Guidelines for Impact Evaluation of Land Tenure and Governance Interventions

WORKING DRAFT

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Jennifer Witriol Lisher

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PREFACE

The purpose of the Guidelines for Impact Evaluation of Land Tenure and Governance Interventions ("the guidelines") is to serve as a tool for both researchers and land sector experts in the design and conducting of land impact evaluations and ultimately broaden the evidence of what works and does not work and why in regard to measures meant to improve land tenure and governance. The overall objective is to inform and strengthen the design and implementation of future land tenure and governance interventions to best support lasting tenure security and achieve related impacts on poverty, food security, gender equality, environmental sustainability, and security.

It is important to note that these guidelines focus on impact evaluation of land tenure and governance interventions ("land impact evaluation"). The guidelines do not cover general statistical principles as there is an existing wide body of literature covering these basics[1]. Rather the guidelines endeavor in one document to summarize the existing evidence and gaps, propose an overall theory of change based on existing evidence and theories, highlight evaluation lessons learned and suggest best practices for effectively designing and implementing land impact evaluations moving forward. The guidelines focus particularly on experimental and quasi-experimental designs.

The guidelines are the result of a partnership by IFAD and GLTN, and in consultation with the Global Donor Working Group on Land (GDWGL), to improve the tools to evaluate land tenure and governance interventions. The guidelines are based on the author's experience overseeing the land monitoring and evaluation portfolio of the Unites States' Millennium Challenge Corporation (MCC), a desk review of land evidence, and consultations and insights from stakeholders from GLTN and GDWGL, as well as researchers that have conducted land impact evaluations.

The author would like to thank the members of the land research community, the GDWGL and GLTN who graciously provided their wealth of knowledge and insights, including Cloudburst, Habitat for Humanity, International Land Coalition (ILC), Land Alliance, Landesa, MCC, Michigan State University (MSU), Ministry of Foreign Affairs of the Netherlands, Oxfam, United Kingdom's Department for International Development (DFID), United States Agency for International Development (USAID) and the World Bank. And for their continued support and guidance throughout the development of these land impact evaluation guidelines, the author expresses sincere appreciation to the members of the Technical Review Committee, including Thea Hilhorst of the World Bank, Everlyne Nairesiae of the Global Land Indicator Initiative (GLII), Jolyne Sanjak of Landesa, Oumar Sylla of GLTN, and the IFAD team-Harold Liversage, Elisa Mandelli, Andrea Wyers and Daniel Higgins.

[1] Annex A provides a list of resource manuals on impact evaluation from the World Bank for those interested in gaining a better understanding of general evaluation principles.

ACRONYMS

GDWGL: Global Donor Working Group on Land

GLII: Global Land Indicator Initiative

GLTN: Global Land Tool Network:

IFAD: International Fund for Agricultural Development

LSMS: Living Standards Measurement Study

MCC: Millennium Challenge Corporation

RCT: Randomized Controlled Trial

UN Habitat: United Nations Human Settlements Programme

USAID: United States Agency for International Development

VGGTs: Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security

KEY CONCEPTS AND DEFINITIONS

Land: As used in this paper, the term "land" refers to land and all related property and natural resources associated with that land (e.g., water, forests, and minerals).

Land governance: In Land Tenure Working Paper 11[2], UN Habitat and FAO defined land governance as "land governance concerns the rules, processes and structure through which decisions are made about access to land and its use, the manner in which the decisions are implemented and enforced, the way that competing interests in land are managed". This includes governance of the use, allocation of, access to, control, ownership, management, and transfer of land, including related property (buildings and structures) and natural resources found on the land. Land governance systems include state organizations that deal with land such as ministries of land, land registries and cadastral services, and courts. Informal land governance systems include customary (informal) institutions that develop land use rules, allocate land, and resolve disputes related to land. Effective land governance includes legislation recognizing variety of rights of existing land resource users, clear land resource management and administration responsibilities, streamlined operations and systems, sustainable technology use, clearly understood and accessible conflict resolution mechanisms, up-to-date land use plans, accessible and accurate supply of land and property information, and legislative and regulatory provisions enabling land markets.

