conflict with, its physical boundaries (Moss, 2014). I therefore argue that an exclusive focus on economic values, which produces only a a single spatiality of the watershed, may not yield sufficient knowledge of the watershed let alone allow for its sustainable and equitable governance.

Rather than seeking the perfect spatial fit, a better approach to watershed governance could be to evolve a practice of co-management through working with all the relevant actors across these diverse geographies and at different levels and scales (Moss, 2012). Such an approach can help to address the challenge of the institutional misfit; however, it can also aggravate the problem of interplay, owing to the scalar politics among actors at different levels and scales of the watershed's governance and of the management of its constituent resources (Moss, 2003). The following subsection elaborates upon this challenge.

Institutional interplay

The 2011 watershed project guidelines also suggest an integrated approach that involves all the stakeholders, is balanced in its focus on the environment, society and economy, and can facilitate sustainable management and governance of India's watersheds (Allan, 2006). Mollinga (2006: 21), however, alludes to potential challenges to this approach; he argues that it has not emerged from local or regional practices, but instead is "a concept looking for a constituency" in the context of integrated water resource management in South Asia. Institutional interplays highlighted in this subsection present further significant challenges to an integrated approach.

Interplays between governing institutions at different levels and scales can act as barriers to effective watershed governance; attempts to resolve the spatial misfit through an integrated approach can aggravate the problem by creating new misfits across the different policy domains that influence the watershed and its constituent resources (Moss, 2003). The multitier approach proposed in the 2011 watershed project guidelines talks about the coming together of different implementing agencies and,

through them, their federal decision-making bodies; these federal ministries would include those of Rural Development, Environment and Forests (now renamed the Ministry of Environment, Forest and Climate Change), and Agriculture (now renamed the Ministry of Agriculture & Farmers Welfare) (GoI, 2011). This convergence may have to deal with potential horizontal interplays between the institutions across different ministries. Interplays can also take place between institutions at different levels on the same scale. A particular problem concerning watersheds, for instance, may be experienced mainly at local levels but its solution may require interventions and decision-making at much higher levels; this incompatibility inevitably leads to interactions between different levels of an institution, such as between powerful state-level institutions deciding on major rules and regulations and the community-based institutions that traditionally manage a watershed (Lebel et al., 2005).

The institutional design principle of "nested enterprises" also recognises interplays that result from an inherent polycentricity in the governance of complex natural resources (Ostrom, 1990: 101). It predicts long-term governance arrangements around complex commons in multiple layers of nested enterprises. Critiques of these principles and of the commons theory in general, however, highlight interplays as a significant challenge to their successful prediction of the governance around large-scale complex commons (Berkes, 2009; Araral, 2014). A recent review of commons literature also suggests that there are relatively few studies of large-scale resources that are governed beyond the local or community scale (van Laerhoven et al., 2020). Berkes (2009) argues that even though the commons theory has evolved enough to identify the conditions under which community-led natural resource governance would work, the success of this prediction is limited to the locally governed small-scale resources which, as Araral (2014) contends, are insulated from external factors and thus protected from rapid change.

In the case of large-scale complex natural resources such as macro watersheds, however, a wide diversity of actors is involved at different levels and scales. These actors, driven by self-interests which do not necessarily converge, influence the governance of the resource and contribute to institutional interplays (Kerr, 2007; Araral, 2014). Even smaller watersheds are embedded within larger, more complex systems, with multiple levels of social and political organisations affecting their governance (Berkes, 2009). Some actors may exert more power and influence than others over watershed outcomes. Lebel et al. (2005) argue that in this 'politics of scale', actors at higher levels are likely to win competitions for power and influence owing to the power derived from their ability to control and capture resources from multiple levels. Because they are able to influence actors in the hierarchy of governing institutions, these higher-level actors can selectively comprehend, manage and manipulate the complex watersheds as per their priorities; they are able to manage watersheds so as to increase agricultural productivity on privately owned lands, ensure a drinking water supply for urban centres, or garner profits through the sale of timber (Scott, 1998; Lebel et al., 2005).

