Unpacking Participatory NRM

Distinguishing Resource Capture from Democratic Governance

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Abstract

This paper identifies factors that determine whether participatory NRM leads to resource capture or democratic governance of natural resources. The concept of participatory NRM is unpacked using literature and examples from IDRC-sponsored research projects. It is argued that the performance of participatory NRM depends upon the mixture of stakeholders involved, and how NRM addresses both the shared objectives and stakeholder incentives. Thus, evaluations of participatory NRM depends upon stakeholder-supported interpretations of: (1) the efficiency, equity, and effectiveness of participation in achieving outcomes; (2) the rights, responsibilities, and role of each stakeholder in the process; and (3) the scale, scope, and structure of the management process. Whether participatory NRM leads to democratic governance or resource capture depends on which stakeholders are included, whether there is empowerment of disadvantaged groups, and what is the distribution of power, benefits and costs among actors.

Five key insights for designing future initiatives in participatory NRM are presented. To facilitate the emergence of democratic governance, participatory NRM must seek a mixture of stakeholders that reflects wider society where the process remains tractable, but has sufficient participation to achieve shared objectives. The appropriate scale, scope, and structure for participatory NRM shift over time as stakeholders learn, rights and responsibilities are redistributed, and roles change. Such changes prompt a shift in the structure of NRM where both the internal hierarchies of government agencies and the local networks of grassroots organizations become secondary to hybrid networks among multiple stakeholders. Government agencies must scale down and grassroots organizations must scale up to fit. Effective facilitators must foster dialogue among stakeholders regarding each other's rights, responsibilities and roles, and seek opportunities for experimentation and adaptation.

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Introduction

A participatory approach that seeks to involve multiple stakeholders in natural resource management (NRM) does not guarentee more equitable and effective outcomes in practice. Research has shown that people can and do organize to promote collective action for managing natural resources held in common (Ostrom 1992, 1990). This research has identified governance principles for forming institutional arrangements and elavuated case studies to validate this list and provide insight into how common property users define their membership, exclude outsiders from resource use, and monitor each other's activities, distribute costs and benefits, and reduce incentives for free-riding (Dietz et al 2003, Agrawal 2002, Singleton 1999). Nonetheless, the relative value of scarce resources can also prompt powerful

groups within society to assert control over and capture natural resources in order to appropriate wealth and enhance their position (Khagram et al. 2003, Homer-Dixon and Percival 1996) and participatory NRM can either empower local people to make their own decisions or reproduce existing power inequities (Ribot 2003, Sithole 2002, Edmunds and Wollenberg 2001, Chambers 1995). Thus a key challenge for NRM research is to unpack participation to distinguish initiatives that lead to resource capture from initiatives that democratize NRM for those people whose livelihoods directly depend on access to natural resources.

When NRM decisions are made without due consideration for people dependent upon the resource being managed, then management will be unsustainable and place an undue cost upon these people, such as loss of access to resources, poorer environmental quality, and greater financial expense (REFN?). Equity is of great concern in a world marked by great gaps in wealth, power and opportunity.

This paper unpacks participatory NRM using literature and examples from IDRC-sponsored research projects. The following sections describes how the performance of participatory NRM depends upon the mixture of stakeholders involved, and how NRM addresses both the shared objectives and stakeholder incentives. Later sections descibe the challenge of the evaluation of participatory NRM depends upon stakeholder-supported interpretations of: (1) the efficiency, equity, and effectiveness of participation in achieving outcomes; (2) the rights, responsibilities, and role of each stakeholder in the process; and (3) the scale, scope, and structure of the management process. Finally five key insights are presented for designing future initiatives in participatory NRM.

Unpacking Participation

Participation is a process through which a powerful stakeholder begins to share responsibility with other interested stakeholders. The powerful stakeholder, often a governmental agency, may voluntarily seek the participation of others, or it can be coerced to accept such input. For example, in Mexico, watershed councils are promoted by the National Commission for Water (*Comision Nacional del Agua*) as a means to implement integrated water management, yet protests by producer groups and NGOs forced the National Institute of Ecology (*Instituto Nacional de Ecologia*) to accept a consultative council for the Terminos Lagoon Protected Area (Currie-Alder 2004). As such, participatory NRM encompasses a spectrum of power relations among stakeholders stretching from an extreme where control over natural resources is concentrated in a single powerful stakeholder to another extreme where other stakeholders inform, influence, or perform NRM (Figure 1). Towards the midpoint of the spectrum, no single stakeholder can act unilaterally, instead management actions and decisions must be negotiated.