Land Tenure: The FAO defines land tenure as "the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land (for convenience, "land" is used here to include other natural resources such as water and trees). Land tenure is an institution, i.e., rules invented by societies to regulate behavior. Rules of tenure define how property rights to land are to be allocated within societies. They define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints. In simple terms, land tenure systems determine who can use what resources for how long, and under what conditions." Land tenure rights can include private, group, communal, open access or state rights.

Perception of Tenure Security: The level of certainty a person has that their land rights will be recognized and protected, especially against encroachment or loss of use rights over the land. Perception of tenure security can be high even though the land is not recognized in the statutory system, such as when there is an effective land governance system in place under customary law. Similarly, the perception of tenure security can be low even if a parcel has a freehold title or leasehold, or other form of written documentation, due to a weak land governance system or perhaps intrahousehold dynamics that lead to de facto weak perception of tenure by some members of the household.

Impact evaluation: A study assessing expected project impacts though use of a counterfactual, or without project scenario, which allows the evaluation to attribute outcomes to the intervention. An impact evaluation compares the group who received the intervention (treatment group) and those who did not receive the intervention (control/comparison group). The difference between these two groups can be attributed to the intervention. Impact evaluations can be either experimental via a randomized controlled trial (RCT) or quasi-experimental where intervention treatment groups are then compared with a similar comparison area that is established on observable characteristics.

Outputs: outputs refer to the direct result of an intervention. For example, the output of teaching children the alphabet is the number of children trained.

[2] Palmer, David; Fricska, Szilard; Wehrmann, Babette. 2009. Land Tenure Working Paper 11: Towards Improved Land Governance. FAO and UN Habitat. www.fao.org/3/a=ak999e.pdf

Outcomes: outcomes refer in these guidelines to a result or group of results linked to an output. Outcomes can be realized in the shorter-term, medium-term or longer-term. For example, a shorter-term outcome from teaching children to read, could be increased literacy. A related medium-term outcome could be higher levels of reading and knowledge of the population. A related longer-term outcome could be higher salaried employment.

INTRODUCTION

Secure land tenure is now recognized by global actors as a key driver of poverty alleviation, food security, gender equality, effective urbanization, and sustainable natural resource management. When a land governance system effectively allocates and protects land use rights, individuals, groups, government, and private sector entities with secure land tenure can make productive and long-term investments in their land, property and human capital. As pressure for land grows, weak land tenure and ineffective land governance are increasingly seen as constraints to social, environmental and economic development, peace and stability. This was highlighted at a global level in 2012 at the World Committee on Food Security with the consensus on the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security (VGGTs), as well as recently by the inclusion of a land tenure indicator within the Sustainable Development Goals (SDGs) under Goal 1 to End Poverty (SDG 1.4.2) and the importance of land highlighted throughout other SDGs. Similarly, the New Urban Agenda, globally adopted in 2016, highlights improving access to land, improving land use planning and removing land corruption as key elements for effective urbanization and growth. However, despite these global commitments, there remains a lack of supporting evidence on the driving factors, timeline, and context of how land tenure and governance interventions lead to these impacts among beneficiaries.

As donors, governments, and civil society put more resources into improving security of land tenure and effectiveness of land governance systems, decision makers request evidence of expected results and realized outcomes. The land community often collects performance monitoring data of their interventions, and the Global Land Indicator Initiative (GLII) established a framework for producing globally comparative land indicators[3]. The first of those globally comparative indicators focused on secure tenure and led to the creation of SDG 1.4.2, which will produce the first globally comparable data on secure land tenure.

Although performance monitoring provides a good tool to track data trends, evaluations are crucial to understand the nuances behind this monitoring data and drivers and impacts of changes in land tenure. Only impact evaluations can show causality of project impacts. Many implementers of land interventions conduct performance evaluations, but few institutions consistently conduct impact evaluations. However, there is no one size fits all approach to evaluations and a mixed methods approach is usually key to gaining a comprehensive understanding of results. The research questions along with the details of the intervention, timing and specific environment will determine what evaluation methodologies are possible and most effective for capturing results.