As noted earlier, this neoliberal, anthropocentric instrumentalisation of watersheds has dominated location-specific community-based governance, despite the latter having a more complex understanding of watersheds through their diverse and ongoing human-nature interactions (Lockwood and Davidson, 2010). Even the emphasis of India's watershed programmes on community participation and decentralisation can be understood as furthering a neoliberal strategy; they aim at maximising individuals' economic welfare while ignoring the power relations and micropolitics that lead to inequity in outcomes and unequal access to resources (ibid). Such co-optation of community-based natural resource management by a neoliberal approach can damage "the stocks of social capital and social trust that support the community cohesion" that is crucial for decentralised and participatory watershed governance (ibid: 396). Even in a decentralised, participatory watershed programme, moreover, scalar politics produces a situation where local actors witness a reduction in their democratic participation and a subversion of their priorities by higher-level political actors (Baviskar, 2007). Institutional interplays can also, however, have equitable outcomes that lead to sustainable co-management of watersheds (Lebel et al., 2007); examples of this include the Chipko Andolan grassroots movement of the 1970s, in the

Himalayan region of Uttarakhand, in which local communities, particularly women, challenged the state's forest extraction policies by hugging trees to prevent logging (Bhatt, 1990).

The challenges of institutional fit and institutional interplays increase the complexity of watershed governance; analyses thus need to be aware of and appreciate these complexities. In this section of the paper, it is suggested that any analysis must investigate the play of power and politics at two levels: between the actors at different levels and scales of watershed governance, and between diverse groups and individuals within local communities. Owing to the overlap between the watershed and the commons, commons theory may offer insights for a better understanding of watershed governance. Commons literature has been critiqued for its inadequate engagement with the issues of power and politics (Clement et al., 2019). Diagnosing watershed governance may therefore require building upon commons theory by putting the power relations and politics among watershed actors at the core of the analysis (Clement, 2013), which may aid in understanding these complexities at multiple levels (Berkes, 2009). Such an approach may benefit from focusing on social learning and collaborative, adaptive management experiments (ibid). The following section discusses the potential and limitations of such perspectives and approaches, taking a few examples from commons literature; at the same time, it explores approaches that can help diagnose watershed governance through focusing on the play of power and politics.

ENGAGING WITH POWER AND POLITICS IN WATERSHED ANALYSIS

This section identifies strands from commons literature on natural resource management and governance that can offer insights into dealing with the complexities of governing a watershed, as highlighted earlier. The approaches addressed here are not exhaustive; they are, instead, an attempt at highlighting the major lines of thought on this subject. The primary focus of the discussion is the ability of these approaches to deal with the play of power and politics in watershed governance.

This section is organised into four subsections, the first two of which discuss polycentric, multilevel governance systems around the watershed. The first of these highlights polycentric governance as a theoretical model of watershed governance and discusses the challenges of implementing a perfectly polycentric system. The second subsection focuses on a polycentric, multilevel governance perspective as a diagnostic framework for watershed governance. The third subsection brings forward a relatively novel conceptualisation of the commons as socially constructed and discusses the applicability of this conceptualisation to the analysis of watershed governance. Approaching the watershed through a social constructionist approach can allow for an appreciation of the plurality of knowledge around the watershed while at the same time focusing on the uneven power relations among the diverse watershed actors (Escobar, 1996). The final subsection highlights the importance of changes in socionatural subjectivities and the centrality of a dynamic process of commoning among watershed actors to explanations of the micropolitics of participatory, decentralised watershed programmes.

Polycentric governance of watersheds

Governance of a complex natural resource like a watershed requires an acknowledgement of the "overlapping social, economic, political, cultural, and physical spaces" around the watershed, and calls for "collaborative and flexible ways" to work across these spaces (Moss, 2012, Conclusions section, para. 2). A polycentric, multilevel and participatory governance system therefore seems like a logical response to the challenges highlighted in the previous section (Newig and Fritsch, 2009).

