

The invisible map: Community tenure rights

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ABSTRACT

Land tenure reforms in the world's southern forests is transferring a broad set or bundle of rights to indigenous peoples, local communities and groups to access forestlands and resources, providing initial opportunity for improving the livelihoods of poor forest-dependent communities. The definition of these rights, the marking of how and where they are held, who grants them, and who holds them are not straightforward under the 'classic' tenure system models. The range of land use rights from individual to common property use is obscured. Internal customary practice is also dynamic, changing during different seasons, with new leadership, and often interacting with new rules imposed by external regulations or market opportunities once tenure is granted.

The expansion in the tenure reform in coupled with the development of the visual mapping technology has posed significant demands on local communities to clarify the nature of their existing and desired tenure rights. It highlights a growing need to need to represent these rights in order to both manage and defend them. Community mapping of land use has grown, but existing tools for gathering, organizing and presenting the rights related to land and resource use are scarce and insensitive to the complexity of practice.

This paper presents a framework in which to consider how bundles of rights are distributed between the state, the collective, smaller groups and individuals within communal tenure systems. It then discusses how the framework has been turned into a tool for multi-purpose participatory research at the intra and inter community levels. It makes the case that the tool can help communities themselves give visibility to internal tenure systems 'within the perimeters' of their forestlands. Finally, the paper presents cases that demonstrate how the shifting boundaries among the categories of rights holders are influencing the security of tenure to common property resources.

KEYWORDS: land tenure, forest tenure reform, bundle of rights, communities, customary rights, participatory land use mapping

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BACKGROUND

Over the last 20 years, a little known trend of land tenure reforms has swept across the world's forests. In what has been classified as being between 79% (White and Martin, 2002) and 84% (FAO, 2006) public property under the formal ownership of the state, there has been an official transfer of tenure rights to communities living in over 250 million hectares of forestlands (White and Martin, 2002; Sunderlin, et al. 2008). The trend has been particularly remarkable in Latin America, where 149 million hectares were transferred to communities between 1985 and 2002 in only four countries: Brazil, Bolivia, Colombia and Peru (Taylor et. al. 2007). More recently, Africa and Asia have also transferred rights. The result is that 22% of all forests are owned (14%) or held in reserve (8%) for communities (White and Martin, 2002).

This process of devolution, or so-called 'forest reform' (not agrarian reform) is transferring a broad set or bundle of rights to local communities and groups to access forest lands and resources. At a time when agrarian reform is mostly limited to market transactions, the forest reforms constitute the state transference of enormous resources and potential assets, providing the initial opportunity for improving the livelihoods of usually poor forest-dependant communities.

However, the process of this devolution is problematic, suffering from a tendency to overlook and/or exclude the rights and claims of local actors, often communities with existing systems of de facto or customary practices and self-regulations for access and use of resources (Sikor, 2006, Sunderlin, et al., 2008, Pacheco, et al., 2008). This is particularly true as these are not land driven reforms but resource driven reforms in forest landscapes, where there are multiple existing resources and claimants. The predominantly indigenous land, and extractivist reserves, community forests and community concessions, village forests, being granted legal rights of tenure, have differing patterns of resource dependence, some well established over time, with rights, rules and responsibilities for their use. Natural resource tenure is broader than land tenure. As we will explore below, distinct tenure arrangements apply to agricultural and rangelands, water, wetlands, coastal areas, forests, biodiversity, petroleum and mineral resources.

Rights to different resources pertaining to a piece of land may be held by multiple users, and at different times of the year

When these local systems of resource rights are not considered, the reforms can be laying the grounds for further disenfranchisement of the poor and seeding conflict. Often unintentional, the process of forest tenure reform, land demarcation and titling changes the access, use and decision-making rights in ways that can profoundly affect people's livelihoods, governance structures and quality of life. Local participation in these reforms is a fundamental step, often overlooked during the implementation of even the most well-intentioned efforts.

On the positive side, the legal devolution of forest rights to ancestral or new forest dwellers has spurred the emergence and growth of participatory community land-use mapping (PLUM), used by human rights activists, development practitioners, ethnographers, geographers and even conservationists, helping to expand the opportunities for local communities themselves to participate. Generically speaking, this exercise is one of gathering and transforming cognitive spatial knowledge into maps and description of land uses for the purpose of research and social action (Herlihy and Knapp, 2003).

In the late 1980's some of this participatory focus was linked to development practitioners using Participatory Rural Appraisal (PRA) methods (i.e. sketch mapping), and Participatory Action Research (PAR) that gave preference to eliciting indigenous knowledge and utilizing local community dynamics to facilitate communication internally and with outsiders who were mostly researchers (Chapin, et al. 2008). The goals of the work was *not* to help communities prepare a strategy and course of interaction with policymakers (Rambaldi, et. al, 2008), much less a tool for promoting tenure reform. Civil wars in some countries and regional conflict made the use of official maps a matter of national security.

Changes in the 1990's were path-breaking when modern spatial information technologies became widely disseminated and costs were significantly lowered. Geographic information systems (GIS) and global positioning systems (GPS), coupled with image analysis software, 'piggy-backed' on the development of the personal computer and enjoyed new open access to data via the Internet. With the onset of peace processes and democratization in many of countries, the previously government controlled spatial data was now available to donors, NGO's and grassroots organizations who could begin to utilize the tools that only a decade ago were unreachable, for their own purpose.

When done well, the exercise gives communities a common *spatial* framework – a map- that strengthens their understanding of how physical, social and economic factors interact (DI GESSA, 2008). Community participatory maps are used for a wide range of purposes, but today, most technically assisted mapping projects are used to produce land-use maps as the basis for establishing external boundaries or perimeters, and then deployed as an integral part of a legal procedure for acquiring land rights (DI GESSA, 2008; van de Sandt and MacKinven, 2007), or tenure mapping. This bridging of the technological gap between the state and the local claimants has allowed the latter to take a huge step forward, in presenting or disputing land claims based on their de facto, customary or ancestral rights.

Land-use mapping reveals the bio-physical sphere, delineating distinct land and natural resource uses (agricultural, hunting, gathering, fishing, settlements, sometimes watersheds, tree groves, bird sanctuaries, etc.) often with cultural

designations, such as burial grounds, sacred sites or other ceremonial uses. The spatial rendition of these activities serves as the basis for the negotiation of the perimeters of the land to be demarcated and eventually titled.

