

Quantitative Indicators for CP Tenure Security

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Executive Summary

In this report I argue that a significant, unknown percentage of the world's poor depend on common property for their livelihood. At the same time numerous case studies show that factors like ecological degradation, overpopulation and privatization increasingly threaten their common property (CP) tenure security and risk pushing them deeper into poverty. In spite of this, little comparable national or international data is being collected that could increase awareness of the problem and better allocate donor funds to solve it. The International Land Coalition has responded to the need by initiating the Land Reporting Initiative to improve monitoring of CP tenure security. This report outlines to ILC a strategy to measure CP tenure security.

There are two components to CP tenure security: the breadth of tenure rights and the guarantee of tenure rights. To measure the breadth of rights the first step is to identify who has tenure rights to common property; he or she is referred to as a common-property dependent person (CPDP). The second step is to determine what tenure rights the CPDP has. The report presents multiple approaches to measure both steps and the pros and cons of each. I conclude that one practical option to measure breadth of tenure rights focuses on measuring the tenure rights of members of organized common-property associations and deduces their tenure rights from direct survey questions about their tenure rights and experience using them.

The second component of CP tenure security is the guarantee of tenure rights, defined as the degree of certainty a CPDP's tenure rights will be respected now and in the future. More certainty means better CP tenure security. I split the indicators that measure the guarantee of tenure rights into three categories: indicators that use past trends, indicators that use perceptions and indicators that look at the robustness of common-property associations (CPAs). I believe four of the most promising indicators are (1) CPDP population trends, (2) presence of conflict, (3) CPDP perception of future rights and (4) documentation of rights. Most of the indicators require expensive CPDP household level surveys or CPA level surveys. Nobody has aggregated the data needed to calculate them, with the possible exception of indicators for documentation. Many of the indicators have not been tested, although a few have been used for monitoring private property tenure security by the United Nations and World Bank.

Finally I review several options for collecting the data needed to calculate the indicators. I believe that the option to add a 'module' of survey questions to existing qualitative research best takes advantage of ILCs network of NGOs dedicated to land and resource access. These NGOs are already working with local communities and are well positioned to collect this data for advocacy. ILC can play a key role motivating, advising and documenting their data collection efforts. However two case studies from other organizations illustrate that such data collection can be expensive and requires careful collaboration with collectors to ensure data consistency.

For possible next steps ILC and their partners should discuss the indicators presented in this report. A test site NGO in need of better data for common property advocacy should be selected to measure as many of the indicators as possible. ILC should work with the test site to create the survey questionnaire and publish the findings along with any lessons learned. Assuming a good result ILC can lobby for other coalition partners to run similar surveys and begin to build an on-line database of CP tenure security indicators.

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“If it is not counted, it tends not to be noticed.” –J.K. Galbraith.

Abbreviations

A	appropriator
CIFOR	Center for International Forestry Research
CP	common-property
CPA	common-property association
CPDP	common-property dependent person
CPR	common-pool resource
DFID	UK Department for International Development
FDP	forest dependent people
HH	household
IBC	Instituto del Bien Comun
IFRI	International Forest Research Institute
ILC	International Land Coalition
LEAP	Legal Entity Assessment Project
LRI	Land Reporting Initiative
MDG	Millennium Development Goal
NGO	non-governmental organization
UN	United Nations
UN-HABITAT	United Nations Human Settlements Programme
WB	World Bank

1. Motivation, Objective and Methodology

In this section I introduce the motivation of the report, the objective of my research and the methodology employed.

1.1 Motivation

The International Land Coalition (ILC) is an intergovernmental organization that works with over sixty coalition members to advocate for poor people's access to land and other natural resources. Poor people share many of these resources under common property regimes like community owned forests, fisheries and pastures. However non-governmental organizations (NGOs) and others have voiced concerns that state and private interests are increasingly infringing on poor people's rights to the commons. Many case studies confirm this trend but to date there is no systematic global monitoring of poor people's access to common property. Reliable global data could help policy makers better understand the problem and identify the most effective, efficient solution. To this end the ILC under its new Land Reporting Initiative (LRI) seeks to develop and implement a methodical approach to measuring and reporting people's tenure security to common property (CP tenure security).¹ This report explores what indicators the LRI should consider using for the measurement.

1.2 Objective

This report tries to answer the question: what are the most promising indicators for global monitoring of common property tenure security and what are the pros and cons of each. In answering this question the report will also explore (1) the demand for collecting information on CP tenure security and (2) how to develop a consistent approach to data collection that would appeal to ILC and its partner organizations.

1.3 Methodology

Our research consisted of a general literature review, key informant interviews and an in-depth case study of common property tenure security in Peru.

¹ For more information on the ILC's Land Reporting Initiative see www.landcoalition.org.

2. An Introduction to Common Property Tenure Security

In this section I establish the importance of common property and CP tenure security to poverty reduction. I also define important terms related to common property and tenure security.

2.1 Common-pool resources are important to poor people's livelihoods

Common-pool resources (CPRs) such as pastures, forests and fisheries provide the foundation for many poor people's livelihood (see table 1). For example one study estimates that CPRs currently contribute some US \$5 billion a year to the incomes of poor households in India (Beck and Nesmith 2001). The World Bank estimates that 90% of the world's 1.1 billion poorest people depend on forests for at least some of their income (World Bank 2002). Moreover, the importance of CPRs is not only economic; they are also central to many cultural and social activities of poor communities (Beck and Nesmith 2000).

Table 1. Estimates of the importance of common-pool resources to livelihoods.

Common-pool Resource	Global Impact
Pastures	Just less than half the world's usable surface is covered by grazing systems, with 703 million people living in the grazing system area (Haam, Steinfeld et al. 1998).
Forests	1.6 billion people depend on the forests, with 60 million wholly dependent and 350 million dependent to a high degree (Wunder and Angelsen 2003).
Fish	Excluding fish farmers, there are over 28 million fishers around the world (FAO 2004).

Researchers define a CPR as having two essential characteristics (Dolšak and Ostrom 2003). First, it should be costly but not impossible to exclude potential beneficiaries from obtaining benefits from its use. For example it is very expensive to exclude people from fishing a large lake. Second, use of the resources should be subtractive such that one person appropriating a resource prevents another person from doing the same. For example grass eaten by one herd of grazing cattle is unavailable to another. This means that heavily used CPRs are vulnerable to over-extraction and environmental degradation.

While experts generally acknowledge their importance, many feel that the available information about CPRs and livelihood dependence on CPRs is unreliable and inadequate. For example, the UK Department for International Development commissioned a study in 2000 to access existing sources of information on forest dependent people (FDP) (Calibre-Consultants and SSC 2000). The study concluded that “there are currently no reliable regional or global sources of data on FDP” but that the number appeared sufficiently large to warrant the necessary data collection.

2.2 Common Property is important to poor people’s livelihoods

Given the ubiquity of CPRs, the property regime that governs them has a big impact on the livelihoods of poor people. CPRs fall under one of four basic property regimes: open-access, state, private and common (Heltberg 2001). Open-access denotes a lack of ownership and control such that anyone may use the CPR freely without distinction or hindrance. State property denotes formal state control, for which the state enforces access and conservation rules. Private property refers to property vested in the individual or corporation. Common property refers to property that is owned, managed and/or used collectively by several users, either simultaneously or sequentially,² regardless of the property regime formally applicable to it.³

In many cases CPRs are more-efficiently managed as common property than open-access, state or private property. Open-access management of CPRs with valuable resources often results in over-exploitation and the ‘tragedy of the commons’ (Hardin 1968). Well-regulated common property can enforce rules to prevent environmental degradation (Ostrom 1990). State management often rules from political centers far away from the resource and ignorant of local CPR conditions, and the fact that the manager (a bureaucrat) is distinct from the owner (the public) diffuses accountability and promotes negligence. Common property management on the other hand is local and the managers share ownership. Finally, private property management of CPRs can be prohibitively expensive due to the high cost of excluding access with policing, fencing, and land surveying, etc. Therefore common property can be more efficient because the

² Note that this definition excludes customary tenure systems where group members are assigned use and management rights over some unit of the CPR resource. These schemes often amount to private property.

³ Note this definition includes resources which are de jure (nominal) state or private property but de facto (actual) common property. For example many state-owned forests that indigenous communities have accessed and managed for years are de facto common property.

cost of exclusion may be lower and can be shared by all group members (Deininger and World Bank. 2003).

Numerous case-studies confirm that many CPRs are managed as common property, especially in developing countries; however the exact percentage is unknown. In India, where perhaps the best data has been collected, a researcher concluded that “no official data and information exist in India that would give a complete picture of community management and the institutions governing them.” (Kadekodi 2004) Furthermore the existing common property case studies use disparate methodologies, making their conclusions difficult to compare and aggregate. As a result we have little reliable information about total number and importance of CPRs managed as common property (Orwell, Lovett et al. 2005).

2.3 Common property tenure security is important to poor people’s livelihoods

The extent to which a person can benefit from common property depends on his or her tenure security. Although there are different understandings of tenure security (for a list see International Land Coalition 2006), one common definition describes three facets: breadth of tenure rights, assurance of rights and duration of rights (Place, Roth et al. 1994). Breadth of rights refers to the range of rights held, such as right of use and withdrawal, right to decide who may access the resource, right to decide the manner in which access and withdrawal should take place, and the right to transfer ownership (Schlager and Ostrom 1992). Assurance of rights refers to the degree of certainty people have that their tenure rights will not be violated today. Duration or rights refers to the degree of certainty people have that their tenure rights will not be violated in the future. For the purpose of this report I group assurance of rights and duration of rights into the category “guarantee of rights”, which is the certainty that one’s property rights will be respected now and in the future.⁴

Tenure security is important for poverty reduction (UNDP, UNEP et al. 2005). World Bank studies have shown that private property tenure security fosters more efficient land investment, engenders better access to credit markets and a more stable civil society (Deininger and World Bank. 2003). Although most of the research on tenure security

⁴ I group these together to simplify analysis because I did not identify any significant difference in the indicators ability to proxy assurance and duration of rights. Therefore discussing both facets separately would have been redundant.

focuses on private property, case studies have shown that CP tenure security positively impacts people's long-term investment in modern management practices like livestock feeding practices and integrated pest control. (Meinzen-Dick, Knox et al. 2002)

Figure 1. Diagram of Common Property Regime

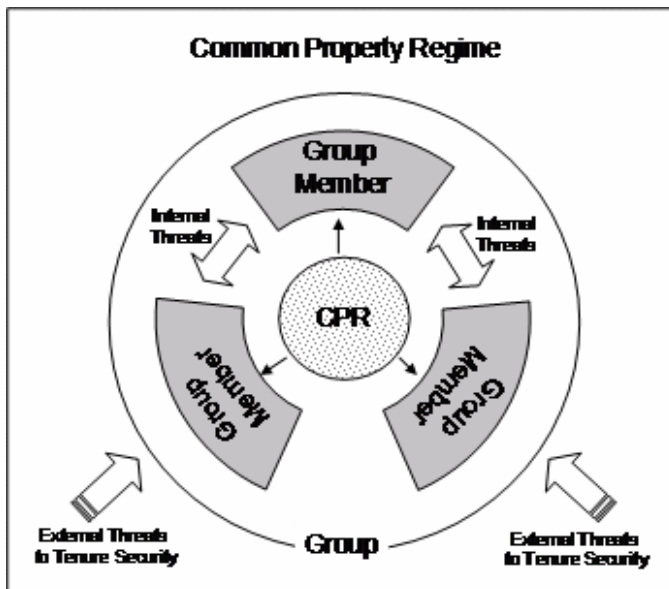


Figure 1 provides a diagram of the common property model with reference to tenure security. Individual group members exercise their individual tenure rights, most commonly use rights, according to the group rules and regulations.⁵ The group itself has a set of tenure rights granted by some external power (usually the state). Threats to their tenure rights come from internal and external forces. Internal threats include unsustainable over-extraction and conflict between group members. External threats include robbery by non-group members and government appropriations. The combined size of the internal and external threats determines a group member's tenure security.