A polycentric system has the potential to adapt itself to the uncertainties that characterise a complex social-ecological system like a watershed (Bakker and Morinville, 2013). Initially defined in the context of governance in metropolitan areas, "polycentric connotes many centres of decision-making which are formally independent of each other" (Ostrom et al., 1961: 831). The essence of a perfectly functioning polycentric governing system is democracy and participation; this is manifested through the coming

together of markets, the state, and diverse community-based institutions (Huitema et al., 2009). Commons scholars have used this concept to study the governance of natural resources; they claim that polycentric governance systems are effective at governing complex natural resources, having the advantages of enhanced adaptive capacity, good institutional fit (as compared to a one-size-fits-all institutional arrangement), and mitigation of risk through redundancy (Carlisle and Gruby, 2019). Furthermore, a polycentric, multilevel governance system with a higher number of levels and agencies shows better environmental outcomes (Newig and Fritsch, 2009).

Scholars, however, also point out several challenges to implementing a well-functioning polycentric governance system (Huitema et al., 2009; Narayanan and Venot, 2009; McGinnis, 2016). These challenges significantly overlap with the complexities highlighted in the previous section, indicating a substantial play of power and politics in the governance system. McGinnis (2016) highlights six roadblocks to achieving a perfectly polycentric system; these are: 1) structural inequalities leading to differences in the transactional costs of collective action for different interest groups; 2) incremental bias in governance arrangements, which prevents inclusion of new actors in the governance system; this can also be inferred from the tussles between non-governmental organisations and lower levels of bureaucracy in watershed programme implementation that were noted by Chhotray (2011b); 3) high complexity due to the diversity of institutions at multiple levels; 4) deep structural fissures, making it challenging to achieve coordination across the different policy sectors concerned with resource governance; 5) coordination failure owing to structural inequalities, incremental biases, and structural fissures; and 6) lack of normative clarity, because of which some actors may cooperate and organise themselves at the expense of others; they may band together either to further an agenda that does not represent the larger purpose of the polycentric governance (one which, for instance, emphasises the economic benefits of watershed programmes) or to oppress other actors or groups who may not be able to organise easily to resist.

Huitema et al. (2009) point out a lack of democratic accountability among multiple institutions with dispersed responsibilities as a potential challenge to the implementation of a well-functioning polycentric governance system. They argue that ultimately it is the power groups who benefit from the lack of democratic accountability that occurs amid the struggle by these institutions to maintain their bureaucratic authority. Even collaboration among different actors and the resulting new institutions may represent power hierarchies rather than a response to shared concerns (ibid). Narayanan and Venot (2009), in their study on wetland governance in three Indian states, identify similar challenges. As the primary factors behind a politics of resource use, they note the tendency to bureaucratisation, a lack of participation, and existing limits to democratic citizenship, all of which make it challenging to implement a polycentric governance regime.

These challenges can also be observed in India's watershed project guidelines' prioritisation of non-elected watershed committees over democratically elected gram panchayats in the implementation of decentralised, participatory watershed programmes; the assumption is that these committees can better represent the interests of everyone in the local community (Chhotray, 2011a). Inadequate consideration of the political contestations around the watershed constituent resources and a reluctance to engage with micropolitics within local communities may limit the participation of vulnerable and politically less-powerful groups in the decision-making process; these programmes may thus render them even more vulnerable. The lack of political spaces for discussing the diverse interests around watersheds hinders democratic decision-making. In such a scenario, the agencies proposed at multiple levels through watershed guidelines may end up as additional layers to the existing bureaucracy; this, in turn, may further higher levels' ambitions for enhanced economic returns without addressing the unequal distribution of costs and benefits and without incorporating multiple – sometimes conflicting – visions around watersheds.

As an answer to these challenges, Narayanan and Venot (2009) propose creating meso-level coordinating bodies with adaptive boundaries, which act as platforms for promoting democratic decision-making through discussions and debates around the multiple interests. To identify gaps within the

existing polycentric governance systems around watersheds, however, research studies need to pay greater attention to how politics and power relations play themselves out through governance structures, through the diverse actors, and through discourses at different levels (Narayanan and Venot, 2009; Clement, 2013). The following subsection looks at some approaches that are based on polycentricity as a diagnostic framework for studying watershed governance.