INSERT FIGURE 1

Participation may occur formally or informally. In addition to formal recognition on behalf of the powerful stakeholder, participatory approaches can create informal situations where other stakeholders fulfil responsibilities for performing tasks. For example, on the northern coast of Mexico's Yucatan peninsula, the *Actanchuleb* reserve was established by local fishers and lies outside the formal state and national-level protected areas (Chuenpagdee et al. 2004, Fraga et al. 2002). Such examples set a precedent and can establish a custom of participation that can cause stakeholders' expectations to increase over time. Stakeholders can feel empowered to acquire a greater role or new responsibilities; thus participation can create positive feedback and an initially weak form of participation may evolve into a stronger form.

Participatory approaches can be promoted from the bottom-up, top-down, or a combination of both. In top-down approaches a powerful stakeholder seeks to share responsibilities, while in bottom-up approaches stakeholders pressure for a greater role in management or share responsibilities in the absence of an existing authority. Government convened advisory boards are top-down, while NGO-led initiatives and community-based NRM are tends to be bottom-up, and co-management regimes combine top-down

and bottom-up approaches. Yet participatory approaches to NRM are context specific, making comparisons difficult. Different authors have proposed different typologies for participation (Borrini-Feyerabend 1996, Pretty 1995, Biggs and Farrington 1991, Arnstein 1969), yet these are more useful for conceptualizing participation rather than distinguishing between real-life examples. Indeed, the key to understanding participatory approaches lies in appreciating the details and nuances of relationships among stakeholders.

Identifying Stakeholders

'Stakeholders' are individuals or groups who stand to lose or gain from the management process and thus possess some form of personal investment in NRM outcomes. Often this 'stake' considered is a livelihood dependence on the resource in question, yet the nature of a stakeholder's relationship to these resources can change over time as peoples' interests and positions are fluid and dynamic. Participants can switch 'stakes' and stakeholders can change roles depending on changes in their understanding of each other and of the dynamics of the natural resource base. For example, in the Cahuita protected area or Tambogrande (Weiztner 1999)

Not all stakeholders are equal, and there is no simple distinction between who is and is not considered a stakeholder in participatory NRM. An extremely broad definition includes anyone dependent on or concerned about the natural resource management, yet an extremely narrow definition focuses on those groups or individuals that self-organize in order promote their own interests and concerns and that are willing to assume some responsibility within management process (Borrini-Feyerabend et al 2000). Stakeholders can be powerful individuals or groups that have a significant influence on NRM, and may include wealthy landowners, industry, and government. Stakeholders may have had a previously restricted or unrecognized role in the formal management process. Such stakeholders may include non-governmental organizations (NGOs), indigenous peoples, and civil society in general. The inclusion of these stakeholders may result from governmental NRM agencies opening spaces for participation or from stakeholders asserting themselves on the political stage as a social force to be reckoned with. In the Social Analysis System, Chevalier suggests using the criteria of (2003) power, interests, and legitimacy to distinguish the degree of saliency of potential stakeholders. This method offers the potential to reveal the complexity of social reality at a given moment; yet by exploring stakeholder perceptions, the method can also influence how people perceive their situation and must be repeated to capture how these relationships change over time.

Shared Objectives vs. Stakeholder Objectives

Participatory NRM must consider what motivate peoples to participate. Bulkeley and Mol (2003) describes four goals for adopting participatory NRM: (1) to bridge scientific and experiencial knowledge, (2) to clarify stakeholder perceptions of the problem, (3) to promote learning, and (4) establish commitment among stakeholders. These goals are perceived to be superior to unilateral action on behalf of any single stakeholder, and require stakeholders to share their perspectives, interests, values, knowledge, or acceptance of the management process. Nonetheless, it is essential to ask what motivate a stakeholder to share, especially when there are powerful incentives against working together –such as inequalities in power, wealth, access and control over resources– or when stakeholders are unaware of either the potential benefit of collective action or the collective cost of noncooperation (Singleton 1999). Thus participatory NRM must balance *shared objectives*, intended to achieve a collective benefit for multiple stakeholders, and the *stakeholder objectives* including the more personalized benefits that motivate individuals and groups to participate.

INSERT BOX 1

Shared objectives can include improving the understanding, legitimacy and capacity among multiple stakeholders (Box 1), yet stakeholders also become involved in participatory NRM as a means of achieving more personal goals. For example, individual stakeholders can seek *prestige* and the recognition of others, *training* to acquire needed technical and administrative skills, *entitlement* to access and use resources upon which their livelihood strategies depend, or to maintain their cultural *identity* and practices related to resource use. (USE SPECIFIC EXAMPLES OF EACH). The combination of shared objectives and stakeholder incentives represent the value-added of participatory NRM in comparison to a more centralized management process. Both shared objectives and stakeholder objectives are often implicit in the decision to adopt a participatory approach, yet these objective must be stated explicitly and revisited periodically to ensure stakeholders commitment.