Some of the leading practitioners of participatory community mapping have taken the exercise several steps further, using it as a tool for strengthening collective identity and action (Chapin, 2006; Colchester, 2007; Hale and Gordon ;DI GESSA, 2008) In doing so, the PLUM is often deployed as one element in a more complex process applied with the express purpose to empower local communities to coalesce their organization for asserting ancestral land and resource rights and entitlements (Hale and Gordon, Chapin, 2005). Others have evolved the land-use mapping into an internal tool for communities to deploy in their land and resource management and negotiation of changing rights, to ameliorate internal conflict between community groups and higher level authorities, or for hazard mitigation (PGIS, Chapin, 2005). Numerous endeavors have been organized as networks for learning, training and application, expanding the realms of participatory methods offered by the new technology. (eg. <http://www.ppgis.net>, <http://www.pafid.org>, <http://www.nativemaps.org>, <http://www qltn.net>)

It appears that most of the significant effort for developing these mapping practices has been at this interface of the applied technology and local knowledge for spatial renditions of land use (Chapin, et al. 2005; DI GESSA, 2008; Poole, 2006). However, when the effort is oriented toward establishing legal tenure claims, in most cases the underlying system of local rights remains invisible in the negotiations. Spatial maps of boundaries are what are required to establish formal tenure rights: the perimeter. Land-use, with its spatial rendering can help to stake out the coordinates, but system of rights behind them are forgotten when actual demarcation or titling takes place.

Once demarcated or titled, policies and regulations are applied to these areas, introducing new rules, often based on different tenure systems. This is particularly true in forested landscapes currently under reform. In Bolivia, the recognition of large forested territories, called “Community territories of origin” recognized on the basis of original ancestral rights, have to undergo agrarian procedures that document ‘previous claims,’ even though that directly contradicts the intentions of the reforms.

In many cases tenure reforms are based on Northern concepts of “ownership”, in which an individual or legal individual holds all bundles of rights over the land, and other users are not acknowledged. On the other hand, most forest tenure reforms do not turn over the ultimate right of alienation from the state to communities or individuals, and the state may even create additional rules that

can crowd out local tenure systems. In this regard, it is worth noting Scott's (1998) caution against "abridged maps":³

They did not successfully represent the actual activity of the society they depicted, nor are they intended to; they represented only that slice of it that interested the official observer. They were, moreover, not just maps. Rather they were maps that, when allied with state power, would enable much of the reality they depicted to be remade. Thus, a state cadastral map created to designate taxable property-holders does not merely describe a system of land tenure; it creates such a system through its ability to give its categories the force of law (Scott 1998:3).

The consequences are many, including the undesired: promoting confusion, illegality, conflict or increasing poverty. The local institutions that develop support and enforce the rules governing resource use and distribution may either be ignored and bypassed, or made more rigid in order to be recognized by outsiders. Local disenfranchisement or increased tension may be the outcome, where empowerment or conflict resolution was the goal. Thus, the mapping of the systems of existing tenure rights becomes a key step in the process of conducting a reform (particularly a forest reform).

Outside the 'world' of mapping practice and reflection, there is a very large body of literature on the practice of legal recognition of customary land tenure reflecting on the complexity of the challenge and the implication of different practices from the colonial period to date. Without even attempting to summarize or cite it, we would like to mention some particular work we feel can make a contribution to where we want to take this paper. The African experience is especially rich, revealing the challenges of going beyond the state recognition of land perimeters to legislating the interface between customary and statutory land tenure.

Fitzpatrick (2005) provides interesting insights into the best options available for legal recognition of customary tenure systems for the purposes of tenure security, based on examples from Africa, Papua New Guinea and the South Pacific. The range of options are described along the degrees of state intervention from minimalist or simple recognition that the customary exists, to land boards that share decision-making rights with greater state influence. He emphasizes that the 'formal legal order should not unduly restrict or freeze changes in customary tenure systems themselves... as they are in a constant state of reinterpretation and recognition by all parties concerned, including the State itself (Lavigne Delville et. al., 2002 in Fitzpatrick, 2005). Wily (2005) unveils the intricacy of overlapping and often misunderstood systems of the communal, customary, collective and commons found within traditional tenure systems, noting their evolution and resiliency over time.

³ Scott uses "maps" here to refer broadly to state simplifications of complex reality, but it applies also to actual maps.

A larger debate centers on some of these issues, that includes whether the use of GIS and physical demarcation of areas of specific uses, which become the basis of zoning exercises or establish perimeters in effect freeze the rights of people to access and use of forest resources, and 'freeze frame' the areas under conservation and sustained forest cover (Chapin et al., 2006).⁴ Participatory community mapping initiatives also have these problems with the "freezing" of results when legalizing land claims, facing huge obstacles to the official acknowledgement of the internal institutions and the flexible rules. However, although demarcation and titling require fixed points for defining borders and perimeters, the recognition of rights related to the use of particular resources, such as those found in forests, becomes increasingly important for conducting these reforms.

There has been a set of government and donor sponsored mapping initiatives that have been criticized among the community mapping community as reductionist and distorting, and leading to codification in statutory land tenure administration systems of the 'wrong' tenure rules and rights (Cousins, 2007). In order for participatory mapping or other forms of land registration to reflect the complex rights and management systems that have evolved in different areas, we need tools that go beyond demarcating boundaries.

Certainly, participatory land-use mapping has recognized and used the systems of rights embedded in local social structures to understand land-use. Accompanying studies have recorded them and much of the cutting-edge work underway aims to bring recognition into the legal spheres of tenure reforms. It is here where we see the need to embrace the broader concept of tenure as a 'bundle of rights' and take it's conceptual power to the stage of a tool for actual participatory rights mapping, with the express purpose being to complement spatial rendering of zones or perimeters as the fixed and final 'set of points' that define them.

This paper describes and explores the conceptual framework and potential uses of a practical tool for the mapping tenure rights, understood as a "bundle of rights" (Schlager and Ostrom 1992; see also Alchian and Demsetz, 1972; Eggertsson, 1990). The proposal is to develop a common conceptual framework and through a guided process of shaping it in the field with communities, take it to the level of a practical tool for understanding and mapping tenure rights. The effort should be focussed on two basic purposes:

- to help communities complement and go beyond the spatial renditions of their land uses, clarifying the internal system of rights, rules-in-use and responsibilities, or noting where it does not exist

⁴ Chapin, et. al., 2005 lay out the 'sides' of the debate .between, what they call the two camps of techno-positivist GIS-ers on the one hand and the GIS-hating social theorists on the other."

- (when it exists) give the system visibility and credibility for negotiating with the state, any regulatory or normative framework, development project, or private investment being considered.