A polycentric multilevel perspective as a diagnostic framework

In order to understand the complex cross-level and cross-scale dynamics in existing governance systems around natural resources, scholars have devised different diagnostic frameworks that are based on a polycentric, multilevel perspective (Lebel et al., 2007; Andersson and Ostrom, 2008; Meinzen-Dick et al., 2020). As a diagnostic framework, a polycentric, multilevel perspective can help explain the complexities of the systems governing a watershed and its constituent natural resources (Meinzen-Dick et al., 2020). Andersson and Ostrom (2008) study decentralised natural resource governance from a polycentric perspective across the developing-country contexts of Peru, Bolivia and Guatemala; they do so by analysing interactions between actors in multilevel governance systems around natural resources. Their study suggests that a polycentric analytical approach can facilitate a more nuanced understanding of the factors affecting decentralised governance outcomes around these resources.

Meinzen-Dick et al. (2020), in their empirical study on the governance of the commons in two states of India, build on the polycentricity theory; they propose a social network mapping exercise, or net-mapping, as a diagnostic framework for understanding local communities' perceptions of the roles played by diverse stakeholders in governing the commons. They argue that net-maps can identify gaps in existing governance systems by indicating which governing agencies and relationships hold higher significance than others. Lebel et al. (2007) employ a multilevel perspective with a specific emphasis on the politics of scale; they identify the challenges of managing upper tributary watersheds of Montane mainland Southeast Asia. Organising their analysis around multiple scales and levels, Lebel et al. (2007) explore how discourses and social practices render some levels more powerful than others, which then exert greater influence on the decision-making around watersheds. Their multilevel perspective may also give insights into the interests and expectations of the multiple actors at different levels around watersheds.

These diagnostic frameworks, however, are limited by a lack of comprehensiveness and dynamism in their analysis. A multilevel perspective may be ill-equipped to capture the non-scale relationships between locations, such as between ridges and valleys; it may also overlook other contextual factors that are not organised in terms of levels and scales, such as culture or beliefs (Lebel et al., 2007). The effectiveness of the net-mapping exercise conducted by Meinzen-Dick et al. (2020) is also limited by the knowledge and perception of its participants and by the focus of the exercise. It risks missing out on important but indirect actors and on the relationships among them which influence resource governance. Also, because net-mapping is a static exercise, it does not facilitate a dynamic analysis of the governance system; instead, it provides local communities' perceptions only at a certain point of time, and perceptions are thus liable to change. The polycentric approach adopted by Andersson and Ostrom (2008) also fails to capture the dynamic relationships between natural, socio-economic, and institutional processes and overlooks their impact on ecological outcomes. As a future research goal, Andersson and Ostrom identify the need for a more dynamic analysis of polycentric governance systems, one that more effectively captures the complexities of resource governance.

A focus on the operationalisation of power relations and scalar politics across the governance system is also not implicit in a polycentric, multilevel perspective. A specific emphasis on the politics of scale such as Lebel et al. (2007) embrace, however, can facilitate valuable insights. Even so, in studying polycentric governance around watersheds, it is a significant challenge to capture all the relevant actors and their relationships – which are temporally and spatially dynamic – while remaining conscious of the uneven power relations and politics among them. A social constructionist perspective on polycentric watershed

governance can potentially address these challenges by incorporating multiple watersheds into the analysis, including the social, cultural, economic, ecological and political watersheds along with the physical watershed landscape. It can maintain an explicit focus on the power relations and politics among the diverse actors within these multiple overlapping watersheds (Moss, 2014). The following subsection explores the possibility of studying watersheds through employing a social constructionist perspective around commons.

Restoring watershed complexity through a social constructionist approach

Rationalising watershed conservation from a utilitarian perspective (focusing, as noted earlier, only on its economic significance) can strip the watershed governance of its historical and relational context, reducing it to a technocratic exercise (Escobar, 1996; Armitage, 2007). Armitage (ibid: 23) argues, however, that the "historical legacies of power and ongoing value conflicts influence how actors actually interact today" in natural resource governance. Studying the historical emergence of the watershed – as an economic resource or otherwise – through the transformation of the socio-ecological context around it can thus be crucial to understanding the complexity of its governance (Escobar, 1996).

A political ecology perspective on "how social actors construct different interpretations of nature-society interactions, and therefore, corresponding policy interventions and governance strategies" (Armitage, 2007: 22) has the potential to re-establish this context around the watershed, thus avoiding a technocratic framing of watershed governance. It can bring into the analysis other social, cultural and political issues emerging from the historical sociocultural experiences of the actors associated with the watershed (Armitage, 2007).