2.4 Threats to CP tenure security are increasing

Many experts believe that CP tenure security around the globe is declining. Research shows that people are being increasingly excluded from CPR resources by privatization and commercialization (Beck and Nesmith 2000). In Peru exploitative mining companies and a government titling program are rising threats to the commons (see box 1). At the

⁵ In theory common property does not only pertain to CPRs. However in practice, excluding customary land tenure systems, most common property is a CPR.

same time there is a trend toward decentralization of natural resource management with community institutions becoming more influential in the management of local resources. (UNDP, UNEP et al. 2005). Therefore CP tenure security is at the same time becoming more important and more threatened.

Box 1. Common Property in Peru under Pressure

Two of the most important commons in Peru are grazing land in the Andes and tropical forests in the Amazon. The Peruvian government estimates that about 7,000 communities containing 5-6 million people live in communities that use these CPRs. While some of the community land is individually farmed, over 75% of the land is collectively used (Rocha No Date).

Although the Andean communities have held together for centuries their tenure security is in decline. According to local experts, the largest threat is lack of proper documentation. Approximately 20% of the communities have no title to their shared lands and many existing titles do not specify or incorrectly specify boundaries. A second important threat to tenure security is national and international pressure to institute individual titling. This has the potential of benefiting a few community members while marginalizing many more. A third important threat comes from mining companies that expend significant resources to obtain access to CPRs.

Currently there is no systematic monitoring of people's tenure rights to common property. In preparing this report I spent one week talking with common property experts in Peru to get their opinion on ways CP tenure security could be measured in the Peruvian context. I have referenced our conversations throughout the paper and put a summary of what I found in Appendix A.

Development agencies have supported many programs designed to improve tenure security. For example, the World Bank has made the increase of tenure security a development priority because "it has been clearly shown that secure tenure and trustworthy registration systems allowing rapid and secure transactions are essential for economic prosperity" (World Bank [1] 2004). However most of these programs only look at tenure security to private property. Despite the importance of CP tenure security it receives relatively little attention from governments, development agencies and researchers.

3. The Need for Indicators of CP Tenure Security

In the previous section I argue that poor people depend on common property for their livelihoods and that their tenure rights to those resources are in jeopardy. In this brief section I introduce indicators as one of many possible tools to reverse this trend.

3.1 Indicators help fight poverty

In the year 2000 the United Nations (UN) approved a set of Millennium Development Goals (MDGs) that aspire to “reduce by half the proportion of people living on less than one dollar a day” and to “achieve significant improvement in the lives of at least 100 million slum dwellers by 2020.”⁶ In order to monitor progress on these goals the UN set forth specific indicators and provides annual updates on their progress. According to the United Nations the MDGs have “galvanized unprecedented efforts to meet the needs of the world’s poorest.”⁷

Quantitative indicators like the MDGs are one tool to provoke action to reduce poverty. When published they raise awareness and invoke responses from government officials; if they reflect poor performance, the poor performance is expected to be improved. According to the International Institute for Sustainable Development, “indicators quantify and simplify phenomena to help us understand complex situations.”⁸ Famous indicators include the gross national product and the unemployment rate. Components of a good indicator are discussed in Box 2.

Box 2 Components of a good indicator

Two key components of a good indicator are accuracy and resonance. Accuracy refers to how well the indicator explains the relevant phenomena. Resonance reflects how easily people can understand the indicator. There is usually some trade-off between accuracy and resonance; indicators that are easier to understand may lose touch with the concept they hope to describe. Besides accuracy and resonance indicators should also have the following traits (Anderson 1991).

- Based on easily and cheaply available data
- As easy as possible to calculate
- Able to be broken down to its components
- Available regionally and nationally
- Internationally comparable.

⁶ <http://www.un.org/millenniumgoals/goals.html>

⁷ <http://www.un.org/millenniumgoals/index.html>

⁸ see www.iisd.org

3.2 The need for indicators of CP Tenure Security

Despite the importance CP tenure security plays for poor people, researchers do not have a complete picture of the number of people who depend on common property for their livelihood. Better indicators that monitor CP tenure security would identify who currently has tenure rights to the commons and the security of their rights. This information could improve advocacy on their behalf and improve the efficiency of interventions designed to help.

In Peru common property advocates expressed interest in better indicators for CP tenure security. They commented that local lawmakers viewed common property as archaic and needing modernization, and that reliable statistics on the number of people who depend on common property and the threats they face could shock governments into updating their perceptions and taking an interest. They also felt that better information about areas struggling to provide CP tenure security could help policy makers allocate more resources to those areas (see appendix A).

The World Resources Report 2005, a cooperative effort between the United Nations, the World Bank and the World Resource Institute, recently argued the need for better indicators to monitor the global commons and called for a rewording of the MDGs. (UNDP, UNEP et al. 2005). They suggested adding the following indicators.

- The extent and condition of communal fisheries (costal and inland).
- The extent and condition of forested areas held in common.
- Watershed conditions on communally held land.
- Proportion of rural households with access to secure tenure.

Their recommendations underscore the importance of CP tenure security for poverty reduction. However these indicators are still relatively high-level; the report does not provide more guidance on how they can be measured. In the remainder of this report I address this information gap and investigate potential indicators for CP tenure security, highlighting their relative strengths and weaknesses. I divide the task into the two components of tenure security: breadth of rights and guarantee of rights.

4. Measuring the Breadth of Rights

Tenure security is the breadth of rights and the guarantee that a person's tenure rights will not be violated. In this section we consider how to measure the breadth of tenure rights. The breadth of tenure rights answers the question *who* holds *what* rights to the CPR.

4.1 Identifying Whose Rights

Given the variation of both de jure and de facto CP tenure systems, there is no clear-cut way to identify people with tenure rights to common property, hereafter referred to as common-property dependent persons (CPDPs). The four approaches that we consider here are self-identification, common-property association membership, user-group membership and economic behavior.

Self-Identification

The simplest method identifies CPDP members as people who feel they are dependent on any shared resource. This approach is easy to implement and aggregate, but it is not clear under what conditions a person would identify himself or herself as dependent. Furthermore, this approach may identify people who are unlawfully or unjustly appropriating the resource as a CPDP with tenure rights. For example recent migrants to a grazing area may be dependent on common pastures at the expense of pastoralists who have shared the land for generations. If the illegal appropriators are poor with no other options then assigning them tenure rights may be justifiable. However, when the appropriators are exploiting other CPDP then their tenure claims should not be respected.

By adding an additional constraint that the person be poor (i.e. live on less than US\$1 a day) you could decrease the risk of including CPDP who wantonly exploit, but you also increase the complexity of measuring the indicator. Furthermore, you disqualify wealthier people who legitimately depend on the commons. Many case studies confirm that the commons is not only accessed by the poor; for example a study in Kangra shows 58% of the wealthy households plant on common property (Dasgupta 2005; Fuys, et al 2006).

Common Property Associations Membership

This approach classifies all members of common-property associations (CPAs) as CPDP. CPAs are groups with organized institutions that act collectively to manage common property. They may or may not be formally recognized by the government. Typical examples include forest associations, pastoralist associations and fishing associations. There are at least two ways that CPDP members could be identified using CPAs.

- People documented by CPAs as a CPA member. Unfortunately in many cases there are no lists of CPAs or CPA membership. This is especially true when the government does not formally recognize CPAs.
- People who identify themselves as a member of a CPA are CPDP. This approach is easy to operationalize because CPAs are known and identifiable organizations.

One drawback to this approach is that CPA membership does not necessarily mean that the person uses the common property. Some organizations only exist on paper (Meinzen-Dick, Gregorio et al. 2004). Furthermore, people who rely on common property but are not members of organized CPAs will not be captured. In Peru the majority of CPDP are members of a CPA but nobody knows the exact percentage that are not (see appendix A).

User Groups Membership

Another approach, adapted from the International Forest Research Institute (IFRI), is to classify all members of “user groups” as CPDP. User groups are identifiable individuals who share a way of using the forest (e.g., hunters, bark collectors, forest farmers) (CIFOR 1999). Several user groups may belong to the same CPA. For example pastoralist associations in Ethiopia consist of primary, secondary and tertiary users that would constitute three different user groups (Aredo 2005). Alternatively a user group does not have to belong to a CPA at all. People who have accessed a forest for generations without acting collectively still constitute a user group. The biggest challenge with user groups is that they can be difficult to identify. They are often not documented and members may not identify themselves as such. In some cases it may require an outsider to do the correct classification, which requires training and makes repeatable data collection more difficult (Poteete and Ostrom 2003).

Economic Behavior

Another alternative derives CPDP from economic behavior. For example a study in India used a 1998 National Sample Survey of over 78,000 rural Indian households to estimate the percentage of average annual consumption that each household derived from goods collected from the commons (Kadekodi 2004). Researchers could use a similar analysis to set a 'dependency threshold' for annual percent consumption, such that any person who consumed more from the commons than the threshold would be designated as CPDP.

Unlike the two previous approaches, economic behavior does not depend on the existence of documentation and avoids arbitrary definitions of CPA or user group affiliation. Furthermore unlike the other approaches it offers compelling evidence of economic dependence. However it has several shortcomings.