The conceptual framework of the “bundle of rights” that we will call the ‘Tenure Box’ (see below) needs to be honed through a process of application in the field, where communities will be able to *map and present* their internal systems of rules and regulations that govern their rights in relation to their natural resources, in an easily understood form. Mapping interaction with external change would follow. We argue that a more complete understanding of the nature of these rights of access, use and decision-making is necessary to take this process forward, and that if well designed, the ‘Tenure Box’ could become highly complementary to participatory community land-use mapping as a tool for negotiating tenure reforms. We believe that this effort could prove even more valuable as the basis for the future of the tenure reforms in the forests, where most land is collective/common property and where alienation rights are not given over by the state, where multiple forest resources are used by many groups and where real boundaries may not be fixed, but fluid and shifting.

COMMUNITY LAND USE MAPPING AND THE NEED FOR THE MAPPING OF COMMUNITY RIGHTS.

As mentioned above, participatory community land-use mapping is not new, but its deployment in the process of state recognition of tenure is growing but still experimental. Indigenous groups in Canada and Alaska were some of the first to experiment with utilizing these methods to negotiate land claims with their respective governments (Chapin, et al., 2005). The approaches are varied in levels of participation and degrees of technological sophistication and even approaches (DI GESSA, 2008, PGIS, 2008). For example, three dimensional landscape modelling is more prevalent in Asia at a single community level where plots or watersheds have compact systems of rights; ‘no-name’ methods are more common in Latin America where tenure mapping covers very large collective territories of several communities. In Madagascar Citizen’s Cadastres involve a larger and more diverse population of the concerned area (title holders and neighbours) in delineating the plots and recording their use, publicly and democratically.

In more recently developed participatory methods in Africa, the communities themselves geo-reference the land-use (including wildlife, forest resource and other uses) and compile the relevant –visually coded- information behind each GPS ‘click’ with real time visual displays of their work (Nelson, 2008). This apparently simple activity involves not only technical training and accessing the physical spaces to be mapped, but promoting the intricate social processes of understanding and negotiating to reach a set of agreements between families,

villages, communities or groups of communities on boundaries, access routes, land and resource uses, be they individual, groups or the larger collective.

Experiences from different participatory community mapping networks demonstrate multiple objectives such as: a) leveraging collective action and facilitating local governance, b) identifying, adjudicating and registering land rights, c) improving land-use management, d) supporting land disputes or conflict resolution, e) as the basis for territorial planning (DI GESSA, 2008). Disaster mitigation has also become a goal for this tool.

Our interest is in how these exercises can illuminate the dimension of local knowledge and systems of rights that organize the rules for resource use and bring them into the process of land and natural resource claims, demarcation and titling; and in how such local knowledge and rights systems are shaping the nature of the forest tenure reform and other land titling events. We observe how their inclusion allows the construction of the area (forestlands) under consideration to be done on the basis of local knowledge and social criteria, building on these institutions as a basis, not only for titling, but for the constant interface with the state.

As most of these areas under the current forest reform are collective lands, lack of understanding of the underlying institutions is problematic in many ways. In the remainder of this section we discuss some of the problems that arise when the richness of an expanded mapping exercise arrives at the demarcation and titling process, and how this interface requires new approaches to transcend the spatial boundaries.

a) The boundary itself

The goal of demarcation and titling is to determine and focus on a series of fixed points – now, geo-referenced - in order to delimit the perimeters of the land to which rights will be transferred. An underlying premise is that clear and bounded property rights will be more secure and reduce conflict. Much of this stems from European-derived notions of tenure, and particularly freehold with title. Titling implies the imposition of fixed points with complete and ultimate rights on each side of the perimeter, and the imposition of external rules on the existing ones inside. The modern system of land titling finds itself in a quandary of imposing a rigid system of spatial data onto the fluid boundaries of operating tenure systems. Even where private, public, and some forms of common or communal tenure are recognized, the implicit assumption is that there are clear boundaries between land falling into each category, whereas in practice, there are often overlapping claims by the state, community, and individuals on a given piece of land.

By definition, this process of focusing on the boundaries restricts attention to the underlying system for use of resources: how communities are organized to determine the rights, rules and responsibilities and use them. The principle

recorded fact is the perimeter, staked out on a physical map. Land uses and the spatial distribution of their patterns can be recorded to substantiate the claim. But even these 'facts' are soon lost in the process of registry. The intricate system of user rights and rights allocation, both inside and out of the perimeter, remains invisible. Visual maps of land uses make a major contribution to the understanding of the rationale for establishing the limits of land use, but do not provide a comprehensible rendition of who has what rights to these multiple spaces and resources, whether they are individuals, groups or the collective as a whole, if the 'borders are fluid' with mechanisms to negotiate passage.

In some setting of boundaries, such as demarcation for protected areas, the boundaries are a wholesale external imposition, based on incomplete information, often tainted by anti-anthropomorphic biases, where conservationists 'see' primary forests, supposedly untouched by man (Hecht). Early delineation by international conservation organizations using highly sophisticated technology for demarcating large areas to set-aside were based on indicators of biodiversity as their principal criteria. They mapped huge regions of forests, deserts and coastal areas, assuming them to be 'empty.' With no social ground-truthing and thus little or no local participation, commonly these efforts produced results that have caused havoc since then, the results setting off a vast array of impacts: from the restricting certain rights to resources that make up the livelihoods of forest peoples to their outright eviction from customary lands. In some countries, actual towns and entire villages fell within the perimeters of areas to be protected, leading to a plethora of legal battles on behalf of small towns and villages who suddenly found themselves 'illegally' established (Tehuacan, Mexico/Barry, personal experience). Overlapping boundaries with public forest areas are still a common occurrence, leading to endless confusion about access and use rights by communities, conservationists and industry alike (Molnar, et al., 2004), and eviction is still practiced, as a consequence of protected areas (Cernea, Bray and Anderson 2005).

Government agencies that need to delimit or demarcate for land transfers often use simple methods such as transects running through large areas, based on past practice in the delineation of agricultural properties, or polygons with straight-running lines typical for demarcating industrial deforest concessions. When these simple lines 'a technically constructed and convenient set of points' is applied to forest based communities, it often provokes confusion, disruption of the patterns of local resource use and conflict by creating 'false' barriers across contiguous resources 'spaces' (pasturelands, brazil nut tree groves, watersheds, lakes). Locals who insist on maintaining previous resource use patterns are rendered 'illegal.' Law enforcement may then be deployed, criminalizing and punishing the previously legitimate activity (Poole, 2006; van de Sandt and MacKinven, 2007). These disruptions can have further negative consequences of eroding local governance structures for resource management, where rights and 'rights-allocators' have been 'overridden' and no mechanisms for resolving

disputes have been provided (Chapin, 2006; Colchester, 2007; Ngaido and Kirk, 2001; van de Sandt and MacKinven, 2007).