This political ecology perspective, however, needs to be informed by the polycentric nature of the watershed's governance, particularly its scalar politics; this is necessary for understanding how the diverse actors come together around the watershed, and also to comprehend the socio-ecological context and to assess the potential outcomes of programmes (Gruby and Basurto, 2013). Bringing together similar perspectives from the fields of political ecology and critical human geography, Rudestam et al. (2015) propose a social constructionist conceptualisation of the commons in their analysis of the polycentric governance system around a groundwater basin in California. They propose the commons as a dynamic and socially constructed process that underlies the collective management of a natural resource at different scales (akin to levels, as per the definition of scales and levels proposed by Cash et al., 2006).

Rudestam et al. (2015) highlight specific strategic alliances among diverse actors around groundwater in the basin; these are manifested in the form of collaborations and institutional arrangements at different geographic and temporal levels and scales. The authors argue that these scalar alliances depend on how the various actors relate to particular places and to one another based on specific events related to the natural resource. In their analysis, the levels and scales of governance are socially constructed, and different actors' perceptions and actions at these levels and scales depend on constructed social relations and scalar dynamics. One strategic watershed alliance, for instance, may be between upstream and downstream inhabitants who together refuse to share their water with those outside the watershed in response to the building of a dam downstream for supplying water to a nearby city. Among other factors, this alliance depends on how these watershed inhabitants relate to the watershed and to its constituent resources and on how upstream and downstream inhabitants relate to one another and to the city dwellers. The strategic alliance, thus formed, determines the outcome of the collective action.

The conceptualisation of the commons as a socially constructed category, as proposed by Rudestam et al. (2015), can be extended to explain the historical emergence of a watershed as a complex social-ecological system; the watershed's emergence occurs amid the ongoing actions of the diverse watershed actors who come together for different and possibly conflicting purposes. The commons may here refer to the diverse social, political, "natural, cultural, economic, (…) technological [,] (…) and ecological

processes" (Leff, 1993: 49) that constitute the multiple overlapping watersheds, including the physical watershed landscape. These processes are responsible for the dynamic and scalar strategic alliances among the various actors which form to govern these multiple watersheds. By linking complementary theories and perspectives from the fields of polycentricity, critical human geography, and political ecology, the social construction of commons can bring into the analysis both the material reality of the watershed and the social and power relations operationalised around it through discourse (Armitage, 2007).

There are also, however, some concerns associated with a social constructionist perspective, one of which is the identification of relevant watershed actors (Rudestam et al., 2015). How does one ensure that the vulnerable, marginalised, less well-represented sections and groups are included as relevant actors and that their perceptions of the watershed are incorporated into the analysis? Analysis of watershed governance is influenced by both the framing of the watershed problem and the actors identified for analysis; a single outcome may be perceived as a success by some actors and a failure by others. Framing of the watershed problem also has a crucial bearing on the choice of scale(s) and level(s) at which the watershed governance is to be diagnosed; this leads to another concern, that of the choice of scale(s) and level(s) of analysis.

Scalar politics can be observed across different levels; the politics of the spatial scale, for instance, can extend from the local communities to much higher levels of state or region (Rudestam et al., 2015). Like a polycentric perspective, however, approaches based on a conceptualisation of the commons as a socially constructed category may also suffer from lack of comprehensiveness due to the difficulty of capturing the play of power and politics at all scales and levels of polycentric governance. As the following subsection indicates, attending to human subjectivities – drawing from multiple alternate rationalities – and the resulting dynamic commoning can bring a sharper focus to local-level politics.

Socionatural subjectivities and contested commoning

Singh (2017) argues that the Ostrom tradition of commons research – which sought an alternative to Hardin's (1968) narrative of rational and self-interested individuals being responsible for the tragedy of the commons – reproduces the same individualistic narrative as does neoliberal economic theory, and that it does so by identifying the conditions that prevent individuals from degrading a natural resource. Stressing the need to appreciate affective relations as a potential solution to ecological crises, Singh argues that central to the conservation and revival of natural resources is a shift in human striving away from the dominant market logic. She identifies this process of change in human striving as "becoming a commoner", describing it as a move away from utility maximisation towards "alternate ways of being and subjectivities" and towards intimately and affectively relating to the world (Singh, 2017: 762).