- The method does not distinguish between legal and illegal extractions from CPRs. Furthermore past research has not distinguished between resources appropriated from common property verses state, public or open access property.
- It can be difficult to value goods extracted from the commons, especially when the CPRs are located in rural areas with imperfect markets. For example in Peru a kilo of potatoes grown on common property costs US\$0.07 in local market verses US\$1.10 in the capital city (see appendix A). This large disparity illustrates the difficulty of valuing the good at one price.
- The method will tend to underestimate people's economic dependence because it ignores positive externalities associated with collective action (Meinzen-Dick, Gregorio et al. 2004). For example in Nepal forests leasehold groups are also a point of organizing for microfinance and literacy activities (Shrestha 2005).
- The annual percentage consumed cannot reflect short-term increases in dependency and therefore may underestimate the importance of the commons. For example in Muzarabani district of Zimbabwe common property fruit trees are more valuable during the dry season when other nutritional sources are scarce (Chidhakwa 2005).
- Collecting reliable consumption survey data is difficult, time-consuming and expensive (see Section 7).

Despite the challenges this method is commonly used by researchers to identify CPDP. For example a case study of forest users in Mali found that women get 79% of their personal income from CPR sources (Becker forthcoming).

The table below summarizes the four approaches. Although each choice has relative advantages and disadvantages, I believe that identifying CPDP members as self-identified members of CPAs is the most promising option (Option 2 in table 2). Asking people to define themselves as dependent (Option 1) is too ambiguous and identifying user groups (Option 4) is too challenging for a wide-scale survey. Using economic behavior (Option 5) may be the most accurate indicator but it is also the most expensive and skills-intensive. There is probably not enough CPA documentation for Option 3. Ideally, however, the researcher would be able to try several options to compare.

Table 2. Comparison of Options for Identifying CPDP

Options for Identifying CPDP	Advantages	Disadvantages
1. Any person who identifies themselves as dependent on the commons.	<ul style="list-style-type: none"> Inclusive of formal and informal CPDP. 	<ul style="list-style-type: none"> Does not distinguish between legal and illegal extraction. People have different concepts of 'dependent'.
2. Any person who identifies themselves as a member of a CPA.	<ul style="list-style-type: none"> Classification clear and easy to understand. 	<ul style="list-style-type: none"> Excludes people not in CPA but dependent on commons. Does not distinguish between legal and illegal extraction.
3. Any person who is documented member of CPA.	<ul style="list-style-type: none"> Classification clear and easy to understand. Documentation proves that CPDP is legitimate. 	<ul style="list-style-type: none"> Few CPAs have membership documented. Excludes people not in CPA but dependent on commons
4. Any person who is identified by researchers as a user group member.	<ul style="list-style-type: none"> Can potentially include all people dependent on commons. 	<ul style="list-style-type: none"> Difficult to keep user group classification consistent across time and space.
5. Any person who derives more than X percent of their consumption from the commons.	<ul style="list-style-type: none"> Can potentially include all people dependent on commons Does not depend on potentially arbitrary group classification or self-identification. 	<ul style="list-style-type: none"> Does not distinguish between legal and illegal extraction. Difficult to accurately value extracted resources. Data collection is relatively difficult.

4.2 Identifying What Rights

After identifying the population of CPDP we must determine their current breadth of tenure rights. We can classify the tenure rights into the categories listed below (UNDP, UNEP et al. 2005).

- The right to use the resource.
- The right to profit from use of the resource.
- The right to control how it will be used.
- The right to exclude others from unauthorized use.
- The right to sell one's tenure rights to others, permanently or for a limited time.
- The right to pass down these rights to one's successors.
- The right to protection from illegal expropriation of the resource.

An increase in the breadth of rights indicates an increase in tenure security. For example in Nepal women have recently been empowered in commons decision making through the establishment of leasehold forestry groups (Shrestha 2005).

The three basic methods to identify a CPDP's breadth of rights are self-reporting, documentation and history of use.

- Self-reporting asks people if they do or do not have specific tenure rights. This technique provides reliable results to the extent that people are candid and know their rights.
- Documentation looks at community and government paperwork to see what rights have been documented. As already mentioned many of the rights will not be documented.
- Tenure rights history asks people to recall whether or not they have exercised a specific land right in the recent past.

It is interesting to note that studies in China have found only a weak correlation between self-reported land rights and history of use (Li 1998). This suggests that having a right is only one of many factors influencing the use of that right.

Given the paucity of documentation for CP tenure rights, I recommend using a combination of self-reporting and tenure rights history to determine breadth of rights. For example a recent study in China used a combination of these techniques to determine villagers' breadth of tenure rights (Krusekopf 1998). The survey collected data on self-reported tenure rights to freely plant crops, freely sell crops, use land as

collateral, inherit land and transfer land. The study asked about rights reported at the village level by government officials and at the household level. The study also collected data on tenure rights history in terms of number of land transfers reporting in 1993 and the number of land re-allocations from 1984 to 1993.

5. Qualitative Measures of Guarantee of Tenure Rights

In the last section I proposed indicators to measure the breadth of tenure rights. But how certain are we that tenure rights will not be violated in the future? To know we must measure the guarantee of tenure rights.

Before looking at individual indicators I review three research groups' attempts to create a qualitative guide to measure the guarantee of tenure rights for forests, communal land and common property respectively. Qualitative research allows the researcher to build a rapport with the community and identify CPDP who might otherwise have been missed. However it is expensive and requires skilled people to do data collection (Meinzen-Dick, Gregorio et al. 2004). These traits are at odds with our goal to create cheap, easy to measure and easily aggregated indicators for tenure security. However these guides do highlight key issues and in some cases suggest good stand-alone indicators.

5.1 Land Entity Assessment Program

In 2000 the South African NGO Land Entity Assessment Program (LEAP) proposed a set of qualitative indicators for CPR land tenure security. (Source: LEAP 2002)

- People have clear rights, they know what their rights are and they can defend them.
- The processes of application, recording, adjudication, transfer, land use regulation and distribution of benefits are clear, known and used.
- Authority in these processes is clear, known and used.
- These processes do not discriminate unfairly against any group or persons.
- The actual practice and the legal requirements in terms of these processes are the same.
- There are places to go for recourse in terms of these processes, and these are known and used.

LEAP suggests using interviews, surveys and documentation to give an overall picture of tenure security. Although qualitative and difficult to aggregate, their methodological approach enables some comparisons with other evaluations using the same approach.

5.2 CIFOR Basic Assessment Guide for Well Being

The Center for International Forest Research (CIFOR) created the BAG Basic Assessment Guide for Well-Being, a “cookbook” which allows researchers to access the social sustainability of a forest managed for commercial timber extraction. They define social sustainability as the maintenance or enhancement of human well being, a key element of tenure security. The evaluation sets forth three guiding principles for social sustainability.

- Forest management maintains or enhances fair intergenerational access to resources and economic benefits.
- Concerned stakeholders have acknowledged rights and means to manage forests cooperatively and equitably.
- The health of the forest actors, cultures and the forests is acceptable to all actors.

The guide details six exercises for gathering data that are intended to be useful in the context of non-literate societies, including a focus group to identify important stakeholders and a pebble distribution game to ascertain perceptions of access to resources by generation (see box 3 next page) (CIFOR 1999).

5.3 Nine Characteristics of Secure Community Tenure

In 1998 Researcher J.M. Lindsay identified nine characteristics of CP tenure security (Source: Lindsay 1998).

- Security requires that there be clarity as to what rights are.
- Security requires certainty that rights cannot be taken away or changed unilaterally and unfairly.
- Security is enhanced if the duration of rights is for a period that is clearly spelled out and is long enough for the benefits to be fully realized.
- Security means that the rights need to be enforceable against the state.
- Security requires that the rights be exclusive.
- There must be certainty about the boundaries of the resource to whom the rights apply and who is entitled to claim membership.
- Any government entity entering into agreements with the community must have clear authority to do so.
- Security requires that the law recognize the holder of the rights.

- Security requires accessible, affordable and fair avenues for seeking protection of the rights, for solving disputes and for appealing decisions of government officials.

Lindsay does not give guidance on how to determine whether or not these characteristics are satisfied, but presumably a mixture of interviews, surveys and documentation review could be used.

Box 3. Description of BAG Activities to measure forest tenure security

(Adapted from CIFOR 1999)

The CIFOR BAG Basic Assessment Guide for Well-Being details six exercises for gathering data that are intended to be useful in the context of non-literate societies. The key elements of the assessment are as follows.

Stakeholder Identification. Talk informally with local officials and community members and rank important stakeholders along seven dimensions including proximity, pre-existing rights and dependency.

Focus Group Analysis. Bring together at least three groups of ten or more stakeholders to discuss local perceptions of power distribution and gain an overview of forest use and trends.

Histo-ecological matrix. Prepare a list of important resources and a matrix of dates with five year intervals. Ask groups of 5-10 stakeholders to distribute 100 pebbles through the years, with the 100 pebbles representing resource use through time.

Participatory mapping. Bring together 5-10 stakeholders to draw a local map which highlights aspects of their management system and view of the world.

Access to resources by generation matrix. Bring together 10-12 stakeholders of similar age and give them 100 pebbles representing all of the forest resources over time. Ask the group to distribute the pebbles across three categories: grandparents, yourself and grandchildren.

Rights / means to manage matrix. Interview 12-15 people in groups of 5-15 each. Prepare a matrix with the columns listing important stakeholder and the rows listing the functions of forest management. Ask participants to allocate 100 pebbles for each function, with the pebbles representing the degree they think the stakeholder should be responsible for the function.

6. Quantitative Measures of Guarantee of Tenure Rights

From my interviews and literature review, including the qualitative evaluations reviewed in the last section, I have identified a number of quantitative indicators for the guarantee of tenure rights. I classify them into three categories.⁹

- Indicators that use past performance. If someone has violated CPDP tenure rights in the past it is more likely they will do it again in the future. Likewise if resource extraction has been unsustainable in the past the condition will probably continue.
- Indicators that use perceptions of the future. CPDP's perceptions combine their understanding of past events and CPA robustness to make predictions about their CP tenure security.
- Indicators that estimate CP tenure security based on CPA characteristics. Certain characteristics increase the likelihood that a CPA will be able to protect against internal and external threats to tenure security.

I discuss each category in detail below. Note that to simplify the analysis for the remainder of the indicators I will focus on the guarantee of the "use" tenure right, which is the most common and important tenure right for poor people. However the indicators can equally be applied to measure the guarantee of other tenure rights.

6.1 Indicators that use past performance

Past trends are good predictors of future performance. The important trends for guarantee of tenure rights are trends in CPDP number, history of conflict, access, investment and resource sustainability.