Brazil nut trees in the forests of Bolivia (and Brazil) are 'groves' of individual trees scattered throughout the forest in a highly uneven pattern. Harvesters claim rights to a group of these trees, along sinuous paths throughout a dense forest, forming highly irregular boundaries. Tenure reforms giving rights to this prized forest-export crop need to recognize and demarcate 'boundaries' based on these access routes and location of trees, not straight lined transects taken from geometrical polygons for timber exploitation. Only the producer families know these sinuous paths in the forest where they have de facto 'ownership' rights over certain trees. The boundaries set by the authorities are artificial, based on assumed or technically convenient transects, separating groves belonging to the same family or redistributing groves with no possible physical access to the new owners. A similar situation exists for rubber tappers in the forests of Brazil. Such actions often lead to conflict, where with participatory mapping of traditional access and use rights, changing the nature of the 'perimeter' it can be avoided (Ankerson and Barnes, 2004; Cronkleton, et. al.).

In agropastoral areas of West Africa, groups have primary rights over a home pasture area, but have access options –negotiated rights to use pastures controlled by other groups, particularly in cases of localized droughts (Ngaido and Kirk 2001). Hence, boundaries between communities are rather fluid. A participatory mapping exercise conducted in agro-pastoral areas in Burkina Faso showed considerable overlap in the areas claimed by adjacent communities. These overlapping claims did not, generally, cause conflict. However, a participatory mapping exercise conducted as part of a research project had the potential to induce conflict if maps showing that neighboring communities had overlapping claims on the boundary areas were to be reported back to the communities (Nancy McCarthy, personal communication). Somehow the act of placing markers that show up on maps creates a sense of rigidity that does not exist on the ground.

In some cases, one can find a more strident contradiction with cultural perceptions of boundaries. What appears to be a relatively simple undertaking, can in fact be a major process of internal negotiation. For example, the Miskitu Indians of Honduras do not have a notion of fixed boundaries between their territories that imply limits for passage. The concept of 'pana-pana' is precisely the opposite, meaning "you pass-I pass" into each other's land. These rules of access by reciprocity make it difficult to demarcate the final perimeter of these large 'borderless' territories. On these forested lands not yet in the cadastre, coming to an agreement on where to demarcate limits for the FINZMOS territory of the Honduran Miskitu, was a long, involved process of internal negotiations. Every 'click' of the GPS involved the negotiation and signing of a document (with drawings for illiterate participation) and a photograph of the village representatives making the agreement (CCARC, 2007).

b) Overlapping resources and rights holders

Although many Western-trained people think about property rights in a narrow sense as ownership—the right to completely and exclusively control a resource—property rights are better understood as overlapping bundles of rights—even a “web of interest” that connects different stakeholders (FAO, 2002; Arnold, 2002, cited in Hodgson, 2004; Meinzen-Dick and Mwangi, forthcoming). This applies to all forms of land use (even for a private home or farm, the state or community has some rights to regulate what can be done on the land), but it is especially true of common pool resources such as forests. When land is titled, giving the rights to a single forest resource (based on its high value or use) such as timber, without an understanding of the implications on other resources and their users, negative outcomes can emerge, such as local conflict or loss of precious needed income for forest-dependant locals.

In many cases the rights to timber extraction alone can seriously undermine the rights of those who depend on non-timber forest products. In the community forest concessions of Guatemala, rights were allocated to the forest for timber production and new community organizations were established based on this productive activity. Gatherers of *xate*, a naturally occurring decorative palm found on the forest floor were not allocated specific rights and not represented in the organizations. Management plans for timber harvest both limited access to these areas and in the end destroyed the *xate* plants during the harvest process. The weekly trickle of income from the sale of *xate*, that provided crucial cash flows to poor households were suddenly interrupted (Monterosso, XXX, Barry and Monterosso, 2007). As women are the principal *xate* collectors and managed this income flow, tension between families and sometimes within the same family (the women collect *xate*, the men cut trees) could have broken into household level conflict, had the local leaders not embraced the issue and promoted changes in the regulations and in their own organization.

Summarizing broader findings on this, the FAO (2002: 26) notes:

Ironically, attempts to increase the legal security of some may result in others losing their rights. For example, titling and registration projects, if poorly designed, can reduce security of many rural residents by failing to recognise certain rights, often held by women and the poor, and allowing them to be merged into simplistically conceived “ownership” rights. The rights to important uses of the land, for example, to gather minor forest products or to obtain water, may not be recognised by the legal system and may be effectively destroyed as a result.

Rights to timber vs. Brazil nuts in the far north of Bolivia, the western extreme of Brazil and eastern corner of Peru face the same issues. Timber rights are privileged over rights of access and commercial to Brazil

nuts in the same forests. For the avant-garde, Fair trade producers of Brazil Nuts in this region, certification – an externally imposed set of regulations- jeopardizes their sales if timber is taken from their nut groves. This is based on the knowledge that even selective logging can have a serious ecological impact on these majestic brazil nut trees, by decreasing the population of pollinators (Cronkleton and Pacheco,) Here, the challenge is how to adapt rights to the ecological conditions of more than one resource is crucial.

c) Fluidity

Whereas mapping gives fixed boundaries, in practice, resource use and rights, as locally understood, are often much more fluid. The rights may vary by season, e.g. to harvest particular forest products, or to use land alternately for private cropping or for collective pastures. A fishery may have a closed season to allow the fish stocks to regenerate, but allow fishing in other times of the year. In a drought year people may go farther afield for critical resources, and reciprocal arrangements between local groups often accommodate this. Such changes in rights are adaptations to changing conditions of the resource itself (Meinzen-Dick and Pradhan 2002). Where they exist 'customary processes' may lead to periodic harmony, but clear property rights do not emerge because custom itself is inherently negotiated and contested (Fitzpatrick, 2006).