It is important to note that not every land tenure and governance intervention will be conducive for an impact evaluation. At a basic level, an impact evaluation is feasible when there is a plausible counterfactual, or without project scenario, where the researcher can compare the group who received the intervention (treatment group) and those who did not receive treatment (control/comparison group). An impact evaluation may not be able to be pursued due to a myriad of issues, including the absence of a similar comparison group, insufficient evaluation power, conflict with intervention timing, or lack of stakeholder support.

[3] http://mirror.gltn.net/index.php/land-tools/gltn-land-tools/global-land-indicators-initiative-glii.

Even if an impact evaluation is feasible, the evaluation may not be cost effective compared to new learning that the evaluation could provide. Stakeholders also may not have sufficient resources to conduct the impact evaluation which often requires substantial resources and time to effectively capture results. All these will come into play for each institution when deciding whether to undertake or support an impact evaluation. Those interested in conducting land impact evaluations should get buy in upfront to incorporating an impact evaluation, so that stakeholders during the intervention design phase can consider how best to implement activities that would support a robust impact evaluation. In the absence of ex-ante impact evaluation design and baseline data collection, many of the best practices are not viable. There are ways to ex-post design and conduct impact evaluations, such as when there is existing data on key variables like land tenure or where implementation randomly selected treatment groups (or naturally randomized); however, the ability to understand and assess the inter-linkages, nuances and causes of results are much harder to assess.

These guidelines aim to serve as a tool for both researchers and land sector experts in the design and conducting of land impact evaluations and ultimately broaden the evidence of what works and does not work and why in regard to measures meant to improve land tenure and governance. The evaluation and research community can use the guidelines to better understand the nuances of land tenure and governance interventions that are important to consider when designing and conducting a land impact evaluation; land program managers and officials can use the guidelines to better understand the basic principles of land impact evaluations, while learning what aspects should be considered when designing a land tenure intervention that is conducive to an impact evaluation. When the guidelines are combined with capacity building and implemented in practice, there can be an improved base of land evidence. The overall objective is to inform and strengthen the design and implementation of future land tenure and governance interventions to best support lasting tenure security and achieve related impacts on poverty, food security, gender equality, environmental sustainability, and security.

The guidelines are divided into five sections. The first section provides an overview of existing land literature and gaps in the evidence. Based on the expected benefit streams, the second section proposes a theory of change for land tenure and governance interventions. The third section provides guidance for evaluation design, including establishing research questions, selecting a methodology, exposure period and sampling. The fourth section discusses best practices in data sources and data collection instruments. The fifth and final section provides concluding remarks.

I. UNDERSTANDING THE EXISTING EVIDENCE AND GAPS

Although many sectors have a rich history of evidence and lessons learned, the literature on land tenure and governance effects is still in its infancy. However, in the last ten years, this evidence has grown exponentially and there have been several reviews done of the available land literature.

From 2012-2014, Campbell Collaboration with funding support from 3ie and DFID conducted a systematic review of the effects of land and property rights interventions on agricultural investment and productivity[4]. The review covered 20 quantitative studies and 9 qualitative studies on impacts of land interventions from 1982-2012. The studies focused on the impact of land rights recognition or formalization at the level of the farming household via

[4]Lawry, Steve; Samii, Cyrus; Hall, Ruth; Leopold, Aaron; Hornby, Donna; and Mtero, Farai. 2014. The Impact of Land Property Rights Interventions on Investment and Agricultural Productivity in Developing Countries a Systematic Review. Campbell Systematic Reviews. http://www.academia.edu/6102770/The_Impact_of_Land_Property_Rights_Interventions_on_Investment_and_Agricultural_Productivity_in_Developing_Countries_a_Systematic_Review

freehold title or through formal registration of customary rights or through conversion of customary rights to long-term leaseholds.