Trends in the Number of CPDP

One of the most basic measures of guarantee of tenure rights tracks the % change in the number of CPDP. Similar calculations have been done before; for example one researcher estimated that between 26% and 52% of poor households in West and South India lost CPR access between the mid-1950s and 1980s (Jodha 1986). A significant change in the number of CPDP can have a big impact on people's tenure rights, which may adversely impact tenure security. For example recent immigration into the

⁹ While there may be some advantage to distinguishing between indicators that measure internal versus external tenure security, I found substantial overlap in the two categories. See appendix C for more discussion.

Muzarabani district of Zimbabwe is increasing the number of local CPDP and weakening institutions that manage common property (Chidhakwa 2005).

History of Conflict

A history of conflict also presages less secure tenure rights for the future. Conflict does not necessarily result in a disruption of use rights, but it does weaken one's ability to fight threats to security. Furthermore conflict is common in common property regimes. According to one survey resource conflicts in sub-Saharan Africa are more prevalent than earlier in the last century and will likely increase (Blench 1997). One NGO that I spoke with in Peru lamented the huge costs that communities must pay to resolve conflicts like border disputes, sometimes in the form of bribes to government officials. A few years ago they actually surveyed communities to record the number and type of conflicts reported in different CPAs. This kind of study could be used to measure an indicator such as % of CPDP in conflict over use rights in the past X years.

Box 4. The United Nations and Tenure Security Indicators

The United Nations Human Settlements Programme (UN-HABITAT) has recently announced a global campaign for tenure security. A recent UN-HABITAT document suggested three component indicators to measure tenure security in urban slums (UN HABITAT 2003).

- The proportion of urban households with documentation that can be used as evidence of tenure.
- The proportion of women and men evicted from residence in past ten years. The UN stresses the importance of collecting such indicators for men and women since "securing tenure for households does not necessarily mean securing tenure for women and children in households." (UN HABITAT No Date)
- The proportion of households who believe they will not be evicted from their residence in the next five years.

In 2002 a UN expert panel recommended a more elaborate set of sub-indicators for the development of a composite index. These sub-indicators incorporate additional measures of documentation and enforcement of tenure rights as open ended questions about legal protections and policy frameworks. See the Appendix B for a complete listing of their recommended index.

History of Access

At its worst conflict over common property can result in a loss of use or other tenure right. For example in Botswana privatization and concentration of pastoral resources resulted in poor cattle farmers losing access to grazing pastures (Taylor 2005). Therefore

another indicator for the guarantee of tenure rights is the % total CPDP that have been denied their CPR use rights to resources in the past five years for non-ecological reasons. The United Nations endorses this indicator as one way to measure tenure security of private property and slums (see box 4 previous page) and it is equally applicable to common property.

History of Investment

A large body of literature confirms that tenure security for private property is correlated with investment in the resource (Deininger and World Bank. 2003). For example farmers in Nicaragua increased agricultural investment in their land after receiving secure land titles from the government (Deininger, Sebastián Chamorro et al. 2002). A smaller set of studies have shown that CP tenure security also increases investment in common property. For example a study of villagers in Ethiopia used eight indicators to measure tenure security and showed that high tenure security increased investment in stone terraces on community land (Gebremedhin, Pender et al. No Date).¹⁰

Given the correlation between investment and tenure security, I investigated a possible indicator that uses investment in the commons as a proxy for CP tenure security. However I found this indicator impractical for several reasons. First of all CPDP rarely invest in the commons unless an outside organization provides the funding. For example in Peru I found that CPDP in the Amazon and Andes did little community investment (see appendix A). The second issue is causality: CPDP often invest in common property in order to increase their tenure security. For example in some cases villagers plant trees in order to secure their claim to land (Meinzen-Dick and Dohrn April 14 2006). Third, it is difficult to operationalize the indicator into something that can be aggregated across many regions; we are challenged to make meaningful comparisons between time and labor invested in one region with time and labor invested in another.

History of Ecological Sustainability

Poor CPR management threatens CPDP's ability to appropriate resources from a CPR. An over fished lake or overgrazed pasture will eventually become useless and render tenure rights irrelevant. For example in India population increase has led to

¹⁰ The CP tenure security indicators related to the communities' history of access and perceptions.

overexploitation of the commons and a decline in the quality and quantity of the services they yield (Jodha 1995).

Indicators have been developed to evaluate the sustainability of specific CPRs. For example CIFOR developed a set of indicators to evaluate the health of forests. The following are the first three of over fifteen (Source: Prabhu, Colfer et al. 1998).

- Landscape pattern is maintained.
- Change in diversity of habitat as a result of human interventions should be maintained within critical limits.
- Community guild structures do not show significant changes in the representation of especially sensitive guilds, pollinator and disperser guilds.

Unfortunately these indicators require technical expertise to understand and measure. Furthermore for a global assessment of common property we need ecological indicators applicable to all types of CPRs. Given the variation in types of CPRs, finding one-size-fits-all indicators for ecological sustainability is difficult. One researcher in Peru highlighted this as a significant problem that should be overcome with separate indicators for each CPR type (see appendix A). Exploring this option is beyond the scope of this report.

However researchers can evaluate how ecological sustainability impacts people's ability to exercise their tenure rights. For example according to the Millennium Ecosystem Assessment the worldwide availability of capture fisheries is declining due to overharvest (Millennium-Ecosystem-Assessment No Date). As a result some CPDP have lost de facto tenure rights to fish in impacted lakes and rivers. Researchers could evaluate this phenomenon with an indicator of the % total CPDP who have been denied tenure rights due to resource scarcity in the past five years. This does not require technical expertise to measure and is generic to all common property.

6.2 Indicators using future perceptions

Perception is one of the most common ways of estimating the guarantee of tenure rights. The study previously mentioned in Ethiopia found that villages who reported higher tenure security invested more in communal lands (Gebremedhin, Pender et al. No Date), which suggests that perceived tenure security can proxy actual tenure security. The UN (see box 4) and the WB (see box 5) have both used indicators like % of people who

believe their tenure rights will not be violated in the next five years to approximate tenure security.

Perception based indicators combine all of a persons relevant experiences and therefore provide a lot of information that would otherwise be difficult to measure. However a problem is that respondents cannot account for unknown information. Rural respondents are often particularly unaware of distant threats to their guarantee of rights. For example, in Peru people's perceptions may reflect threats "on the ground" like pressing conflicts with neighbors. It is less likely to reflect from legislators or mining companies in far-away Lima (see appendix A)

Box 5. The World Bank and Tenure Security Indicators

The best source of WB endorsed indicators for tenure security comes from project documentation. Unlike the UN indicators (see box 4), WB indicators focus on measuring changes in tenure security to monitor project progress. For example a 2004 land reform project in Indonesia proposed using the following indicators to measure the project's impact on tenure security (World Bank [4] 2004).

1. Strengthened perception of land tenure security.
2. Increased access to formal credit.
3. Increase of formal market activities.
4. Increase investment in agricultural land and property development.
5. Increase in land values.

WB studies have measured these indicators using regression analysis of carefully designed household surveys (Deininger, Sebastián Chamorro et al. 2002). Some critics question the meaningfulness of the indicators measuring property rights, arguing that formalization of property rights does not necessarily promote increased tenure security and in many cases does the opposite (Cousins, Cousins et al. 2005).

6.3 Indicators using CPA characteristics

Most CPDP are part of CPAs that create rules and regulations to protect against internal and external threats to tenure rights. CPAs with certain characteristics generally protect themselves better than CPAs without these characteristics. The indicators discussed below test for the presence of those characteristics.¹¹

CPDP with CPA Membership

The formation of a CPA, whether formal or informal, requires some level of collective action. CPDP with membership to a CPA a higher guarantee of tenure rights than

¹¹ Some of these indicators are only applicable to CPDP in CPAs.

people who do not (Agrawal 2001). This indicator captures the % of CPDP with membership to a CPA.¹² CPA membership can be identified with documentation or self-reporting as discussed in section 4.

CPDP Aware of Legal Rights

Case studies have found that many CPA members do not understand the processes to legally own land. Research in rural villages has shown that awareness of rules increases compliance (Nkonya, Pender et al. 2005). This suggests that awareness of legal rights them will increase their application. For example in Tanzania the Pastoralist Land Rights Protection Programme reduces land grabbings and conflicts by raising awareness on pastoral land rights.

The challenge is finding a way to measure awareness of legal rights. At a regional level a researcher could ask about specific local laws but at a national or international level the question loses meaning. An option is to measure the % of CPA members who self-report being aware of their legal rights and how to defend them. Alternatively many NGO and government programs try to educate CPDPs about their rights, so another indicator could be the % of CPA members who have received training about their legal rights and how to defend them.

CPDP in CPA with Leadership Aware of Legal Rights

Besides CPA members, CPA leaders need to be aware of their group's tenure rights and know how to defend them when necessary. In many cases more powerful interests exploit group leaders who don't know their rights. For example in Peru leaders of CPAs sometimes negotiated unfavorable contracts with mining interests on behalf of the community (Rocha and Castillo March 27, 2005). Again the problem is finding the right proxy for awareness of legal rights. I suggest the same two indicators as for CPA members: % of leaders self-reporting awareness and % of leaders trained.

CPDP with Documentation of Individual Tenure Rights¹³

CPDP with documented evidence of their CP tenure rights can better protect against internal threats to tenure security. This can be captured with the UN-HABITAT proposed

¹² Note that if CPA membership is the defining characteristic of CPDP then this indicator will be 100%.

¹³ Note that this indicator can be applied to non CPA members.

indicator % total CPDP with documentation proving tenure rights (see box 4); however, most CPAs do not distribute documentation of rights to members. In theory CPA members can hold individual documentation or have their names listed in CPA group documentation. In practice I have not identified any cases where the CPA gives out documentation of individual CP tenure rights. More research is needed to determine the full extent of available documentation. Another problem is that different types of documentation bestow different degrees of tenure security, a point I discuss in more detail below.

Finally, although documentation is important it is by no means a prerequisite for the guarantee of tenure rights. In South Africa researchers found that even without a formal title 90% perceived their land tenure as reasonable secure (Cousins, Cousins et al. 2005). In fact sometimes the push for better documentation erodes people's CP tenure security; formalizing ownership for some weakens others' informal collection and use rights (Gregorio, Hagedorn et al. 2004).

CPDP in CPA with Documentation of Group Tenure Rights

Just as CPDP are better protected when they have of documentation their tenure rights from the CPA, the CPA itself has better tenure security when it has documentation of its tenure rights from the appropriate authority, usually the national government. In at least some cases the government keeps data on the number of communities titled and untitled; in a 2002 survey of 20 countries in Africa 10 permitted CPAs to register group property (Alden-Wily 2002). Therefore the % total CPDP living in CPAs with documented group tenure rights is a promising indicator. One limitation is that not all documentation is created equal. A community with one type of title may have less tenure security than a community with a different type of title. However an indicator that distinguishes between different types of documentation would not be suitable for all regions.