Capturing all of this in a spatial representation would require different maps by season and year. Some changes in resource rights take place over even longer time periods, and are even less predictable. A forest landscape in the highlands of Puebla, Mexico supported intensive livelihoods from the ubiquitous amate tree through the 1980's. Today, the amate is a relic among agro-forestry systems of shade grown coffee. Changes in local management intensity and capacity are especially important in this, and can either increase or restrict the rights of local people and outsiders to use particular resources, such as when new bylaws are passed that regulate harvesting of particular products. Projects associated with conservation or even land demarcation (indigenous lands) often emphasize destructive resource uses by outside actors, neglecting that the resource management practices of communities are under increasing pressure from change, such as changing settlement, demographic growth, weakening of cultural values (van de Sandt and MacKinven, 2007).

d) Who should hold the rights?

When titling or formal registration is the primary instrument of land tenure reform and is seen as necessary for tenure security, the issue of who should receive the title can become a significant problem, especially in areas of overlapping land use. In many cases, governments have difficulties in determining to whom to title the land, for lack of clarity on whose rights to recognize. With no clear 'mapping' of the rights holders—whether individual, family, community, or other collective—

any kind of registration is likely to change the nature of their rights, and who makes the decisions about those rights.

The question of who should be designated the right-holder is even problematic for property held by a nuclear family: does an individual such as the male “head of household” really represent the interests of all members, including wives and children? These issues are compounded when dealing with collective tenure, in which a clan or community holds land jointly (even if use rights are allocated to individuals), or for common property shared by a community. How will these lands be adjudicated and managed, in the case the last is deemed necessary? The state is in need of a valid interlocutor with whom to conduct the transaction and eventually bestow the titles. Representation of the collective becomes a central issue throughout the entire process. Where, when and how the collective action of the communities shapes itself (through existing organizations, the creation of new ones) to interact with the external authorities, becomes the *quid* of the process. Simple mapping of rights will not be able to adequately address all the needs of this issue, but experiences with a range of strategies for recognition of customary rights in Africa may provide a starting point for this endeavor (Cousins, 2000; Fitzpatrick, 2005; Wily, 2008).

Rather than starting with concepts of clear-cut boundaries of land held by a single entity and then trying to (literally) map reality into this, it is preferable to develop tools that can identify the nuances of property rights and the institutional arrangements that have evolved to allow people to share use of complex resources. In the following section we identify such a framework, and then illustrate it with applications to the community forest concessions of Guatemala.

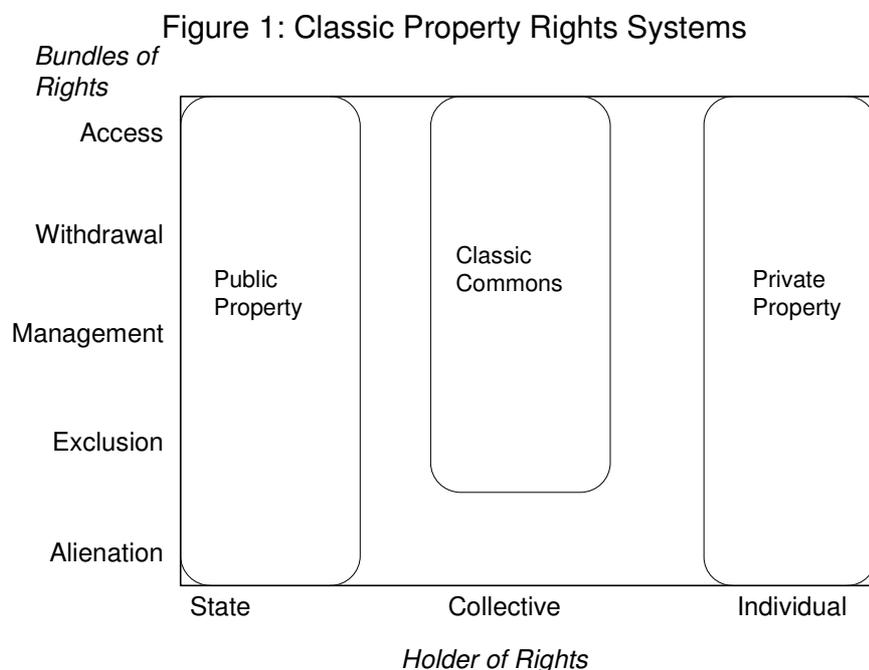
THE FRAMEWORK FOR CONSIDERING THE DISTRIBUTION OF THE ‘BUNDLE OF RIGHTS.’

Property regimes are generally categorized as public, private, or of common property, defined in terms of who holds the rights: the state for public property, individuals (or legal individuals, such as corporations) for private property, and some form of defined group or community for common property (Bromley 1992; Feder and Feeney 1993). Open access is considered the absence of established property rights. A broader and more useful view of property rights, differentiates rights further into various “bundles of rights” (Schlager and Ostrom 1992). There are many combinations of such rights, but they can be grouped into the following large categories:

- Use rights, such as the right to:
 - access the resource (for example, to walk across a field)
 - withdraw from a resource (pick some wild plants)
 - exploit a resource for economic benefit

- Control or decision making rights, such as the rights to
 - manage (plant a crop, decide what tree to cut, where to graze)
 - exclude (prevent others from accessing the field or forest)
- Alienation, the right to
 - rent out
 - sell, or transfer the rights to others.

“Ownership” is often thought of as holding the complete bundle of rights over a particular resource, such as land.. Accordingly, Figure 1 illustrates an “ideal type” of distribution of the bundle in public, common, and private ownership regimes. Note that, in public and private property, the state or individual is assumed to hold a complete bundle of rights, including alienation rights, but in most common property, the collective may not have alienation rights.



These ideal types are almost never found in practice. In most cases, there are overlapping sets of rights, ‘underneath’ the general classifications. A national park area may be classified as public property, but individuals and groups are often allowed to use the park, either for access (e.g. bird-watching), withdrawal (taking a drink in the park), or even management, under co-management arrangements or concessions. At the other end of the spectrum on individual private property, outsiders may have rights, e.g. to cross the land with their animals (access), or to take drinking water or harvest particular products (withdrawal), or the right of the state to regulate (manage) land uses in most countries. In the United States, the rights of others on “private” land are often codified as partial interests in land (Wiebe and Meinzen-Dick 1998). In many other countries these overlapping rights may derive from customary law or

practice, or even religious law such as the injunctions found in many religions to give drinking water, even from otherwise private land or water sources.

The state (and even most analysts) cannot deal with the enormous range of such complex rules and negotiations for each tenure agreement. But there is a need for moving beyond the physical and conceptual 'perimeter' defined on maps and conventional definitions of public, common, and private property, which have superimposed a rigid understanding of tenure, when rights to land and resources demands flexibility, fluidity, renegotiation. This is particularly true of common pool resources like forests. We need conceptual building blocks to develop a practical tool that can play a role in redefining the nature of the relationship between property rights holders and the state.