The review by Campbell Collaboration found that the evidence showed provision of a title affected productivity and consumption or income in Asia and Latin America; however, there was a lack of evidence supporting similar effects for recognition of customary land rights which were prevalent in Africa. The review suggested that effects might only take hold in wealthier economies or those with bigger farms and other income sources, or another explanation was those with rights under a functioning customary land governance system might already have a high perception of tenure security and hence did not change their investments from provision of statutory rights. The review also found no evidence to support links to credit or improved land markets, while noting potential negative effects on women's access to land. The review concluded that there was a lack of quantitative evidence on communal land rights and nuances and dynamics of the land environment like conflicts and off-farm effects which required further research.

In 2016, MCC reviewed and updated its internal 2010 land literature database and related logic model of the economic benefits from land tenure and governance interventions. The model was originally created to bring a common framework of understanding within MCC of potential beneficiary streams and parameters for project logics, economic rate of return models and evaluations.

As part of its review, MCC identified key gaps in the evidence compared to the logic model, finding many pathways of change still lacked supporting empirical evidence. Specifically, there was still a lack of clarity of the necessary timelines to obtain key outcomes, lack of evidence of interlinkages among outcomes, and weak understanding of distributions of benefit streams among different types of beneficiaries, including women. This was partially due to early land impact evaluations narrow focus on household effects from formalization activities (titling), particularly the links with credit and investment, while few evaluations assessed the effects from land interventions around other ways of strengthening tenure security, public awareness/knowledge, institutional strengthening, land use planning/natural resource management and legislative and regulatory reform. Similarly, few studies examined the effects on conflict, perception of tenure, environment, or transaction costs; nor did many studies incorporate non-household level data such as land administrative data, environmental data, imagery or bank/financial data and qualitative data to explore key contextual factors. The early experimental evaluations also lacked sufficient exposure periods. For example, most of the impact evaluations only measured 1-2 years after receipt of the title due to delays in implementation of the intervention and government approvals. There were also few non-natural experiments[5] with longer-term exposure periods to understand longer term effects and little on causal links among outcomes. There were also a lack of studies examining the added benefit of securing land tenure within larger interventions, such as land within a larger agricultural or infrastructure project. Namely, evaluations capture combined effects of irrigation, agricultural training and land tenure components within an intervention but not the effect of land, agriculture training and irrigation vs. agriculture training and irrigation without land tenure.

[5] A natural experiment observes an event that occurred in which a population exposed to a specific intervention and control areas are similar and resemble those from a controlled experiment using random assignment; however, the determination of treatment population was in fact determined by something external to the evaluation, such as a natural occurrence or a policy change by the government. In comparison, a non-natural experiment imposes selection conditions on an intervention for the purposes of conducting an impact evaluation, such as randomizing selection of treatment areas.

From 2016-2017, IFAD conducted a systematic review of the effects of land tenure interventions in rural areas, which expanded the Campbell Collaboration review to a total of 60 studies, including 37 quantitative studies and 23 qualitative studies[6]. Most of the quantitative studies were ex-post quasi-experimental designs with 15 instrumental variable designs and only 2 randomized controlled trials (RCTs) with the majority focused around outcomes from land registration. The review also contained 4 studies around female empowerment, which all found positive effects. However, the studies had limited scope with 3 of the 4 studies from India and 2 from the same intervention. The review found evidence supporting the links of land tenure and agricultural investments, including productive investments and environmentally-beneficial investments like long term soil conservation; however, the review found mixed or lack of evidence on links with agricultural productivity, access to credit and income. IFAD noted the lack of supporting evidence on land tenure links to agricultural productivity and income could have been from lack of longer-term research. For example, the exposure periods ranged from 2 to 6 years; however, the titles were not usually issued until later after other activities and mapping. Contextual factors were also found to play a key role, such as historical conflict or corrupt land institutions effecting perceptions of tenure and related investments.

In 2017, MCC and IFAD collaborated to update MCC's database of land evidence and jointly present their findings of the systematic reviews, gap analysis and economic return modeling of land in a presentation at the World Bank Annual Land and Poverty Conference in 2017[7]. The land evidence database will soon be publicly available[8], which includes over 65 land impact evaluations in both rural and urban areas and can be searched by type of intervention, benefit stream, exposure periods, region, and evaluation methodology. As a reference, some key findings pulled from the MCC/IFAD land literature review database and used to construct the theory of change in these guidelines, are included in Annex C.