For example, group documentation is provided in Peru, where the national government provides titles to communities that share property. According to government statistics almost 80% of all communities with shared land have titles and these communities enjoy higher tenure security (CEPES 2005). However most of these registries do not clearly delineate the boundaries of property so neighbors often dispute borders. Furthermore

these communities hold different types of documentation and they do not all confer the same degree of tenure security, in part because several attempts at land reform in recent history have created several sets of land registries. For example La Comunidad Campesina de Sechura held ancestral titles to its property dating back to colonial times. Nevertheless in the past century the government has reclaimed over 90% of its territory because it does not respect the old title (for more information see appendix A).

Performance Standards

Performance standards for bureaucratic processes like the cost of titling or adjudication are another potential metric of the guarantee of tenure rights. In Ekutheleni, South Africa, some people cannot title their land because the process is too expensive (Association for Rural Advancement 2005). In his book “The Mystery of Capital” Hernando de Soto applies process performance measures to private property regimes and concludes that it takes 13-25 years to formalize informal urban property in the Philippines (Soto 2000). De Soto argues that such long delays inhibit people from exercising and keeping their tenure rights. In theory performance standards can be applied either to CPA internal processes (i.e. cost for group member to get title from the CPA) or for CPA external processes (i.e. cost for CPA to get title from the State). In practice internal processes vary so much that researchers would have trouble aggregating the results. Processes between the CPA and the State are more consistent.

The World Bank has adopted such metrics in many of its land reform programs. A recent project in Malawi to enhance their titling system for communal land measures success by the “number, speed and cost of titles, cautions and hectares registered” (World Bank [2] 2004). Another recent project in Honduras to set up a titling system targeted the satisfaction rate of users at 70% and average time to register a land transaction at less than 7 days (World Bank [3] 2004). Such indicators could be generalized as follows.

- % CPDP satisfied with bureaucratic processes (i.e. getting permission to exercise tenure right, settling dispute in legal system) related to tenure rights.
- % CPDP with costs related to bureaucratic processes less than X dollars.
- % CPDP with waiting time related to bureaucratic processes less than Y days.

Additional research could determine reasonable values for the cost X and time delay Y.

CPDP in CPA with Gender Equality

Gender discrimination is a key hindrance to tenure security for women in developing countries (UNDP, UNEP et al. 2005). For example many CPAs in the Peruvian Andes have policies that prevent women from sitting at the front of community assemblies (see appendix A). In village forest management groups in India and Nepal women are likely to be relegated to a peripheral role (Shyamsundar, Araral et al. 2004). Women's disadvantaged status weakens their guarantee to tenure rights. Therefore indicators for the guarantee of tenure rights should capture gender discrimination. Examples include:

- % total CPDP in CPA that does not have discriminatory tenure rights, including right to inherit.
- % total CPDP in CPA that does not have discriminatory governance
- % total CPDP in country with national legislation prohibiting discriminatory policies against women.

UN-Habitat proposed a set of indicators measuring women's right to secure tenure as part of a composite index, shown in Appendix B.

Other Important CPA Characteristics

Finally, an increasing body of literature looks to identify other enabling conditions for internally stable CPAs. Once identified these conditions could be used as indicators for tenure security. For example, if researchers could show that small group size increases CPA longevity then people in small CPAs would be judged to have higher guarantee of tenure rights than people in large CPAs. An indicator like % CPDP dependent on CPA with less than 150 members could be used to proxy the guarantee of tenure rights.

While many studies have been done to identify significant relations between such factors and CPA sustainability (Meinzen-Dick, Gregorio et al. 2004), the large number of relevant factors and the adaptive nature of collective action makes demonstrating casual relationships very difficult. One paper showed that at least 32 different factors have been suggested in the literature, from mobility of the resource to enforceability of rules (Agrawal 2001). Although so far no statistically significant factors have been identified for all situations, case studies and empirical data do suggest the relationships shown in Table 3.

Table 3. Critical enabling conditions for sustainability on the commons.

(Source: Agrawal 2001)

<p>Resource System Characteristics</p> <ul style="list-style-type: none"> • Small size • Well-defined boundaries • Low levels of mobility • Possibilities of storage of benefits • Predictability <p>Group Characteristics</p> <ul style="list-style-type: none"> • Small size • Clearly defined boundaries • Shared norms • Past successful experience – social capital • Appropriate Leadership • Interdependence among group members • Heterogeneity of endowments • Low levels of poverty • <p>Relationship Between Group and Resource</p> <ul style="list-style-type: none"> • Overlap between user group location and resource location • High levels of dependence by group members on resource • Fairness in allocation of benefits • Low levels of user demand • Gradual change in levels of demand 	<p>Institutional Arrangements</p> <ul style="list-style-type: none"> • Rules are simple and easy to understand • Locally devised access and management rules • Ease in enforcement of rules • Graduated Sanctions • Availability of low cost adjudication • Accountability of monitors and other officials to users. • Match restrictions on harvests to regeneration of resources. <p>External Environment</p> <ul style="list-style-type: none"> • Low cost exclusion technology • Time for adaptation to new technologies related to commons • Low levels of articulation with external markets • Gradual change in articulation with external markets. • Central government does not undermine external environment • Supporting external sanctioning institutions • Appropriate levels of external aid to compensate local users for conservation activities • Nested levels of appropriation, provision, enforcement, governance.
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6.4 Summary of Indicators for Guarantee of Tenure Rights

In Table 4 I summarize the indicators discussed. I also categorize each indicator along three dimensions related to implementation feasibility: survey population, data availability and history of application.

- The Survey Population field relates to the relative cost of measuring the indicator. Indicators with a larger survey population are more expensive to measure. The most expensive indicators survey the entire population and the least expensive only survey the national government. Most of our indicators survey the CDPD households and CPAs.
- The Data Availability field indicates whether any data for this indicator is likely to already be available and aggregated. In almost all cases the data is not available. However in some cases governments do keep reliable data on the documented CPAs. For example in Peru the government published data on the

number of group titles granted and people living in the groups. More research needs to be done to see if the available data is enough to contribute to indicator development.

- Finally the History of Application field indicates the relative experience of the international community with each indicator. While some of the indicators have never been realized, a few have been adopted by the United Nations and World Bank. These indicators may more easily garner support for adoption.

Two other important dimensions are indicator accuracy and resonance; these are less objective but can be inferred from the previous discussions.

6.5 Indicator Recommendations

I hesitate to name any single “best” indicator. No one indicator captures all of the elements of the guarantee of tenure rights, so whenever possible multiple indicators should be used, including indicators to determine the root cause of tenure insecurity (see box 6). Furthermore, given the complexity in predicting the future of people’s tenure rights, the evaluation of indicators will inevitably involve some subjectivity. However if only a few indicators can be selected then I recommend including at least one from each of the three categories: past trends, perceptions and CPA characteristics. A reasonable set of four could be the following.

- Trends in the number of CPDP. This indicator provides a good case for giving common property the attention it deserves.
- % of CPDP without conflict over use rights in past X years. Most people agree that conflict should be resolved, regardless of which side is right or wrong.
- % of CDPD who believe their use rights will not be violated in next X years. Perceptions incorporate many different aspects of tenure insecurity. Furthermore most people can sympathize with the bane of feeling insecure.
- % of CPDP in CPA with documented group tenure rights. Despite criticism property titling is still a priority for many influential organizations in the development community, and efforts to increase titling can attract donor funds.

It is no coincidence that these picks are similar to the indicators that UN-HABITAT has selected for measuring tenure security in slums (see box 4). These indicators have been tested and resonate with people and policy makers,

Box 6. Finding the Root Cause of CP Tenure Insecurity

Knowing that the tenure security is low, high, increasing or decreasing does not necessarily tell us why. Knowing why is important for policy makers who want to recommend strategies to improve or maintain tenure security.¹⁴ While measuring the root cause of tenure insecurity is beyond the scope of this report, below I discuss ideas on some possible indicators.

Diagnostic Indicators. “Diagnostic Indicators” do not give information about the level of tenure security but rather help diagnose its root cause. Examples include the reasons most reported by CPDP for common property ecological degradation or conflict. Creating answer categories can help researchers aggregate the data. A recent survey of global CP tenure systems by ILC suggested the following classifications for causes of tenure insecurity: environmental degradation / change, privatization / nationalization, commercialization, migration, state development projects, ambiguities in national policies and elite capture (Fuys et al, 2006).

Descriptive Indicators. Linking CPDP tenure security and information about their CPR type, size and condition would help policy makers direct policy intervention. One possible taxonomy for CPRs is agricultural lands, forests, wastelands, water resources, fishery resources and biodiversity (Kadekodi 2004).

Reframing Indicators. To focus on people I have presented all indicators in terms of % of CPDP. However we may want information in terms of % of CPAs. For example we could find that only 10% of CPAs practice gender discrimination but 90% of CPDP live in CPAs that practice gender discrimination. This suggests that relatively few, densely-populated CPAs need policy interventions.

¹⁴ For ideas on how CP tenure security can be increased see the recent report “The Wealth of the Poor: Managing Ecosystems to Fight Poverty” listed in the bibliography.

Table 4 Summary of Indicators for Guarantee of Tenure Rights

	Indicators for Guarantee of Tenure Rights	Survey Population	Data Availability	History of Application
	Indicators that use past performance			
1	% change in the number of CPDP	All HH	Limited	Case Study
2	% of CPDP without conflict over use rights in past Y years.	CPDP HH	None	Case Study
3	% of CPDP not denied use rights in past Y years.	CPDP HH	None	UN
4	% of CPDP not denied use rights right due to ecological degradation in past Y years.	CPDP HH	None	Case Study
	Indicators using perceptions of future			
5	% of CPDP who believe their use rights will not be violated in next Y years.	CPDP HH	Limited	UN, WB
	Indicators using CPA Characteristics			
6	% of CPDP with self-reported CPA membership	CPDP HH	None	None
7	% of CPDP with documented CPA membership	CPDP HH*	Limited	None
8	% of CPDP who self-report awareness of legal rights	CPDP HH	None	None
9	% of CPDP who self-report having received training of legal rights	CPDP HH	None	None
10	% of CPDP in CPA with leadership who selfreports awareness of legal rights	CPA	None	None
11	% of CPDP in CPA with leadership who selfreport having received training of legal rights	CPA	None	None
12	% of CPDP in CPA with self-reported individual tenure rights.	CPDP HH	None	None
13	% of CPDP in CPA with documented individual tenure rights.	CPDP HH*	Limited	UN
14	% of CPDP in CPA with documented group tenure rights.	CPA	Limited	WB
15	% of CPDP satisfied with processes related to tenure rights	CPDP HH	None	WB
16	% of CPDP with costs for process X less than Y dollars.	CPDP HH*	None	WB
17	% of CPDP with waiting time for process X less than Y days.	CPDP HH*	None	WB
18	% of CPDP in CPA that does not worse tenure rights for women	CPA	None	None
19	% of CPDP in CPA that does give less governance to women	CPA	None	None
20	% of CPDP in country with national laws prohibiting gender discrimination	State	None	None
21	% of CPDP in country with critical enabling condition X.	CPA	None	Case Study

Survey Population: all households (All HH), CPDP household (CPDP HH), CPDP HH or CPA (CPDP HH*), state gov (State)

Data Availability: no aggregated data (None), limited aggregated data from case studies (Limited)

History of Application: Indicator never used (None), used in case studies (Case Study), used by UN (UN), used by World Bank (WB)

7. Collecting the Data

In the previous sections we looked at the indicators we want to collect, all of which can be calculated from close-ended survey questions (see appendix D for sample survey questions). In this brief section I explore how the survey data could be collected.