While the framework we present does not cover all of these aspects, even looking at the holders of property and the bundles of rights can be illuminating. Instead of assuming that the state, collective, or individuals hold all rights, we can use the "mapping" of rights-holders and the bundles of rights they have to capture more of the empirical reality faced.

In putting this into practice, the first step would be to identify the relevant manifestations of the "state", "collective", and "individual". An opening question could be "what organizations, groups, or individuals can have some kind of rights over this land/resource?" Rather than seeing these as three distinct categories, we may find more of a continuum: different central government agencies, municipalities in the "state" sector, chieftaincies, clans, villages, and smaller groups in the "collective" sector, blurring in to extended families, nuclear households, and single individuals. Which of these is relevant will depend on the local context. Identifying these relevant groups is not just a theoretical exercise—it also points to the institutions that define and shape resource access and use. Tenure reforms create opportunities for regrouping, establishing new organizations and institutions in civil society and within the state itself. In many cases, the establishment of collective tenure over a large landscape requires the creation of higher level governance bodies, than those previously existing. In Nicaragua, multi-community indigenous 'blocks' require village leaders (established by custom) to elect a subset from each village to form a new representative council, an entity that would be legally recognized (Larson, 2008).

Then for a defined resource or set of resources, the next step would be to ask what rights each of these entities holds. Can they directly access or use the resources? What kinds of decision-making rights to manage or manipulate the resource, or exclude others, do they have? Who can decide to transfer the resource to others? Each of these can then be conceptually "mapped" by placing them on the figure.

Figure 2 illustrates how this might be applied in a forested area of customary communal⁵ tenure with long fallow cultivation. Individuals would have the right to walk in the forest (access); to draw water, pick up dry sticks from the ground in the forest, and grow and harvest crops on land that is allocated to them (withdrawal). Individual management rights might include the right to clear or plant trees on land allocated to them (although, in many cases, the state restricts the right of individuals to cut certain valuable tree species, even on such land). Individuals may exclude others from their actively cultivated plots, but relinquish the exclusion rights when the fields are fallowed. In some cases individuals may be able to transfer their cultivated plots to others in the community, or even to outsiders, with group approval.

Figure 2: Communal Forest Tenure

<i>Bundles of Rights</i>		<i>Holder of Rights</i>			
		State	Community	User groups	Individuals
Access				Walk in forest	
Withdrawal			Harvest nontimber forest products	Draw water, dry branches Cultivation on some plots	
Management	Approving harvest of certain tree species	Overall land management plan	Improvement investments e.g. beehives	Plant trees on own land	
Exclusion	Licensing timber concessions		Exclude outsiders?	Exclude others from planted fields	
Alienation		Allocating plots to cultivate		Transfer within community	

Moving to the collective sector, user groups often have acknowledged withdrawal rights to particular nontimber forest products (e.g. women’s craft groups harvesting palms or rattan in Uganda), and even management rights that allow them to make investments in the resource (e.g. constructing beehives). The larger “community” (which may be represented by a clan or village) may make overall management plans for their designated area, including deciding which land to allocate to members for cultivation (non-permanent alienation). The right to exclude “outsiders” (however defined) may rest with either user groups or the community as a whole.

⁵ Cousins (2000:154) refers to: “a ‘communal tenure’ system which is in fact a mixed tenure regime, comprising individual, family, sub-group and larger group rights and duties in relation to a variety of natural resources.”

The state often claims ultimate “ownership” of such forest lands, and the right to issue concessions for timber harvesting (alienation), as well as some management rights, such as the right to determine whether particular tree species may be harvested, even on individual plots.

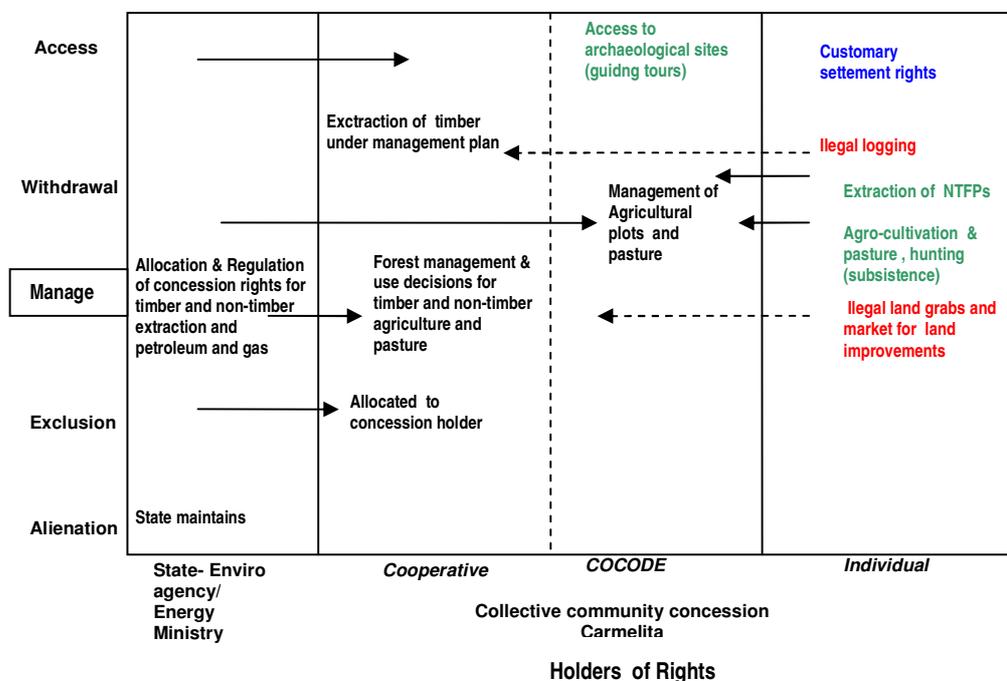
When attempting to actually map the different rights regimes, particularly with the full participation of communities, there are many dimensions that need addressing, all of which highlight the limitations of the classic system for understanding property rights. As mentioned above, forest tenure often involves rights to different resources on the same land. Fortmann and Bruce (1988) have established that rights to trees are often separate from the rights to the underlying land; tree rights can be further distinguished into rights to use certain products (e.g. fruits, leaves, timber, or fallen branches) and to plant or manage the tree. Timber rights in a forest may undermine the rights to production/ harvesting of non-timber products like Brazil nuts, decorative palms, rubber and gum, resins, etc. Or forest land rights may not include the rights to trees, as in Colombia, Liberia, Ghana, and Mozambique.