Such incentives for participation are balanced against incentives for resistence, conflict and confrontation. Stakeholders who lack formal power may opt for more covert forms of social negotiation ranging from protest to sabotage in order to strengthen their voice and assert their rights to resources (Henne 2002, Sithole 2002). Thus, the existence of participatory initiative is insufficient to guarantee the involvement of all relevant stakeholders, and facilitators must strive to make participatory NRM inclusive and sufficiently attractive that stakeholders value the process over alternate forms of social negotiation. Moench (2002) states that people with diverse livelihood options are more invested established NRM processes and are less likely to seek social change through protest; nonetheless, stakeholders may still pursue alternate forms of negotiation while involved in participatory NRM, especially if such action enhances their position (Singleton 1999, Haenn 1997). For example, Henne (2002) describes how local people in the Autlan valley, in the Mexican state of Jalisco, used public protest and threat of violence to force government action and increase their voice within a multistakeholder watershed council.

An appreciation of stakeholder objectives, both for and against participation, and a dose of creativity can facilitate a participatory NRM even under apparently adverse conditions. Understanding the incentives that motivate stakeholders is essential in Latin America and the Caribbean given the region's active civil society and historical practices of social protest. As the complexity of management challenges surpasses the capacity of governmental NRM agencies, new niches have opened for non-governmental stakeholders to take a more active role in NRM. Yet if the motivations of these new stakeholders are ignored, they can lose their desire to participate.

Evaluating Participation

The success of participatory NRM depends, in part, upon the extent to which participatory NRM achieves shared objectives and responds to stakeholder incentives; nonetheless, there are other means of evaluating participation. For example, Conley and Moote (2003) suggest that participatory NRM be evaluated by monitored three categories of outcomes, including improvements in the participatory process, environmental quality and social-economic conditions. Such evaluations cannot be value-free and impartial; instead they must be foster reflection and learning among stakeholders through group discussion and other shared activities. In particular, it is useful to explore stakeholder understanding of certain key concepts. In the participatory evaluation method of 'Outcome Mapping', participants build towards consensus on team vision, mission, boundary partners, progress markers, and monitoring (Earl, Carden and Smutylo 2001). Participatory NRM is enhanced when participants discuss and have mutually compatible understanding regarding: (1) the *efficiency*, *equity*, and *effectiveness* of participation in achieving outcomes; (2) the *rights*, *responsibilities*, and *role* of each stakeholder in the process; and (3) the *scale*, *scope*, and *structure* of the NRM process.

Achieving Outcomes

In evaluating participatory NRM it is essential to understand that different stakeholders can have different notions of *effectiveness, equity* and *efficiency.* Fostering dialogue on the meaning of these criteria can improve stakeholder understanding of participation and suggest indicators for monitoring the process.

Effectiveness is the extent to which participatory NRM achieves desired outcomes, including the extent to which participatory NRM both satisfies shared objectives and individual stakeholder objectives. For example, the Sustainable Development Consultative Council (*Consejo Consultivo de Desarollo Sustentable*) in Tabasco, Mexico appears to be efficient and equitable, as this Council operates with little funding and all stakeholder representatives have ample opportunity to contribute to group discussions. Yet the absence of a single key stakeholder, in the form of the state legislature, means the Council is ineffective as its proposals are seldom implemented (Currie-Alder 2004). Even in the absence of improved environmental quality or changes in stakeholder behaviour, participatory NRM may be considered effective if it contributes to the shared objectives of understanding, legitimacy, and capacity.

Equity is the degree of fairness in the distribution of costs and benefits among involved stakeholders in achieveing the outcomes of participatory NRM. Different stakeholders can have different notions of fairness. Equity can mean an *equal* share in costs and benefits among each stakeholder, a *proportional* share based on the extent of a stakeholder's participation in the process, or a *situational* share depending on a stakeholder's needs or dependence on the resource. For example, in Andean irrigation systems managed by indigenous people, Trawick (2003) observes that in times of abundance water is distributed in proportional shares according to each farmer's position in the social hierarchy, yet in times of scarcity available water is distributed in situational shares depending on the size of farmers' fields. Measuring equity requires defining the criteria used for valuing and distributing the resource. When participatory NRM is supported by international donors, participation is expected to lead to improved resource access for the poor and empower disadvantaged groups in order to obtain greater voice in NRM (IDRC 2004, DFID 2002).

Efficiency is the ratio of management outcomes to the costs of achieving those outcomes. There are multiple definitions of efficiency, however, including *Pareto efficiency*, where improved outcomes ensure that no stakeholder is adversely affected, *Kaldor-Hicks efficiency* where those who benefit from an outcome compensate those who are adversely affected by it, and *allocative efficiency* where resources are allocated to maximise the net benefit attained through their use (Wikipedia 2004). For example, one study of the El Angel watershed in Ecuador, considers the ratio of income generated to quantity of water used in agriculture and is thus a form of allocative efficiency (Evans et al. 2003). In practice, measuring efficiency is complex as it invloves defining which outcomes and costs are considered and assigning comparable values to each. For example, desirable outcomes can include generating management plans, building trust or social capital among stakeholders, enhancing the economic value of natural resources used, or maintaining environmental services, while costs can include the financial costs of supporting the management process and the costs of stakeholders' time, energy, and personal expenses. Considerations of efficiency depend upon the timeframe considered. Participatory NRM is generally assumed to require greater shorter-term costs to set up than more centralized NRM, yet result in longer-term benefits and avoid potentially costly resolution of disputes resulting from centralized NRM. For example, Agrawal and Gibson (1999) argue that local networks are more effective than distant legal systems for resolving NRM conflicts, while Alurride et al (2002) note that the lack of legitimacy and stakeholder support lead to the costly repeal of national water legislation in Bolivia.