7.1 Data Collection Options

There are two basic sets of data we need to collect. The first set looks at measuring the number of CPDP and requires sampling the entire rural population. The second set tries to measure the breadth and guarantee of tenure rights and focuses on the sub-population of CPDP. Table 5 (following page) summarizes possible ways to collect the information with advantages and disadvantages of each.

The case study in Peru highlights several of the data collection challenges. According to the experts I interviewed Peru has no available infrastructure for surveys so any study would need to start from scratch. One NGO in Peru estimates a cost of US\$22 per household to survey. This high cost is not the only challenge to collecting good survey data. Experts in Peru pointed out that in many cases villages are unwilling to give information to strangers. One gave the example of households that underreport the number of cows they own so that others will not try to steal them. Furthermore in past surveys many households lied about the existence of documentation so that officials would not identify them as illegal landholders. According to one source in the last census approximately 900,000 people claimed to have an individual title to their land even though the land offices had only granted 200,000 titles (see appendix A).

7.2 The Role of ILC and the Land Reporting Initiative

Given the challenges and opportunities, I believe that the option to add a 'module' of survey questions to existing qualitative research (option 5 in Table 5) is the most promising option because it takes advantage of ILCs network of NGOs dedicated to land and resource access. These NGOs that work with local communities are well positioned and have incentive to collect this data for advocacy. ILC can play an important role motivating, advising and documenting their data collection efforts.

Table 5. Summary of Data Collection Techniques
(Adapted from Calibre-Consultants and SSC 2000)

Option for Data Collection	Advantages	Disadvantages
1. Estimate indicators through key informant interviews in countries of interest.	<ul style="list-style-type: none"> • Relatively low cost. • Simple implementation. 	<ul style="list-style-type: none"> • Imprecise. • Hard to distinguish good information from guesswork.
2. Analysis of raw data collected by existing household surveys.	<ul style="list-style-type: none"> • Relatively low cost. • Data already collected. 	<ul style="list-style-type: none"> • Methodologies vary from country to country. • Questions important to tenure security not asked. • Most surveys have bias toward urban areas. • Most countries do not provide access to data.
3. Adding a 'module' of questions to an existing household survey.	<ul style="list-style-type: none"> • Less costly than a specialized survey. • An add-on to an agricultural survey could reach a rural sample. • The questions can be custom selected to give more reliable data. 	<ul style="list-style-type: none"> • Most surveys have bias toward urban areas. • The quality of the data would be constrained by the nature of the existing survey.
4. Running a special purpose survey designed to calculate indicators	The questions, sampling scheme and field staff can be custom selected, giving more reliable data.	<ul style="list-style-type: none"> • Most expensive option • Not necessarily conducive to regularly repeatable measurements.
5. Adding a 'module' onto existing qualitative research conducted by development organizations.	<ul style="list-style-type: none"> • Less costly than a specialized survey. • The questions can be custom selected to give more reliable data. • Respondents trust organizations resulting in more reliable data. 	<ul style="list-style-type: none"> • The selection of sites would be dictated by the requirements of existing projects. • The quality of the data would be constrained by the nature of the existing research.

ILC can learn from two other organizations that have managed or facilitated collection of data related to CP tenure security: the International Forest Research Institute (IFRI) in the United States and the Instituto del Bien Comun (IBC) in Peru. IBC has mapped and surveyed at least 900 native communities in the Peruvian Amazon and created a database with 262 fields of information on location, legal-administrative status, population, authorities, educational and health services, economic activities and principal products sold. Local advocates are using IBC's maps and data to advocate for new and expanded group titles (Smith, Pariona et al. 2003) . However IBC data collection is expensive. IBC estimates a cost of US \$900 per community studies, of which travel constitutes a large portion.

Since 1993 the IFRI network of collaborating research centers has used a common set of methods to study forests, forest users and forest management. As of 2001 IFRI has a database with 141 sites, 231 forests, 233 user groups, 94 forest associations and 486 products in 12 countries. Researchers use this data to better understand how collective action can provide tenure security. IFRI emphasizes the need for good training to ensure comparable data is collected. The consistency is reinforced through an annual nine week training program in the United States and less frequent regional training programs (Poteete and Ostrom 2003).

These approaches are not perfect. Researchers must struggle to collect consistent data across many sites. The purposeful selection of sites by NGOs may ignore unknown groups with claims to common property. Finally the data may lose credibility if policy makers view the NGOs that collect it as biased.

8. Conclusions and Next Steps

In this report I argued that a significant, unknown percentage of the world's poor depend on common property for their livelihood. At the same time numerous case studies show that factors like ecological degradation, overpopulation and privatization increasingly threaten their common property (CP) tenure security and risk pushing them deeper into poverty. In spite of this, little comparable national or international data is being collected that could increase awareness and better allocate donor funds. The International Land Coalition has responded to the need by initiating the Land Reporting Initiative to improve monitoring of common property tenure security. This report outlines ILC options for indicators and data collection.

There are two components to CP tenure security: the breadth of tenure rights and the guarantee of tenure rights. To measure the breadth of rights the first step is to identify who has tenure rights to common property; he or she is referred to as a common-property dependent person (CPDP). The second step is to determine what tenure rights the CPDP has. The report presents multiple approaches to measure both steps and the pros and cons of each. One practical option is to focus on measuring the tenure rights of members of organized common-property associations and to deduce their tenure rights from direct survey questions about their tenure rights and experience using them.

The second component of CP tenure security is the guarantee of tenure rights, defined as the degree of certainty a CPDP's tenure rights will be respected now and in the future. More certainty means better CP tenure security. I split the indicators that measure the guarantee of tenure rights into three categories: indicators that use past trends, indicators that use perceptions and indicators that look at the robustness of common-property associations (CPAs). I believe four of the most promising indicators are (1) CPDP population trends, (2) presence of conflict, (3) CPDP perception of future rights and (4) documentation of rights. Most of the indicators require expensive CPDP household level surveys or CPA level surveys. Nobody has aggregated the data needed to calculate them, with the possible exception of indicators for documentation. Many of the indicators have not been tested, although a few have been used for monitoring private property tenure security by the United Nations and World Bank.

Finally I reviewed several options for collecting the data needed to calculate the indicators. I believe that the option to add a 'module' of survey questions to existing qualitative research best takes advantage of ILCs network of NGOs dedicated to land and resource access. These NGOs are already working with local communities and are well positioned to collect this data for advocacy. ILC can play a key role motivating, advising and documenting their data collection efforts. However two case studies from other organizations illustrate that such data collection can be expensive and requires careful collaboration with collectors to ensure data consistency.

For possible next steps ILC and their partners should discuss the indicators presented in the report. A test site NGO in need of better data for common property advocacy should be selected to measure as many of the indicators as possible. ILC should work with the test site to create the survey questionnaire and publish the results along with any lessons learned. Assuming a good result ILC can lobby for other coalition partners to run similar surveys and begin to build an on-line database of CP tenure security indicators.

Appendix A : Peru Case Study on CP Tenure Security Indicators

A.1 Background and Summary

This appendix summarizes the results of my discussions with six representatives from five government and non-government organizations about the possibility of using indicators to measure CP tenure security. I conducted these interviews the week of March 27, 2006 in Lima, Peru using the interview guide in section A.11.

My interviews focused on the two most important common-pool resources (CPRs) in Peru: agricultural land shared by Andean communities and forests shared by native Amazon communities. The government estimates that about 7,000 communities containing 5-6 million people live in communities that depend on these CPRs for their livelihood. Some NGOs I talked with felt that these figures are unreliable. Furthermore, nobody has measured the importance of these CPRs relative to other income sources. Such measurements are confounded by the difficulty of valuating resources extracted from common property.

The interviewees agreed that the biggest threat to people's tenure security to these CPRs is lack of proper title. Approximately 20% of the communities have no title to their shared lands and many existing titles do not specify boundaries or have incorrectly specified boundaries. A second important threat to tenure security is national and international pressure to provide individual titling of CPRs. This has the potential of benefiting a few community members while marginalizing many more. A third important threat comes from mining companies that expend significant resources to obtain access to CPRs.

The experts I spoke with felt that the best indicators to measure CPR tenure security are % of users with group title, % perceiving tenure security, % without conflict and % with leadership aware of rights. Unfortunately there is currently no good infrastructure for collecting the requisite data to calculate these indicators. Data from one source suggests that measuring one data point in time would cost approximately US\$160,000. Besides financing, our interviewees highlighted several other challenges in getting reliable survey data. However, most experts agree that monitoring these indicators

would help NGOs and government agencies lobby for more funds and better allocate existing funds to the most needy areas.