In 2017, IFPRI[9] produced a working paper review looking at 52 studies focused on women's land rights. The review largely consisted of observational studies and qualitative evidence due to the limited number of impact evaluations analyzing women's land tenure. The lack of empirical evidence was largely due to reliance on household surveys, which focus on the head of household. Evaluations that had data on women often analyzed effects by comparing women versus male headed households but did not consider effects for women and men from intra-household inequalities and different relationships to land. The review suggested that rather than view households as a single entity who pool resources, evaluations should separately survey women who in fact have more limited resources and consider the various facets of women's tenure and relationships.

The review found strong evidence supporting the causal pathway between women's land rights and bargaining power, decision making on consumption, human capital investment and intergenerational transfers, but weaker evidence between the links of women's land rights and natural resource management, government services, empowerment, domestic violence, resilience, consumption, food security, credit, and agricultural productivity. Overall the review notes, the pathways do not have sufficient empirical data to come to conclusion and more research is need as observational studies are difficult to show causal pathways.

[6] Higgins, Daniel; Balint, Tim; Liversage, Harold; Winters, Pal. 2017. Investigating the impacts of increased rural land tenure security: A systematic review of the evidence. International Fund for Agricultural Development. Rome. https://www.conftool.com/landandpoverty2017/index.php?page=browseSessions&print=head&cols=4&form_session=279&mode=table&presentations=show .

[7] Lisher, Jennifer; Higgins, Daniel; and Bowen, Derrick. 2017. A Land Evidence Review and Framework. Washington, D.C. https://www.conftool.com/landandpoverty2017/index.php?page=browseSessions&print=head&cols=4&form_session=279&mode=table&presentations=show

[8] Database will be available on MCC (www.mcc.gov) and IFAD (www.ifad.org) websites, as well as the Land Portal (https://landportal.org/).

[9] Meinzen-Dick, Ruth Suseela; Quisumbing, Agnes R.; Doss, Cheryl R.; and Theis, Sophie. 2017. Women's land rights as a pathway to poverty reduction: A framework and review of available evidence. IFPRI Discussion Paper 1663. Washington, D.C. http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/131359

II. THEORY OF CHANGE/LOGIC MODEL

A. Scope and Purpose

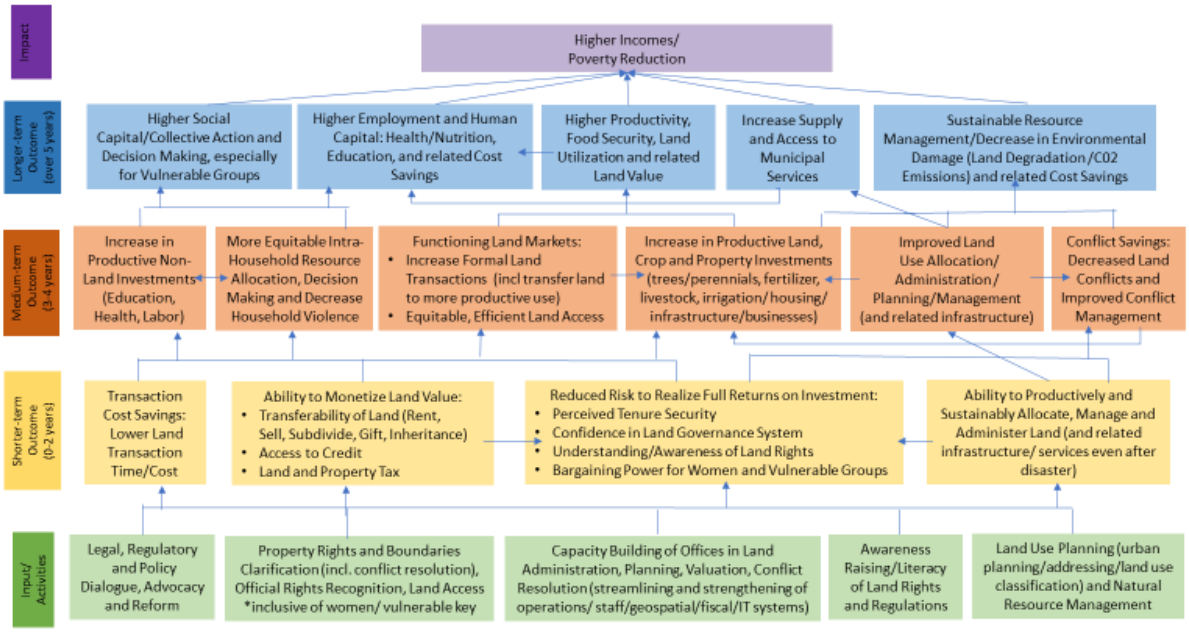
The fundamental base for an evaluation design is the logic model, which illustrates the theory of change, reflecting the pathways by which an intervention is expected to lead to changes in short-term and long-term outcomes for a select group of beneficiaries and related assumptions that must hold true. Evaluations use the logic model as a framework to establish key research questions and performance indicators, a sampling framework, survey instruments and assess whether the expected outputs and outcomes listed in the project logic occurred, including whether the assumptions held. As such, the logic model should be developed during the project design phase.