Stakeholder Participation

How stakeholders are involved in participatory NRM is at least as important as the outcomes achieved. Participatory NRM must engage and negotiate multiple perspectives on, and relationships to, natural resources held by different stakeholders. Thus, participatory NRM is a political activity in which the representation of stakeholder interests and the accountability of decision makers are vital to achieving outcomes (Chhotray 2004, Agrawal and Gibson 1999). Indeed Olson proposed that efficient and equitable outcomes in public choice processes, of which participatory NRM can be considered a special case, result when the mix of stakeholders involved is representative of the collective interests of society (1982, 37). As an entry point for engaging the politics of stakeholder interaction, successful participatory NRM fosters dialogue among stakeholders towards understanding each other's *rights*, *responsibilities* and *roles*.

Rights are the entitlements that each stakeholder possesses -including property, cultural, and legal rights- that define their relationship to natural resources. Rights provide a means of distinguishing stakeholders based on the level of control over or connection to a particular natural resource. Property rights include claims to use, manage, or alienate natural resources (Agrawal and Ostrom 2001, Schlager and Ostrom 1993). For example, each member of the fishing cooperative in *Actamchuleb* reserve has a right to fish within the reserve, a network of local elders, known as the *Fuerzas Vivas*, has a quasi-formal right to manage the reserve, but cannot sell or give away these fishing grounds (Chuenpagdee et al. 2004, Fraga et al. 2002). Property rights may be *de jure*, formally recognized in law or written agreements, or *de facto*, practiced by stakeholders without formal recognition of those rights by others (Ostrom 1992). Cultural and legal rights may also influence the relationship between actors and natural resources, for example many indigenous groups have preserved or reinvented a culture of living within the landscape that grants its members a social licence to interact with natural resources even in the absence of formal recognition to do so by government agencies (Singleton 1999). The absence of rights –whether property, cultural, and legal– is not sufficient reason to exclude potential stakeholders from participatory NRM when disadvantaged groups and other stakeholders have interests and needs that are tied to their acesss and use of these resources. Nonetheless, discussion of formal and informal rights can enrich stakeholder understanding and assist in assessing whether key stakeholders are excluded from management or whether some stakeholders participate in a disproportionate or inappropriate manner.

Responsibilities describe how stakeholders contribute to the management process, including the activities they perform and the support they give to the process. Where rights describe what a stakeholder is entitled to do, responsibilities describe the activities a stakeholder performs. In weaker forms of participation, stakeholders are merely responsible for informing NRM authorities of their perspectives and interests, while in stronger forms of participation stakeholders take responsibility for tasks such as convening meetings, collecting and analyzing data, budgeting, planning, and/or allotting resource use.

Roles are defined by a stakeholder's responsibilities and describe their overall purpose in participatory NRM. Roles describe how stakeholders perceive their participation and are defined by the sum of the responsibilities they fulfil. While stakeholders can include local people, NGOs, producer groups, and government agencies, any of these groups may play a range of roles such as decision-maker, planner, data collector, enforcer, advisor, critic, etc. Roles imply both the degree to which a stakeholder participates in the NRM process and the relative influence he or she has in decision-making.

Roles and Responsibilities can change over time. Stakeholders may initially adopt a role of critic and take responsibility for identifying weaknesses in existing policies and practices; yet as participation matures, stakeholders can feel empowered and adopt new roles, such as planner or data collector. The dominant managerial role of government NRM agencies is challenged with the inclusion of other stakeholders. As participation matures, government NRM agencies must adopt a new role to coordinate activities and facilitate communication among others who fulfill management responsibilities. With experience and

learning, over time stakeholders can renegotiate their rights, acquire new responsibilities and adopt new roles.

Nature of Management

The nature of NRM is potentially transformed by the participation of stakeholders. The diversity of perspectives and interests that different stakeholders contribute to participatory NRM reveals how the natural resources are connected to other social and ecological processes. Participatory NRM may begin with a narrow focus on a single resource within a defined geographic space, yet meaningful participation will challenge these boundaries. Without understanding these potential consequences of participatory NRM, stakeholders may feel frustrated as the *scale*, *scope* and *structure* of management shift over time.