Nightingale (2019), however, argues that commoning through the process of creation (or re-creation) of socionatural subjectivities and affective relations is always laden with ambivalence and contradiction of power, the outcome of which cannot necessarily be controlled and directed; Nightingale suggests that it will lead to both expected and desirable outcomes as well as unexpected and undesirable outcomes. The experience of Sukhomajri – one of the most celebrated cases of community-managed natural resources in India – also exhibited such contradictions and ambivalence of power. By the 1970s, Sukhna Lake in Haryana, which supplied water to the city of Chandigarh, had become silted up due to soil erosion from an upstream watershed that included the area around the village of Sukhomajri (Narain, 2000). In order to prevent further silting of the lake, check dams were built in the catchment around Sukhomajri and equitable distribution of water from these dams was ensured among the local communities. This led to cooperation by local communities, who refrained from grazing their livestock in the nearby forest, which in turn facilitated forest rejuvenation. Local communities also benefitted from increased water availability. In 1985, the forest department gave joint grass-cutting rights to the people of Sukhomajri and those of the neighbouring village of Dhamala, which led to increased benefits for people from these

two villages. However, Narain (ibid) highlights the conflicts that arose between the two communities; members of the respective villages belonged to different caste and class groups and the villagers in Sukhomajri believed that the forest department's division of the forest had led to unequal access. Still later, privately owned borewells were dug by individual households in Sukhomajri; this and other external factors made the grass-cutting enterprise less attractive. In the ensuing years, the socionatural relations of the local communities with the forest and the dam water have also undergone transformations; this has highlighted the challenges of the commoning process followed in Sukhomajri (Baheranwala, 2011; Moudgil, 2014; Sengupta, 2017).

The process of commoning is transitory and partial; it does not necessarily benefit every group within the local community (Nightingale, 2019). Observations of the experience of other participatory watershed programmes in India also affirm that commoning has reproduced existing social norms and has led to the exclusion of marginalised and vulnerable sections of local communities (Kerr, 2002; Chhotray, 2011b; Daftary, 2014). A feminist political ecology (FPE) take on commons and commoning by Nightingale (2019: 18) identifies commons as "political communities"; it suggests that the process of defining the community is one of constant negotiation. She further argues that "as political communities commons is not a resource or place, but rather a set of more-than-human, contingent relations-in-the-making that result in collective practices of production, exchange and living with the world" (ibid). These commoning relationships are also intersectional in that, "gender, race, ethnicity, caste, age, disability among others entwine together to shape how individuals experience power" (ibid). The exercise of power is therefore critical to commoning around a natural resource. Pointing out conflicts and contradictions of power in a case of community forestry in Nepal, Nightingale argues that the process of commoning "creates socionatural inclusions and exclusions, and any moment of coming together can be succeeded by new challenges and relations that un-common" (ibid: 30).

Observing the process of commoning in a community-based watershed governance system from an FPE perspective can also bring in a much more nuanced understanding of power relations and micropolitics in the context of local culture and traditions. FPE scholars argue that human subjectivities are at the core of socionatural relations and thus are at the heart of any kind of commoning around a natural resource (Singh, 2017; Clement et al., 2019). Nightingale (2011: 123) defines subjectivities as "ways in which people are brought into (…) [or subjected to the] (…) relations of power"; she suggests that subjectivities form a "part of how identities emerge". Subjectivities of individuals or groups in a decentralised, participatory watershed programme, and the enactment of institutions, rules and norms in that context, draw from multiple alternative rationalities that are not necessarily captured by the rational choice theory of institutionalism. These alternative rationalities may instead be based on "relationships, motivations, and emotions" that are not directly related to the watershed; however, they may motivate subjects to act in specific ways around the watershed (Nightingale, 2011: 120; Nightingale, 2019). Individuals may also exhibit different and contradictory subjectivities depending on the spaces and places they inhabit, and they may thus act differently in different situations (Nightingale, 2013). Insight into what makes individuals and groups agree to certain decisions and act in specific ways in terms of their participation in watershed governance can be gained from studying the embodied subjectivities of individuals and groups in local watershed communities and observing how these subjectivities change during decision-making processes around watershed governance and in relation to its governing institutions.