Within the logic model, it is important to include not only outcomes such as increase tenure security, investments and productivity but also where and when the different components of an intervention will take place, when and where project outputs and outcomes are expected, who is eligible and will be beneficiaries of the intervention components, are there differences among beneficiaries to consider (for example differences in women's and men's tenure rights or land uses that may lead to different results or need to be separately sampled and evaluated) and will the project affect beneficiaries similarly and at the same time. These nuances of the logic model will both define the key indicators for each group of beneficiaries, as well as inform what is possible for the evaluation and the related evaluation framework.

Stakeholders consulted as part of these guidelines raised that one of the most common issues in establishing land impact evaluations is a lack of a clear theory of change for the intervention and insufficient details on what changes to expect for which beneficiaries at what times. This led evaluators to simply understand that ownership is important for investment and credit while not understanding what drives changes in secure tenure and land governance and the broad range of potential paths to key outcomes. This led to evaluations analyzing whether the household has a land title while not exploring why the household chose to get documentation of their land rights, whether the parcel had any other types of documentation along the continuum of land rights, what was the defacto tenure status and perception of tenure of the respondent and the contextual factors that contributed to this. As such, some early evaluations compared results for those that have or do not have a title to measure the effects of secure tenure. This strategy is problematic for a variety of reasons, but most importantly it misunderstands that perceptions of tenure and a person's de facto bundle of land tenure rights drive changes in land use and management—not whether or not one has a title.

Although each project manager will create a logic model that is specific to the intervention and land tenure and governance environment, these guidelines provide, below, a broad level framework for the theory of change/logic model for land tenure and governance. This is a menu of possible interventions and results chains that will vary across contexts. The logic model presents the results chain from the interventions through impact relaying the causal chain through arrows connecting inputs, outputs, outcomes together in the way they drive impact. The model, takes into consideration the existing land evidence and expected results that are still not proven or have mixed results due to contextual factors but are commonly seen as a potential beneficiary stream. As an approximation, shorter-term outcomes are assumed to take place within 0-2 years; medium-term outcomes 3-4 years; and longer-term outcomes 5 or more years. However, some of these outcomes may take less or more time to realize.

B. Logic Model for Land Tenure and Governance



C. Key Concepts

<u>Inputs/Activities</u>

The model divides activities (inputs) into five broad categories, which include the following types of interventions:

- Legal, Regulatory and Policy Dialogue, Advocacy and Reform: adoption of legislative reforms through advocacy, dialogue and drafting of amendments or new laws and related implementing regulations.
- Property Rights and Boundaries Clarification, Official Rights Recognition and Access to Land: village and parcel level clarification of parcel boundaries and use rights for individual, group and community rights whether under customary, formal or informal system. Sub-activities can include sensitization, call for existing documentation, mapping of existing boundary/use rights, clarification of use rights, such as overlapping licenses or incorrect classification of land type/use, conflict resolution, formal decision to recognize individual/group/community right, registration of rights and provision of title or other use right, such as occupancy permit or leasehold.
- Capacity Building of Land Administration and of Conflict Resolution Offices: streamlining of operational procedures, training, digitization of records, provision of computers and software, upgrading of physical infrastructure, creation of a land information system, clarification of responsibilities, strengthening of human resources or financial/taxation management, creating of new or decentralized land or dispute resolution offices, or upgrading the geodetic framework, such as Continuing Operational Reference Stations (CORs) or geodetic control point network.
- Awareness Raising/Literacy of Land Rights and Regulations: public outreach campaigns including newspapers, radio or TV advertisements, or village level trainings or awareness raising to land users and officials regarding new or existing policies and regulations.
- Land Use Planning and Natural Resource Management: mapping of easements/servitudes/public rights of way or natural resources, such as forests, grazing areas, community areas, and related discussions on how to manage those resources in village land use plans, natural resource management planning, or urban plans,

incorporation of decisions into district and national level planning and land allocation, addressing, service provision, land use classification.

Outcomes

Based on the intervention outputs effectively completed and sustained, the model shows possible pathways of shorter-term, medium term and longer-term outcomes.

- *Shorter-term Outcomes*
  - Transaction Cost Savings: shorter number of days, less money spent, or reduced time to conduct a land transaction. Time can include administrative time, customer time or both. Costs can include transportation costs, price of the transaction, and costs to put together required documentation. This stems from improvements in streamlining of operations and related legal, regulatory and institutional reforms and capacity building and outreach, including a clear understanding of existing rights and boundaries in the system to aid in approvals of land transactions within formal or informal land governance structures.
  - Ability to Monetize Land Value: this includes the ability to earn revenue from land, including through transfer of land, such as rental, sales, subdivisions or bequeathing land, as well as the ability to use land as collateral to access credit. This is expected to result from effective land regulations and land administration services over a bundle of clearly defined rights, including allowing for the transfer of land in an efficient manner. This often affects perception of tenure and confidence in the land governance system. On the institutional side, this can include the ability to charge land taxes and fees when rights and boundaries are clearly defined, and the land governance system is effective, which can help with supply of municipal and land services.
  - Reduced Risk to Realize Full Returns on Investment: with stronger perceived tenure security, confidence in the land governance system, an awareness and understanding of land rights and increased bargaining power of women, the perceived risk of loss of land and related investments is expected to decrease. Expected to stem from effective and inclusive land policies and land administration services, access to land with a clear understanding of rights and boundaries.
  - Ability to Productively and Sustainably Allocate, Manage and Administer Land: the strengthened capacity to allocate, manage and administer land in a sustainable manner , expected to result from improved regulations and legal environment, clear understanding of rights and boundaries, effective land governance offices, good understanding of existing rights and regulations and plans to follow.

- *Medium-term Outcomes*
  - Increase in Productive Non-Land Investments: increase in non-land investments such as education, labour, and health due largely to reduced risk such as stronger tenure rights that allows labour to move off farm or bargaining power combined with transaction savings and increase access to credit that allow investments in labour and health.
  - More Equitable Intra-Household Resource Allocation, Decision Making and Decrease Household Violence: more equitable allocation and control over resources and household decisions as well as decreased violence in household due to increased education and labour, access to credit and perception of tenure security, awareness of rights and bargaining power. This requires the intervention to focus on inclusion of women, men; and vulnerable groups as well as the relations among them regarding tenure.
  - Functioning Land Markets: functioning land markets including equitable, efficient land access, l land transactions and related transfer of land to more productive uses. Expected as a result of land transaction savings and related lad governance system improvements that speed the time and cost to conduct a transaction combined with confidence in the land governance system, transferability

and awareness of these rights that encourage higher demand for land services. Land markets can be either informal or formal. Formal markets can have added value, especially when buyers and sellers are not familiar with one another. Formality does not mean individual title and can be through a variety of types of documentation, including for example community titles with customary land governance within that community.