Where there are considerable seasonal differences in property rights, it may be necessary to draw different figures for different seasons to include seasonal grazing, hunting, or gathering rights. Over time, there may be further changes in the institutions that allocate rights. Devolution processes involve the shifting of rights from the state to user groups; i.e. from the left of the framework figure to the middle. The most common shift is only in the use rights, not decision-making rights (Meinzen-Dick et al. 2001). The extent and seriousness of devolution can be indicated by how many of the bundles are transferred. Are user groups really empowered to make management decisions, to exclude others, even to sell the resource? The case of Mexican community forests and the Guatemalan community concessions are examples where the broadest bundle of rights have been transferred, producing significant results, as discussed below. These changes can even blur the lines between the simple categories of state, collective and individual, as when recognition of customary rights is vested in a land board, a higher collective body made up of chiefs and government officials (Fitzpatrick, 2005).

Barry and Monterroso’s (2007) study show how the establishment of community concessions created the collectivization of forest rights and established common property along 500,000 hectares of forestlands surrounding the Mayan Biosphere Reserve. Initial attempts to bring the entire region under a conservation regime set off a backlash by resident communities, whose livelihoods were based on rubber tapping, non-timber product harvesting, hunting and some illegal logging. Negotiations led to the establishment of the novel form of community forest concession contracts for a period of 25 years, renewable. The intentions of the agreement were to introduce a model focused on internationally certified timber production and the establishment of community timber enterprises for sustainable forest management.

Nearly the full set of tenure rights – access, use, withdrawal management and exclusion- were transferred from the state to the newly established collective entities representing resident and nearby communities, as illustrated by the arrows moving from the left to the center of the diagram in Figure 3. Though not formally codified in the law, regulations require the community concession organizations to bring the informal individual rights that have led to forest abuse, under it's control as well. The arrows from the right to the center of the diagram represent the informal strengthening of the collective entity to govern the common resource base. The diagram shows the significant expansion of management rights, though highly regulated through certification schemes.

Figure 3: From individualization to the collective: The forest community concessions of Peten, Guatemala, Peten



	*Basis of the rights
Ⓒ	<i>de jure</i>
Ⓓ	<i>De facto</i>
Ⓔ	Customary
Ⓕ	Illegal action

The case of the community cooperative of Carmelita is used to exemplify the tenure reforms. Curiously, Carmelita was a traditional rubber tapping community with no experience in timber management. As the new holder of nearly all the tenure rights – use and decision- making, particularly exclusion rights, the

Carmelita cooperative (formed expressly to receive the concession contract) received the backing of government and donor projects for technical assistance, training and local investment. Today, nearly 80% of their income is derived from timber management. The colors on the diagram indicate the origin of the rights being transferred, in most cases with all the arrows pointing to the middle, indicating an increased role of the collective sector, where the cooperative is the legal concession contract holder and Cocode, the local form of community government. Both were 'created' under the reform and have assumed the dual role of forest dependant communities and stewards. After several years of successfully renewing the concession, indicators of forest improvement show forest fires and illegal logging have been reduced dramatically in comparison to the pre-concession period and significantly in comparison to the protected areas (Bray, et. al. 2007, Barry and Monterroso, 2008).

However, some unresolved internal conflict exists over historic access and extraction rights to rubber trees and forest palm (xate), by those not living in Carmelita. Even for those in and near Carmelita, the reform limited xate collection, a year-round non-timber product that provides an important stream of income to women and children. As the timber model began to dominate the local institutions, the xate collectors had no formal rights or representation in the new collective entities. Recently, discontent has been channelled to the collective authorities who are attempting to modify the regulations to address these contradictions.

The environmental agency Conap, was strengthened and deployed into this remote forest region with the task of managing the Mayan Biosphere Reserve and supporting the community concessions. However, competing interests within the state, for example between Conap and the energy ministry – and increasing interests in tourism- have led to moments where the different faces of the state contradict each other, with state supported energy exploration and tourism developments undermining the rights established by the environmental agency.

DEVELOPING A TOOL FOR COMMUNITY-BASED TENURE RIGHTS MAPPING

Although the "Tenure Box" builds on academic concepts, its an also have practical applications. In this section we review several ways in which the Tenure Box can be useful at the community level, or in negotiations between communities and the state. We then turn to additions and refinements that may be needed to expand the tool to deal with further complexity and change.

a) Potential Applications of the Tenure Box

The first use lies in the exercise of identifying right-holders and rights or claims. When land or other resources are classified and demarcated as “public”, “common” or “private, it closes our eyes to the range of rights-holders, and the claims they may have. We begin “seeing like a state” (Scott 1998) and oversimplifying. This may exclude many who depend on a resource for their livelihoods, or who play an important role in the condition of the resource base. Consciously thinking beyond the normative categories helps to make these other uses and users visible, which may, in turn, strengthen their legal claims on the resource.

In the process of identifying the right-holders, we also get a more realistic picture of the actors and institutions that they represent. For example, “the state” is not a unified body: it is comprised of different agencies at many levels, which are often contradictory and even rivals. In forest reform the environmental ministry or agency, forest agency, and agrarian authorities often act at cross purposes. The results can be the creation of such inevitable regulations and procedures that a de facto practice of ‘open access’ predominates, undermining all intentions (Fitzpatrick, 2006).

Similarly, “the collective” is not one organization but multiple or often tiered or embedded in social or other structures. It is useful to ask whose interests they represent. Does “the village” mean an inclusive local group, or a small circle of elite decision-makers? Do men and women have organizational channels through which to voice their concerns in the community or user groups? Even within the “private” category, we may find extended or nuclear families with patriarchal structures in which women have little voice or effective rights over the resources, or even individual “ownership” by male heads of households that do not formally recognize the rights of wives or children. Even if the state retains the alienation rights to the land, how will inheritance rights –inside the collective– play out?

Unlike maps that focus on focusing on physical boundaries, the process of identifying the state, collective, and individual right-holders *draws* attention to the underlying system for use of resources: how communities are organized to determine the rights, rules and responsibilities and use them. Initial exercises attempting to apply the Tenure Box in the field, particularly in communities where tenure reforms are underway, presented the challenge of capturing the organizational changes occurring as a result of the reforms themselves. The visible representation of the options helps answer the questions like, When does it work best to have a collective body making decisions and at what scale is a smaller group sufficient? Questions of equity and effectiveness of those institutions can then be raised and discussed, within the community or in discussions with government or other “external” agencies.