Despite their significance, however, changing human subjectivities and their relationship to commons governing institutions have received inadequate attention in commons scholarship (Agrawal, 2003). A more significant engagement with how these subjectivities influence, and are influenced by, watershed governance arrangements is thus crucial for future research work. Analysis of the socionatural relations and commoning-based perspectives around watersheds can provide important insights into the uneven power relations and politics at local levels. A polycentric system of watershed governance with several decision-making centres, however, is bound to have diverse actors operating at much higher than the

local level, something which this approach may not adequately capture. These higher-level actors can wield significant decision-making power over local actors, leading to decisions that can be insensitive to local relationships (Lebel et al., 2005).

CONCLUSION

Watershed development and management has emerged as a major sustainable development strategy across developing countries. With diverse actors at different levels and scales, dynamics of scale and issues of uneven cost-benefit distribution are frequently observed across different watershed governance contexts. The play of power and politics in watershed governance, which in this paper is presented for the Indian context, can have valuable lessons for other contexts where similar issues of inequity and scalar dynamics are being faced. Diagnosing these issues requires an explicit focus on the power relations and politics among the diverse watershed actors. In the commons scholarship, implementing perfectly polycentric governance systems is considered to be the most appropriate way to deal with a complex and polycentric social-ecological system such as a watershed; polycentric governance systems, however, face similar challenges from pre-existing structural inequalities, excessive bureaucratisation, and a lack of political spaces for democratic decision-making which restricts citizens' participation.

Commons literature that is concerned with analysing complex social-ecological systems, however, has remained focused primarily on the institutional aspects of natural resource governance, without significantly engaging with the operationalisation of power and politics. An institutional approach generates valuable insights, but it may be ill-equipped to explain the play of power and politics, and therefore may not comprehensively diagnose a complex polycentric social-ecological system like a watershed. A political ecology inspired social constructionist conceptualisation of the commons perceives it as being comprised of multiple and dynamic social, political, ecological, economic, technological and cultural processes which constitute the watershed and are at the same time responsible for the dynamic scalar commoning among the diverse watershed actors; such a social constructionist conceptualisation can facilitate a much more nuanced analysis of how power relations and scalar politics play out in watershed governance. Attention to the changing human subjectivities of the diverse actors, which motivate them to act in specific ways around the watershed, can also further strengthen this analysis by zooming in on the micropolitics of commoning at play in participatory, decentralised watershed programmes.

With all its merits, however, the suggested approach needs to be refined through further research if it is to act as a robust diagnostic framework for understanding the play of power and politics in the governance of complex social-ecological systems like watersheds. While focusing on the relations of power and politics, future studies can gain from an examination of two aspects of watersheds: how do changing human subjectivities interact with watershed governing institutions and what are the implications of this interaction for watershed commoning; and, how has the emergence of the watershed through diverse cross-scalar commoning processes shaped its governance. Integrating power relations and politics with an analysis of governing institutions is critical to a comprehensive diagnosis of natural resource governance.

Future studies may help identify the critical elements of analysing watersheds through a social constructionist approach. These elements may include: who are the watershed actors; what is the watershed problem; and which levels and scales of governance need to be analysed. Watershed analysis needs to attend to the multiple levels and scales of its polycentric governance. The simultaneous capturing of both micro and macro pictures of how power relations and politics play themselves out around the watershed can pose a significant challenge to the analysis of watershed governance.

This review does not dwell on the appropriate scales and levels at which to highlight power and politics in watershed governance; however, the choice of scale(s) and level(s) is crucial for analysis given the

polycentric nature of governance. Appropriate choice of scale(s) and level(s) is necessary if analysis is to include a comprehensive knowledge around the watershed with plurality of perspectives. Ensuring that watershed diagnosis includes a plurality of perspectives is also an objective of the proposed social constructionist approach to helping watershed governance become more democratic and participatory. Rather than reducing the watershed governance to a decontextualised technocratic problem, the complexity of the watershed and its governance can be restored and maintained by studying its emergence through multiple socially constructed processes that are mediated through dynamic, contested interaction among diverse watershed actors.

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