Scale is the spatial and temporal boundaries of management, or the expanse of management in time and space. The temporal and spatial limits of management are challenged both by greater understanding of ecological processes and the diversity of perceptions and interests brought to the table in a participatory approach. For example, the Carchi Consortium, a multistakeholder forum for discussing NRM issues in northern Ecuador, initially focused on subsection of the El Angel watershed. Yet as researchers learned the importance of local conflicts over water, and local people became more involved, the Consortium extended its boundaries to consider the higher elevation *Páramo* wetlands (Poats et al 2002). Such *scale-forcing* is to be expected in participatory NRM when stakeholders learn how different natural resources are embedded in multiple processes extending across time and space (Holling 2001, Lovell et al. 2002). This *scale-forcing* potential for expanding NRM boundaries is particularly prominent with highly fugitive or mobile resources, such as wildlife and water, that cut across political and administrative boundaries. Additionally, as the interests of different stakeholder have different geographical footprints, the overlap of these footprints in participatory NRM can also force management to consider larger scales of time and space.

Scope is the conceptual and institutional boundaries defining what and who is considered in management: the resources managed, the goals of NRM, and the stakeholders involved. Where scale describes management in time and space, scope describes what is to be managed and by whom. Scope expands when more stakeholders become involved, and the overlap of stakeholder interests can expand the scope of the NRM process to include additional resources, challenges and objectives. For example, the Terminos Lagoon Protected Area in southern Mexico was established by a presidential decree which states that the area's purpose is to protect wildlife habitat, yet the involvement of local stakeholders in designing the management plan expanded the scope of the NRM to encompass additional goals related to regulating activities in the oil industry and promoting community development (Currie-Alder and Day 2003).

Scale and scope can combine to force a continually expanding management horizon. As more actors introduce more objectives and more resources into the management process, these objectives and resources force management to consider larger temporal and geographic scales. As mentioned above, the scale considered by the Carchi Consortium, shifted to consider the Paramo ecosystem and adjacent watersheds. Yet this shift in scale also triggers a shift in scope, as the new scale forces the Consortium to engage new stakeholders initially excluded from the process, such as large landowners, the provincial government and the municipal governments (Waldick 2003).

Expanding scale and scope will encounter a limit, however, as transaction and information costs of participatory NRM increase. It takes time and energy for stakeholders to meet and decide how natural resources are to be managed, and these costs increase as more stakeholders enter the process and are spread over greater distances. Additionally, the understanding of natural processes over larger scales –or

even the data to describe these processes– may simply not exist. Institutional constraints or arbitrary decisions may determine the limits to expanded management scale and scope. Scaling-up management to encompass larger geographic areas can depend upon the participation of a key stakeholder and a barrier is reached if they cannot be enticed into participating in the process. In such situations, participatory NRM must either remain at a more restricted scale and scope, or invest time in building relationships and courting the participation of the key stakeholder.

Structure describes the relationships between stakeholders, including the flows of information and decision-making. With participation, the NRM process undergoes a structural shift away from hierarchies,contained within a single organization, towards networks connecting multiple stakeholders. Centralized NRM concentrates responsibilities within a single organization, often a government agency, that has pronounced internal hierarchy. Through participation, the flow of information and management responsibilities initially contained within this single hierarchy are distributed among other stakeholders. These new stakeholders may have more horizontal internal structures -such as ejidal assemblies in Mexico or many NGOs- or they may possess their own internal hierarchies -such as municipal governments, other governmental NRM agencies, or universities. Nonetheless, participatory NRM implies that the hierarchies within organizations become secondary to network relationships between different stakeholders. Top-down approaches operating with hierarchical structures must shift to a more horizontal network structure where responsibilities and roles are more freely shared with others. As stated by Das Gupta et al (2003), participatory NRM depends on building dense networks among stakeholders at different levels.

The network among stakeholders that exists within participatory NRM requires that powerful stakeholders surrender some control over the management process. With greater sharing of responsibilities among multiple stakeholders, it is increasingly difficult for any one stakeholder to dominate NRM. As the network develops, stakeholders can question conventional assumptions and practices. Going participatory can be perceived as threatening to agency control as outcomes do not necessarily coincide with existing policy and programs. Ironically, this reduced control over the management process may cause such a powerful stakeholder to resist or withdraw from participatory NRM precisely when social learning begins. It is thus necessary to enter participatory NRM with a degree of flexibility. Government agencies must define a set of core values which are non-negotiable, such as the framework of existing legislation, but accept that other aspects of NRM may be transformed through meaningful participation.