A.2 Peruvian CPRs: The Amazon and the Andes

The interviewees had experience primarily with two varieties of common-pool resources (CPR): the hilly region of the Andes or the jungle region of the Amazon. In the Andes region exists approximately 6000 communal communities (CC). Each community can generally be divided into three regions. The low lands (<2500m) are irrigated and most often farmed individually on so-called familial plots. The middle lands (2500-3500) are not irrigated but receive sufficient rain to produce part of the year. These are still managed individually but the community exerts more control over the type of farming that occurs. Finally the high regions (>3500) are generally pastures for livestock. The community shares this resource and sets rules governing its use. The high regions account for approximately 75% of the total areas of the CCs. (Rocha No Date)

An agricultural committee within the CC is usually responsible for managing the agricultural area. According to researchers Zumela Burneo de la Rocha and Laureano Del Castillo at the Centro Peruano de Estudios Sociales (CEPES), their involvement varies significantly from CC to CC. They may impose significant restrictions on what can and cannot be planted, or in some rare cases redistribute the land every few years to ensure that families have equal access to the best lands (Rocha and Castillo March 27, 2005). According to Dr. Alejandro Diez Hurtado, professor of anthropology at the Pontificia Universidad Catolica del Peru, a livestock committee usually manages the pastures. They may charge community members per head of livestock that they graze.¹⁵ (Diez March 28, 2006)

Interviewees also discussed the Amazon jungle region in the eastern part of Peru. It is estimated that approximately 1,500 communities depend on shared access to the jungle for their livelihoods via such activities as hunting, fishing and logging. The Ministry of Fisheries nominally manages the fisheries, but in many cases many community committee provide de facto resource management. Dr, Richard Smith, executive director of the Instituto del Bien Comun (IBC), suggested that this is partly because the government has historically not been interested in community management (Smith

¹⁵ Most communities record this information in a booklet. A typical cost may be 5-20 soles per year

March 30, 2006). He also described an inverse relationship between abundance of fish and fishery management. Until recently the rivers and lakes contained a plethora of fish so management was unnecessary from either the government or the communities.

The state, the native communities and private operators (loggers) share responsibility for managing the forests. The state officially owns most of the forest but has bid out 40-year concessions for large parcels to logging companies that agree to provide sustainable forest management. In addition some native communities occupy their own community property and, in some cases, realize forest management both inside and outside their borders. However, according to Dr. Smith right now there is “chaos in the forestry sector” such that the majority of the forests now are de facto open access.¹⁶

A.4 Nobody Knows the Number of CPR Dependents

There are no official government estimates of the number of people who live in the Andean CCs. One anonymous representative from the Proyecto Especial de Titulación de Tierras y Catastro Rural (PETT) asserts that there are approximately 6,000 CCs containing approximately 100,000 households and 5 million people.¹⁷ However others question the veracity of these government statistics. According to land researchers at the CEPES the PETT numbers change from year to year in unrealistic ways. They estimate the number to be 10% less than the PETT estimate. According to Prof. Hurtado the uncertainty derives in part from inconsistent counting methodology.¹⁸

The number of people who depend on the shared resources of the CC for their livelihood is even more uncertain. People in the CCs garner income from a variety of sources, including agriculture sales from familial and community plots, livestock sales from familial and community pastures and remissions from family members in other areas. The people I interviewed were not aware of any study that tried to determine how much income people earned from the different forms of common property.

¹⁶ According to Dr. Smith this is because of the way that the concessions were distributed in the 1990s. Any bid required a large up-front capital investment that excluded most small and native businesses that had been using the forests before. This eroded any support for the forestry reform and sparked a race to exploit the forests.

¹⁷ There are also people who are not members of the community who depend on the CPRs.

¹⁸ Prof. Hurtado explained that in some villages they count only heads of households, in some villages they count men and women and in some villages they count all people over 18. However when the numbers are aggregated they assume that only household heads were counted. Therefore the aggregated figure overestimates the actual figure.

Similarly nobody has estimated the dependence of people in the jungle region on shared forests and fisheries. According to Dr. Smith the national census does a reasonable job of counting the number of people who live in the jungles. However the last census was done over 10 years ago and it does not inform the extent to which these people depend on CPRs. Dr. Smith's organization, the Instituto de Bien Comun (IBC), has surveyed the native communities and estimate that there are approximately 1,500 that manage common property. However there is no data on the number of people that live in each community, or to what extent they rely on the forests. With regards to fishing Dr. Smith estimates that only 10% of fishermen register with the state, and could identify no other studies have been conducted to determine region-wide how much people fish and how many institutions exist to manage the fisheries.

A.5 No Easy Way to Count CPR Dependents

The most promising indicator I found in the literature to measure CPR dependence is a ratio of the annual value of the resources extracted from the commons to annual household consumption. This information could be collected with a survey. However several interviewees raised doubts about its feasibility. The experts from CEPES thought it would prove difficult to monetize the value of foodstuff and other necessities extracted from the common property because of large variations in prices across regions.¹⁹ Prof. Hurtado added that people often undervalue their possessions in surveys, thus making such estimates unreliable. See the section 8 for more information on surveys.²⁰

However, Prof. Hurtado did suggest that dependence on communities in the Andes could be proxied by the altitude of a household. It could be assumed that houses at low altitudes depend on familial lands, households in high altitudes depend on common pastures and households in-between depend equally on both. The altitude of people's homes can be found in the registries. Unfortunately this method ignores other sources of income, which could be especially significant in the high regions. It would also be difficult to generalize this indicator to other environments.

A.6 The Biggest Threats: Lack of Group Title, Privatization and Mining

¹⁹ They gave the example: the price of a kilo of potatoes in remote rural areas is .20 soles per kilo verses 3.5 kilos in the city.

²⁰ Dr. Smith suggested that I look at the work of economist Oliver Coombs and Victor Agreda.

The interviewees discussed three main threats to people who depend on common property resources in Peru. Most of the people interviewed identified lack of group titles as the most important threat. A second threat is global pressure to provide individual titles to what has historically been communal land. While this may be good for the person who receives the individual title, it may unfairly prevent other community members and non-community members from using the resource. The CEPES team gave the example that in some CCs the plots are redistributed every two years so that all farmers can share the most productive plots. Individual titling would not allow this kind of sharing. A third threat is pressure from companies to acquire land for mining. The following sections elaborate on these threats as they pertain to specific indicators for tenure security.

A.7 Documentation Doesn't Guarantee Tenure Security

The most obvious method to measure CPR tenure security for land is evidence of documentation proving group ownership. In Peru such evidence is available because the government does grant land titles to communities. Furthermore, everybody I spoke with agreed that a community with a title to their shared land is better able to defend their use rights than a community without a title. CEPES felt that the absence of title was the greatest threat to a community's tenure security.

A significant proportion of common property for native communities is not titled. According to PETT 7% of the 1,265 native communities do not have a common property title, while Dr. Smith at IBC estimates that over 20% of the approximately 1500 native communities do not have titles. Dr. Smith also asserts that one-third of the communities with title should have their land enlarged to capture all of their traditional lands. The disparate government and NGO estimates demonstrate a need for more consistent measurements.

The proportion of CCs titled in the Andes is even smaller. PETT estimates that only 72% of the 5,818 officially recognized CCs have a property title to their land. Despite the fact that over 1,000 communities do not have titles, an anonymous representative from the National Institute for the Development of Andean, Amazonian and Afro-Peruvian Peoples (INDEPA) claims that PETT has programmed to title only 98 additional communities in 2006. INDEPA is currently seeking funds from international donors to

accelerate the titling process. In any case the large proportion of untitled common property lands makes the presence of title a potentially meaningful indicator for tenure security.

However our interviews highlighted several problems with a documentation indicator. First, communities hold different types of documentation and they do not all confer the same degree of tenure security. CEPES gave the example of La Comunidad Campesina de Sechura, which held ancestral titles to its property dating back to colonial times. Nevertheless in the past century the government has reclaimed over 90% of its territory because it does not respect the old title. Furthermore, the history of land titling in Peru is complex and several attempts at land reform have created several sets of land registries. Most of these registries do not clearly delineate the boundaries of property so neighbors often dispute borders.

A.8 Other Indicators like Perception, Investment, and Conflict

Interviewees were cautiously optimistic about perception indicators such as “% of users who think they will still have access to common property in 5 years.” Most felt that this indicator provides information about what is happening at that moment in time within the community, but that it says little about the external threats that may exist in Lima or elsewhere. For example, this indicator may reflect the status of border conflicts with neighbors but not the threat of distant mining companies scheming to occupy the land.

Interviewees also highlighted the presence of conflict as a good potential indicator for tenure security. CEPES lamented the huge costs that CCs in conflicts must pay to resolve border disputes, sometimes in the form of bribes to PETT officials. CEPES provided documentation of previous attempts to try and measure the number and type of conflicts reported in different CCs. It showed for example that 25 CCs had reported border conflicts and 8 had reported conflicts with mining companies. Prof. Hurtado suggested another way of measuring conflict by using the indicator % of users that have been denied access to their property in the past five years.

The experts were less optimistic about indicators that look at investment in common property as a proxy of tenure security. Dr. Smith, Dr. Hurtado and CEPES all pointed out that people generally do not invest in common property resources. Exceptional

cases of investment occur only when an NGO funds a project or when a charismatic leader encourages collective action.²¹

Discussions about the differences between communities that can protect their rights and communities that cannot protect their rights revealed several possible indicators.

- Almost everybody commented that a community could better defend their rights when they had an educated leader aware of their rights and the processes available to protect their rights. This fact could be operationalized as an indicator like “% of users with leaders that are aware of their rights and how to defend them”
- According to CEPES and Prof. Hurtado, the better-organized community can better defend against threats to its tenure security. Researchers can proxy the level of security by measuring participation at meetings or group activities.
- Dr. Smith suggested that user groups with a more homogeneous income distribution are better able to defend their rights.

Finally, the discussion with CEPES revealed some ways to measure the tenure security of women compared with men in a CC. For example in some communities widows had to share the inheritance land with her sons, and in other communities women had to sit on the floor in the back during assemblies. Differences between communities could be exploited to create indicators that capture the % of communities with policies favorable to women.

A.9 Reliable Data Will Be Expensive and Difficult to Collect

The interviewees expounded numerous difficulties in conducting the surveys needed to calculate these indicators. The best currently existing infrastructure in Peru for collecting this kind of data is the national census, which according to Dr. Smith does a reasonable job of reaching all the impacted groups. Unfortunately the census only occurs every 10 years and, according to CEPES, the national government has little interest in inserting these kinds of questions. Therefore researchers would probably need a new survey to measure these indicators. The cost of running such a survey depends on the region and the number of people involved. CEPES estimates a cost of US\$22 per household

²¹ CEPES commented that this could work on land that produces products for exportation, but that these were generally private and not common properties.

surveyed. Assuming a 1% sample the cost would be approximately \$130,000 for the CCs and \$30,000 for the native communities.²² Dr. Smith calculates a cost of US\$900 for IBC to visit and survey a single native community, or approximately \$12,000 for a 1% sample of all native communities.

High cost is not the only challenge to collecting good data. Both Prof. Hurtado and Dr. Smith pointed out that in many cases villages are unwilling to give information to strangers. Prof. Hurtado gave the example of households that underreport the number of cows they own so that others will not try to steal them. When IBC did interviews of native communities they were always accompanied by a representative from the local community associations. In cases where they did not have the associations' support they did not survey the community. Similarly, many members of CCs lie to surveyors about the existence of documentation so that officials cannot identify them as illegal landholders. According to CEPES in the last census approximately 900,000 people claimed to have an individual title to their land even though the land offices had only granted 200,000 titles.