A second major practical application of this Tenure Box as a tool in communities is to help communities deal more effectively with claimants to their resources,

and as a tool for deliberation for reaching decisions among themselves on the allocation of access and use of resources. Even laying out the option of non-exclusive use rights can help diffuse tensions over competing claims. If allowing one group to use a resource is seen as ceding all rights over the resource to them, it is more likely to cause conflict than if more limited rights of many different claimants can be recognized. At the same time, the Tenure Box can also help highlight where there are likely to be the most competition, and where conflict resolution mechanisms are most necessary.

A third application of the Tenure Box can be as a means of gaining recognition for a range of overlapping rights. While there is always a risk that codification will reify rights and make them less adaptable to changing situations, at least if more of the complexity of property rights are recorded, it can provide some protection for those who depend on a resource, but cannot claim the underlying “ownership” of it. Instead of strengthening exclusion rights through conventional titling or boundary mapping, this approach can lead to more inclusive rights, such as for groups dependent on non-timber forest products or grazing lands.

Although the Tenure Box captures more of the complexity of rights than most conventional cadastres or mapping exercises, even this simplifies the complex interplay of rights and claims because of the inherent difficulties in “mapping” so many different factors into a two-dimensional figure. In some cases it may be useful to develop multiple figures, one for each resource and in land-use maps, and show the physical overlaps. A similar exercise for each season could add to the understanding of multiple uses of the same landscape.

Similarly, it could be useful to have state agencies and different community groups each develop their own version of the figure, and then compare the different figures to see how each stakeholder perceives the rights over the resources. Legal pluralism could be examined by developing separate figures according to state, customary, and religious law, and overlaying them to see where they agree and diverge, or where an overconcentration of rights (and maybe power) may be occurring.

b) Expanding the Tenure Box to capture the bundles of rights: Allow for registering complexity and change

Using the Tenure Box to better understand the nature of the bundle of rights will require identifying and organizing the different types of rights from access, withdrawal or use, management, exclusion and alienation, as they match their holders, as presented above. After identifying the rights holders, mapping which rights each one holds and how they are changing, becomes a central task. For example: Non-consumptive access rights are crucial to clarify, as they can include things as essential as rights of settlement or residency in many forest cases, not a small issue. As these forest areas under reform begin to develop, access rights that may be related to religious or spiritual practice take on new

dimensions when community enterprise development requires 'access' roads to shorten market distances. Eco-tourism projects bring in new pressures on old access rights that need to be negotiated.

Application of the Tenure Box, as well as the literature, has shown that withdrawal rights can be highly complex, depending on the resource and distinguishing between the goals for its use: subsistence or domestic vs. commercial. Regulatory frameworks – including conservation restrictions and rules- are often blind to this interface and have placed wholesale prohibitions on forest product use, limiting community's options for satisfying their subsistence needs or rendering local villagers 'illegal harvesters or loggers.' Withdrawal rights – as a bundle of many rights within itself- becomes of the most important areas for gaining greater clarity, both locally and for research, as it is here where the links to the commercial sector are constructed. In the case of timber, it is in the realm management rights, often along an informal continuum of the value chain that aggregated, sums up to the ubiquitous ant-like trails of illegal timber supply to larger scale industry.

Empirically, a fuzzy line exists between withdrawal and management rights, and management becomes a category that needs to be expanded in this conceptual tool, in order to face the practical tasks of organizing the rights in a meaningful way. Withdrawal is seen as a user right and management a decision-making right. Management rights are to control or decide where, when and how to cut trees, harvest other forest products, permit fire, plant a crop or allow grazing or hunting. Without attempting to expand on each of these items, the considerations that need attention here are:

- a) Management rights are often shared with the state, through the regulations (e.g. timber certification) that dictate criteria, standards, and procedures, for the community to adhere to, but where the state plays a role in oversight or enforcement.
- b) International entities can also impose regulations, sharing part of the rights/responsibility through mechanisms such as fair trade or organic certification standards. (e.g. rescind contracts)
- c) As communities develop their entrepreneurial skills and interests, management rights over the different stages of the processing chain need to be sorted out, especially as community enterprises increase their market linkages.⁶
- d) How to manage the impacts of overlapping rights, such as subsoil rights of extractive industry (mining, gas, oil) on forest resources.

Rights to benefit sharing are a more difficult issue that has arisen from these early attempts at 'applying' the tenure box at the community level. If benefits are

⁶ Although this goes beyond a discussion of rights to one of collective action, often when communities develop their enterprises, it is the latter that begins to dictate/ pressure for changing the management rules.

understood in a general sense, as the distribution of rights to the resources or the power of decision-making, not just monetarily, then they run the entire vertical axis of the Tenure box, starting with who gets access to what. Most community concerns tend to center on the distribution of rights as a distribution of opportunities, but a particular focus eventually emerges around monetary benefits derived from the sale of forest products (timber and non-timber). The question is whether the Tenure box is the adequate tool to address this as a matter of rights related to tenure.

As important as the others, exclusion rights becomes a discussion about how this right can be put into practice. Who exactly holds them, and what does it take to guarantee them in the face of incursion, particularly when the value of the newly gained land/resources has increased. Who holds the right and who enforces it, become the embattled questions? The combined capacity of the local rights holder (collective entity with or without common property) and the state to enforce exclusion rights is the subject of much literature across disciplines and a major focus of policy-makers. Here we revert back to our initial concerns. The strength and cohesion of the local groups.

CONCLUSION

Land use mapping has made important strides in identifying *where* rights are exercised. The Tenure Box offers an important overlay of *who* holds *what* bundles of rights. Together, these tools could help to shape the tenure reforms or conflictual claims in many rural –particularly forested- landscapes in the southern countries of the world.

The combination could help to round out the picture, giving a conceptual guideline for organizing them and eventually a visual representation of the system of rights, responsibilities and rules that govern land and resources. Similar to the way in which PLUM has evolved, particularly as an instrument for legalizing land or resource claims, the Tenure Box can be seen as having enormous potential in both helping communities to design their proposal for tenure and regulatory reforms, as well as adjust their internal distribution of rights as their social, environmental or market conditions change. It can become a tool for adaptation and mitigation of disasters.

Here, we come back to the lessons we can learn from the legal recognition of customary tenure in Africa, where there are many options. Only, in this case, putting the Tenure Box in the hands of the communities (where there is sufficient organization to appropriate it), can allow them to proactively propose the elements they want to be considered. How much visibility to give to what rights, to what resources and who holds them will depend on their interest and capacity to render them visible.

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