Insights

Participation can transform the nature of management. As stakeholders learn and take on greater responsibilities, participation can transform the scale, scope, or structure of NRM. Such transformation can be positive despite causing frustration for conventional NRM authorities accustomed to controlling the process. Assuming the mix of stakeholders involved is representative of society, participatory NRM becomes a form of decentralized, actively democratic governance. To distinguish whether participatory NRM leads to democratic governance or resource capture depends on which stakeholders are included, whether there is empowerment of disadvantaged groups, and what is the distribution of power, benefits and costs among actors. Olson's coalitions (1982) represent two extremes, the distributional coalition being resource capture by an elite for private benefit, and the encompassing coalition is representative of society's interests and leads to democratic governance. In practice, participatory NRM is often somewhere in between these extremes as not everyone is a stakeholder, nor are all stakeholders necessarily interested in all aspects of NRM.

To facilitate the emergence of democratic governance, participatory NRM must seek a mixture of stakeholders that reflects wider society. Initially as each new stakeholder enters the process, there is a high marginal benefit from their participation since their inclusion adds a significant proportion of perspectives and interests excluded from centralized NRM. Yet as the number of stakeholders increases, the marginal benefit towards achieving the shared objectives of particpatory NRM is reduced. There can be a point of diminishing returns after which additional involvement of new stakeholders no longer justifies the additional costs in logistics, communication, information, and negotiation. Forming encompassing coalitions, therefore, is a matter of finding a balance where participatory NRM remains tractable, but has sufficient participation to enrich the management process and achieve shared objectives. Determining this point of optimal stakeholder participation depends upon the costs and benefits considered, and the outcomes considered in evaluating the process. Participatory NRM encounters barriers when stakeholder are unsure of, or disagree over, the purpose of their participation. Yet dialogue that explores stakeholder perceptions and incentives, and the potential shifts in the nature of management, can reduce frustration among stakeholders and overcome these barriers (Table 1).

Insert Tables 1 and 2

Participatory NRM is not the exclusive domain of grassroot organizations or government agencies. For grassroot organizations, engaging government and powerful stakeholders can enhance the effectiveness of participatory NRM initiated from the bottom-up. Governments can contribute legal support for grassroots-initiated NRM, institutionalizing and making participation less vulnerable to external disturbance. For government agencies, involving other stakeholders can help bridge the gap between government and local commmunity visions. As government agenices surrender some control to new actors, participatory NRM will challenge the existing hierarchies and policies of government agencies. Yet participation also increases the legitimacy and effectiveness of government's role in resource management. Participatory NRM can thus work at intermeidate scales between government agencies and local stakeholders, thus addressing what Khagram et al (2003) call the 'missing middle" of NRM.

The appropriate scale, scope, and structure for participatory NRM shift over time as stakeholders learn, redistribute rights and responsibilities, and change roles. The scale, scope, and structure of participatory NRM depend on context, such as the behaviour of natural resources, the legal framework for participation, the willingness of key stakeholders to participate, and the interests of those involved. In general, the integration of stakeholder persepctives and objectives will force participatory NRM to expand in scale and scope, and shifts from hierarchies to networks. With learning, there is a tendency for the spatial and temporal scale of management to expand outwards, crossing boundaries and encompassing multiple stakeholders each with their own jurisdiction and entitlements. This phenomenon of *scale-forcing* necessitates the inclusion of additional stakeholders and the structure of participatory NRM changes over time. Bottom-up approaches operating with small-scale egalitarian networks must scale up to larger-scale hybrid network structures where the internal hierarchies of government agencies must scale down into the network.

Insert Figure 2

It is necessary to prepare the stage for participation. Participatory NRM needs to tap the creativity and energy of stakeholders to explore and define their own role in management. Yet spontaneous participation can lead to confusion when there is no mutual understanding of each other's rights, responsibilities and roles. Facilitators and champions are needed to assist stakeholders to understand and work effectively with each other. Legislation, economic incentives, markets conditions, and a host of other factors also define the framework within which participation can occur. Effective facilitators will fostering constructive communication among stakeholders regarding each other's rights, responsibilities and roles, and seek opportunities for experimentation and adaptation. In particular, facilitator must work with stakeholders to determine how participatory NRM will be evaluated and building awareness of the potential shifts in the nature of management.

Conclusion

Whether participatory NRM leads to democratic governance or resource capture depends on which stakeholders are included, whether there is empowerment of disadvantaged groups, and what is the distribution of power, benefits and costs among actors. The effectiveness of participatory NRM depends on the extent the process: achieves outcomes related to both shared objectives and stakeholder objectives, builds capacity among stakeholders to fulfill NRM responsibilities, and how adaptative the networks created are to shifts in the nature of management. The performance of participatory NRM depends on evaluation criteria that are internally defined by the stakeholders involved, rather than external measures of success. Evaluating the efficiency of participatory NRM depends upon stakeholders agreeing on the outcomes, costs or time frame to be considered. The appropriate scale, scope, and structure for participatory NRM shift over time as stakeholders learn, rights and responsibilities are redistributed, and roles change. Such changes prompt a shift in the structure of NRM where both the internal hierarchies of government agencies and the local networks of grassroots organizations become secondary to hybrid networks among multiple stakeholders. Government agencies must scale down and grassroots organizations must scale up to fit.