A.10 The Information Would Help NGOs, not Government

NGOs agree that knowing which people face threats to their tenure security would enable them to better allocate their limited resources and increase government awareness. CEPES gave the example of a CC that sold its land to a gold mining company for what they believed to be a fair sum. However they soon realized that the payment could not replace the sustenance that the land provided. CEPES believes education programs could have helped and that the right indicators could help CEPES identify which CCs to target for such education programs. Dr. Smith at ICB said that better statistics on the number of people dependent on the forests, as high as 500,000, could excite government officials in Lima to take more interest.

Government officials were less convinced of the need to collect more data. Both PETT and INDEPA were confident in existing estimates of people dependent on common property and felt that existing laws and processes were sufficient to protect their rights. From their point of view the government only lacks resources to enforce and implement these laws and processes.

²² Assuming 5,818 farming communities and 1,265 native communities with 100 households each.

Prof. Hurtado pointed out that measuring tenure security would not necessarily help resolve the real problem of border disputes. He also voiced concerns about the utility of creating indicators for all common property resources. Indicators for specific resources could tell more about the availability and conservation of the resource.

A.11 Interview Questionnaire

1. What shared resources (CPRs) do you work with? What organizations (CPIs) are responsible for their management? [list the most important first]
2. I first want to talk about the general need and usefulness of measurements of people's dependence on (CPR). Do you have any estimate of the number of people your region that rely on (CPR) for their livelihoods? How was that measured?
3. How else could it be measured? [Probe: Use household survey data to estimate appropriated CPR value compared with household income.]
4. How are such estimates useful to you? To the people who depend on CPR? [Probe: Advocacy?]
5. Next I want to talk about measuring the security of people's access rights to (CPR). By this I mean how certain are people that they will still have access rights to (CPR) in the future. What are the biggest threats to security of access?
6. Do you have any measure security of access? How was it measured?
7. What other ways could it be measured? How feasible is each method? [Probe: Perception of people? Investment into CRP?]
8. What has (CPI) done to increase the security of people's access rights to (CPR).
9. What more could (CPR) do to increase security of access? How feasible is each method? [Probe: Documented clear rules and regulations for use? Enforced rules? Provided CPRs with documentation that can be used as proof of tenure? Not denied access in recent past? Set and met performance specs like process times?]
10. What external threats exist to (CPI) ability to provide security of people's access rights? [Probe: lack of legal recognition? Encroaching non-members?.]
11. Could an estimate of the security of access be useful to you? To the people who depend on (CPR 1)?
12. What are some the challenges you have faced when measuring the number of people dependent on (CPR) or the security of access to (CPR)?

Appendix B. UN-HABITAT Composite Index

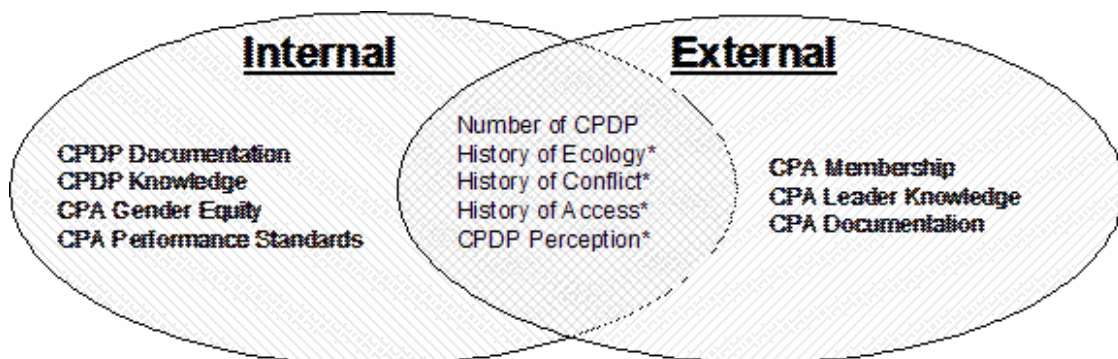
Figure C1. Proposed sub-indicators to be used for the development of a composite indicator/index. (Source: UN HABITAT 2002)

<i>PROPOSED SUB-INDICATORS TO BE USED FOR THE DEVELOPMENT OF A COMPOSITE INDICATOR/INDEX</i>	
1.	National provisions against forced evictions <ul style="list-style-type: none">• Have the relevant international human rights instruments been complied to?• What constitutional and other legal provisions against forced evictions exist?• What instruments/mechanisms (incl. alternative tenure systems favorable to urban poor) are in place for the implementation of such provisions?• How are issues of compensation, restitution, consultation etc. (in case of eviction) safeguarded in constitutional/legal provisions?• What relevant policy frameworks exist?
2.	Indicator to measure “effective protection” against forced evictions <ul style="list-style-type: none">• Number of Legal Aid Centres assisting victims of evictions and costs per court case;• Number of victims of evictions, % of processed cases, % of cases won and % of cases in appeal; number of victims of evictions who could not access court and reasons they could not access;• If Alternative Dispute Resolution (ADR) mechanisms exist, how many slum dwellers have turned to ADR as opposed to formal court system? In how many cases were they successful?• Number of mass actions and advocacy against forced evictions by civil society groups
3.	Indicator measuring women’s equal right to secure tenure <ul style="list-style-type: none">• existing legislation recognizing women’s equal right to secure tenure, incl. the right to inherit;• do customs/customary laws exist that deny women’s equal right to secure tenure?• does the Constitution or another law prohibit the application of customs/customary laws if they discriminate against women?;• number/percentage of women co-sharing tenure (e.g. joint ownership);
4.	Perception (at settlement/slum level) on secure tenure <ul style="list-style-type: none">• Do you feel you have secure tenure?• Do you feel a treat of eviction in the following ... years?• Who is/are the primary agent(s) of eviction?• Do women enjoy secure tenure (question to be asked to both men and women)?
5.	Number of people affected by forced evictions in the past 5 years (national and city level) <ul style="list-style-type: none">• Number of individuals (disaggregated by gender and age) that have been affected by evictions;• Number of evictions that have occurred in the past 5 years;• What procedures were used in the eviction process?

Appendix C. Internal vs. External Tenure Security

Common property literature often distinguishes between internal and external tenure security. Internal tenure security refers to the guarantee that the group will respect group members' tenure rights. External tenure security refers to certainty outside forces (i.e. non-members, the state) will not violate the group tenure rights. In theory we can imagine using separate indicators to measure both internal and external tenure security; knowing the state of both can direct policies to where the need is greatest.

In practice I found significant overlap between the indicators that measure internal and external tenure security. The figure below identifies indicators as measuring either internal or external security, and shows that there is a large overlap between the two.²³ The overlap grows when one considers that internal tenure security helps communities maintain their external tenure rights (Rocha and Castillo March 27, 2005).



²³ Researchers could modify some of the indicators (marked in the figure with an asterisk) to treat internal and external tenure security separately. For example the conflict indicator could be split into an indicator about the history of internal conflict and history of external conflict. Such distinctions could increase indicator accuracy but would decrease resonance and complicate data collection.

Appendix D. Sample Survey Questions

The table below has illustrative survey questions for each of the indicators discussed in this report.

Category	Description	Survey Sample	Survey Question
Identifying CPDP	Any person who identifies themselves as dependent on the commons.	All rural HH	Do you consider yourself dependent on any shared resource?
	Any person who identified themselves as a member of a CPA.	All rural HH	Are you a member of an organization that acts together to manage a shared resource?
	Any person who is documented member of CPA.	All rural HH	Can you show me documentation proving membership to an organization that acts together to manage a shared resource? (See note 1)
	Any person who identified by researchers as a user group member.	All rural HH	(Identified by researcher).
	Any person whose receives more than X percent of their income from the commons.	All rural HH	(Multiple question consumption survey.)
Identifying Breadth of Rights	% CPDP with self-reporting tenure right X	CPDP HH	Do you have the right to X?
	% CPDP with documented tenure right X	CPDP HH	Can you show me documentation showing me the right to X?
	% CPDP with exercised tenure right X.	CPDP HH	Have you done X in the past Y years?
Measuring Guarantee of Tenure Security	Change in the % of population of CPDP	All rural HH	(Calculated based on CPDP data.)
	Change in the % of CPDP with tenure right X.	CPDP HH	(Calculated based on
	% of CPDP without conflict over tenure right in past Y years.	CPDP HH	Have you been in conflict over resource Z in the past Y years?
	% of CPDP not denied tenure right in past Y years.	CPDP HH	Have you been denied use rights to available resource Z in the past Y years?
	% of CPDP not denied tenure right due to ecological degradation in past Y years.	CPDP HH	Have you been denied use rights to resource Z in the past Y years?
% of CPDP who believe their tenure rights will not be violated in next Y years.	CPDP HH	Do you think your use rights to resource Z will be violated in the next	

% of CPDP with documented CPA membership	CPDP HH	Can you show me documentation proving membership to an organization that acts together to manage a shared resource?
% of CPDP with self-reported CPA membership	CPDP HH	Are you a member of an organization that acts together to manage a shared resource?
% of CPDP in CPA with documented group tenure rights.	CPA Leader	Can you show me documentation showing me the groups right to use resource Z?
% of CPDP who self-report awareness of legal rights	CPDP HH	Are you aware of your rights to resource Z and how to defend them?
% of CPDP who self-report having received training of legal rights	CPDP HH	Have you received training about your rights to resource Z and how to defend them?
% of CPDP in CPA with leadership who self-reports awareness of legal rights	CPA Leader	Are you aware of your group's rights to resource Z and how to defend them?
% of CPDP in CPA with leadership who self-report having received training of legal rights	CPA Leader	Have you received training about your group's rights to resource Z and how to defend them?
% of CPDP satisfied with process X related to tenure rights	CPDP HH	Are you satisfied with the processes to defend your tenure rights?
% of CPDP with costs for process X less than Y dollars.	CPA	How much does process X cost?
% of CPDP with waiting time for process X less than Y days.	CPA	How long does it take to complete process X?
% of CPDP in CPA that does not have worse tenure rights for women	CPDP HH	Do women and men have the same tenure rights to resource Z?
% of CPDP in CPA that does give less governance to women	CPDP HH	Do women and men have equal opportunity to govern the group that manages resource Z?
% of CPDP in country with national laws prohibiting gender discrimination	State	Does the country have a national law prohibiting gender discrimination?
% of CPDP in CPA with critical enabling condition X.	CPA	Does the CPA have critical enabling condition X?

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