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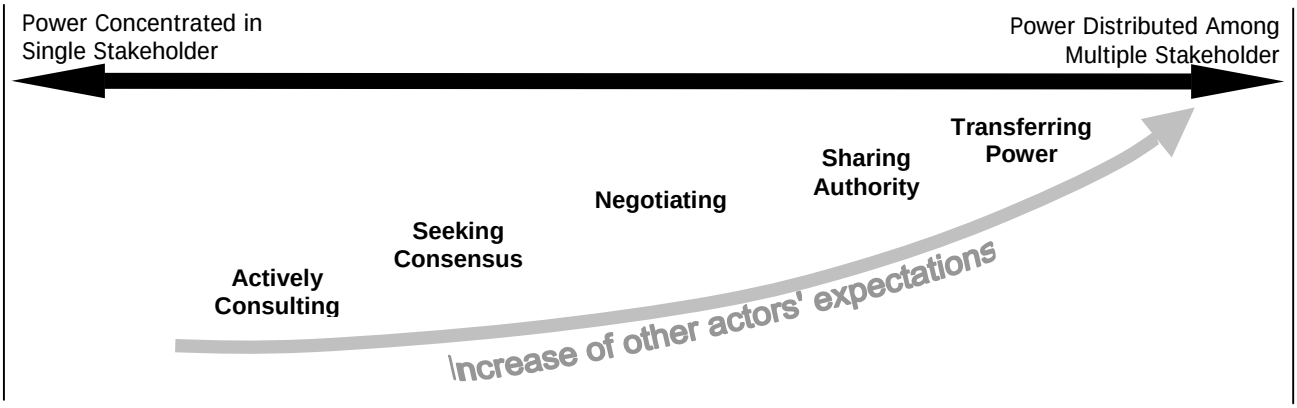

Figure 1: Specturm of Participation
Adapted from (Borrini-Feyerbend 1996, Arnstein 1969).

Box 1: Shared Objectives for Participatory NRM

Understanding Participatory NRM is a means to cope with complexity and share understanding among stakeholders. Holling (2001) describes a paradigm for ecological research that interprets natural and social systems as interconnected 'panarchies' that function simultaneous at multiple temporal and spatial scales. These systems exhibit dynamic behaviour and possess multiple equilibria, two attributes that are neither fully understood nor fully predictable. This paradigm suggests that NRM needs to foster the ability of people and ecosystems to adapt to change, rather than the predictability and control of natural resource yields. By adopting a participatory approach, NRM seeks to improve understanding of such phenomena by incorporating multiple sources of knowledge, information, and values held by multiple stakeholders.

Legitimacy Participatory NRM is a means to build acceptance of the management process among multiple stakeholders. Ideally, participatory NRM allows different voices to be heard, including smallholder farmers, wealthy landowners, industry representatives, and government agencies. Different stakeholders require outcomes that are relevant to their own needs and interests. Participatory NRM can also be a way forward in situations deadlocked by distrust where no single stakeholder has sufficient legitimacy to act alone for managing natural resources. Participatory NRM also accepts management is a political process and explores the distribution of rights to, and power over, natural resources among different stakeholders.

Capacity Participatory NRM is a means to build the capacity of stakeholders to become involved in the management process, including opportunities to gain skills, exchange experiences and share information. As a disproportionate share of the costs and impacts of NRM outcomes are often borne by disadvantaged groups such as the landless farmers, women, indigenous people, unskilled labour, and future generations (Sithole 2002), participatory NRM can also empower disadvantaged groups to define and defend their customary rights and practices related to resource use. Participatory NRM can foster self-governance by increasing the skills of individuals, groups and communities to assume a more active role and gain voice within the formal management process (Allen et al 2002, Chambers 1995).

Table 1: Questions for Unpacking Participatory Approaches to NRM

1. Who participates?	Stakeholders involved in the process.
2. Who does not participate?	Stakeholders excluded from the process.
3. What is the purpose of participation?	The value-added objective sought by involving stakeholders in the process: understanding, legitimacy, and/or capacity.
4. Why do they participate?	The motivations of individual stakeholders to participate in the process and/or abstain from other forms of social negotiation: prestige, training, livelihoods, and/or culture.
5. How do they participate?	The activities shared through participation (i.e. collecting data, conducting research, making allocation decisions, planning, monitoring and evaluation, forming policy, etc.)
6. Are there power imbalances?	Differences in power, capacity and/or authority between stakeholders.
7. Is there scale-forcing?	Change in the scale or scope of management due to learning associated with participation. (i.e. expansion of area or in the natural resources to be managed).
8. What are the barriers to participation?	The obstacles to achieving participation and strategies used to overcome these obstacles (i.e. facilitating a visioning exercise, holding meetings in stakeholders' communities, use of information generated by a neutral agent, etc.)

Table 2: Questions for Evaluating Participatory NRM

Achieving Outcomes	
Efficiency	What is the ratio of management outcomes to the costs of achieving them?
Equity	How fairly does the process distribute costs and benefits?
Effectiveness	How well does the process achieve its desired outcomes?
Stakeholder Participation	
Rights	What are each stakeholder's entitlements to natural resources?
Responsibilities	What tasks do stakeholders perform?
Roles	What is the purpose of each stakeholder's participation?
Nature of Management	
Scale	What is the geographical area and timeframe considered in the process?
Scope	What resources and stakeholders are considered in the process?
Structure	How is the process organized?

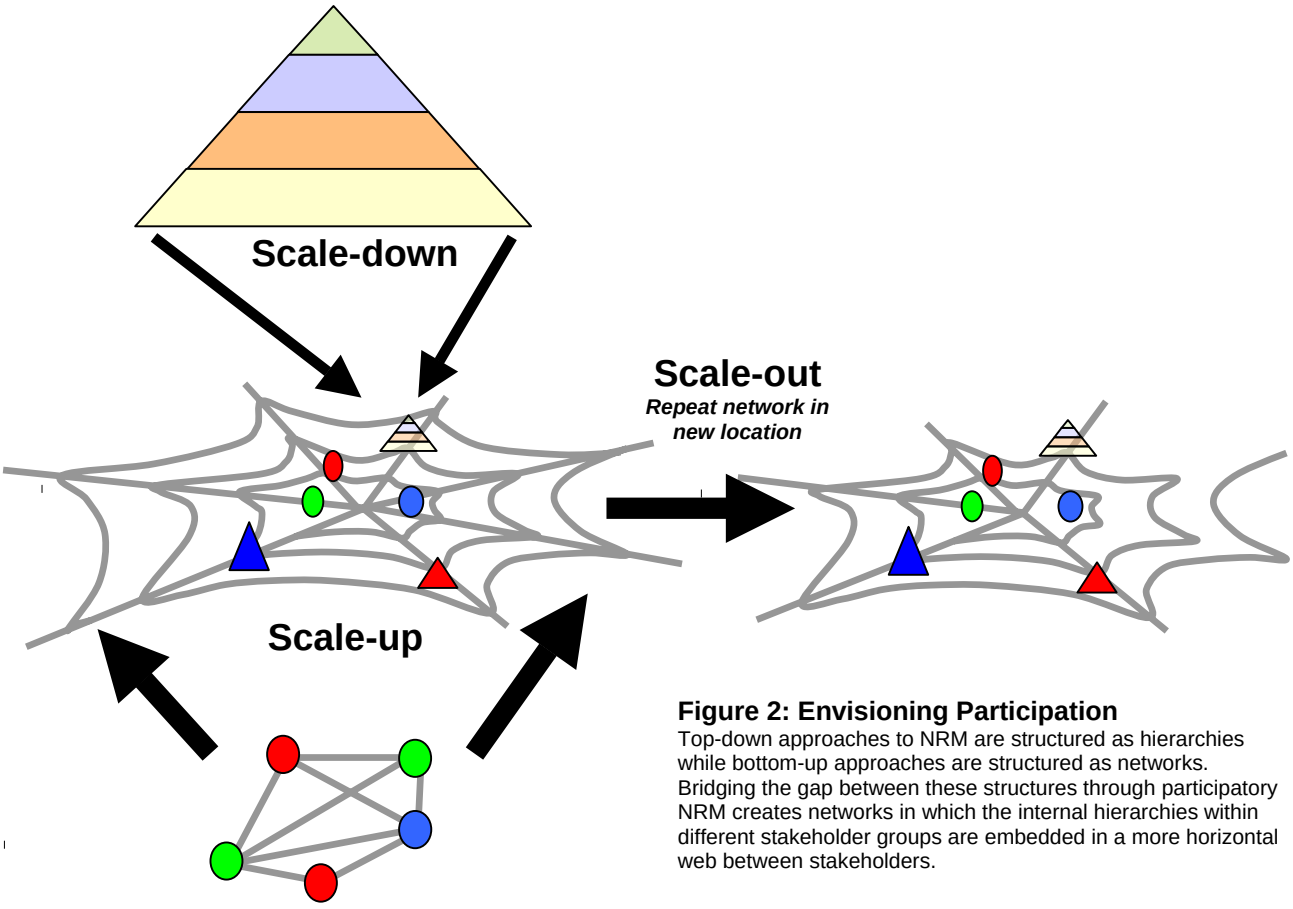

Figure 2: Envisioning Participation
Top-down approaches to NRM are structured as hierarchies while bottom-up approaches are structured as networks. Bridging the gap between these structures through participatory NRM creates networks in which the internal hierarchies within different stakeholder groups are embedded in a more horizontal web between stakeholders.