- Increase in Productive Land, Crop and Property Investments: increase in productive land and property based investments, such as trees, perennials, fertilizer, irrigation, housing, infrastructure and businesses due to higher perceptions of tenure security, decreased conflict, transfer of land to more productive uses, access to land and credit.
- Improved Land Use Allocation/Administration/Planning/Management: improvements in allocation, administering, planning and management of land use rights and related infrastructure based on improved ability and capacity. This is especially key for urban and peri-urban areas where rapid growth and urbanization is taking place and need to have reserves for roads, water lines and electricity. Plans are also key in areas where communities, private sector and state compete for resources such as forests, grazing areas, farmland and minerals.
- Conflict Savings: decreased land conflicts and related savings from not having to pay for conflict resolution or resulting loss of land use and productivity. Conflict savings are expected to result from improved perceptions of tenure security and working land governance environment that allows for effective land use allocation, administration, planning and management of land.

- *Longer-term Outcomes*
  - Higher Social Capital/Collective Action and Decision Making: more collective decision making and action in the local community stemming from increases in education and health, as well as more equitable intra-household resource allocation, decision making and related bargaining power. This is especially key for women and vulnerable groups, but requires a focus on these groups during the interventions
  - Higher Employment and Human Capital: Increase levels of employment, education, nutrition and health, including related cost savings, due to investments in education, health and labour, more decision making and resource control by women, who often make family investments in health and education. Health can also be aided by increased supply and access to municipal services, such as through the provision of adequate housing, sanitation and water supply and educational services. Increase in land utilization and related productivity also play a part in improved nutrition.
  - Higher Productivity, Food Security, Land Utilization and related Land Value: higher productivity of land from both increase in productive land and property investments, as well as improved land utilization from transfer of land to more productive uses and efficient and equitable access to land. Related increases in land values and improvements in food security from better productivity of land.
  - Increase Supply and Access to Municipal Services: improvements in supply and access to water, sanitation, housing, education and other municipal services due to improved administration, planning and management of related land and infrastructure.
  - Sustainable Resource Management/Decrease in Environmental Degradation: lower degradation of land and related greenhouse gas emissions from land use changes and related cost savings of avoided environmental damage. This result is expected from improved management and allocation of land, such as using degraded land and areas that are not high carbon value areas, as well as decrease in conflicts over natural resources and sustainable investments in land, such as soil and pastureland management.

- *Impact*
    - *Higher Incomes/Poverty Reduction:* based on the realization of one or more longer-term outcomes, the overall expected impact is higher income and related reduction in levels of poverty for beneficiaries of the intervention. This is highlighted in the location of SDG 1.4.2 on secure tenure under SDG Goal 1, End Poverty.

D. Logic Model Guiding Principles

As the reader reviews the model, there are a few guiding principles to keep in mind:

There are multiple paths within the model

Each project conducting land tenure and governance interventions will unlikely include all the possible activities and outcomes listed; rather this is a model of various land interventions and potential outcomes based on the existing evidence and experiences. The model can be applied to various situations, including customary and statutory systems, rural and urban environments, private and institutional beneficiaries. The model similarly can be applied to situations where improving land tenure or land governance is incorporated as part of a larger project, such as agriculture, infrastructure or environment. Only a subset of boxes will be applicable for each intervention and environment. One should include only those boxes that are relevant for the particular intervention(s) and context while keeping in mind the other boxes that although not included may affect ability to obtain outcomes.

Irrigation example: An intervention invests in improving land tenure via clarification and formalization of land rights as part of a larger project providing irrigation to farmland and agricultural training to farmers. The theory of change lays out that in the short to medium-term, this is expected to increase perceptions of tenure security and improve related investments into the land, including farm investments, such as equipment, soil conservation and switching to longer-term cash crops, which would in the longer-term increase land productivity and ultimately income. Only the areas relevant to the intervention should be included in the theory of change.

The intervention must address a binding constraint to the predicted outcome

Although there are various assumptions that will be made depending on the country context, the driving assumption within the model is that the land intervention fully addresses the binding constraint(s) to the expected outcomes. There are usually multiple and interrelated constraints to growth. A binding constraint is the key element preventing the realization of the expected outcome. If there are other existing constraints, such as lack of resources, markets, skills, demand, security, policies, government commitment, or capital which would prevent sustainability of outputs or impede outcomes, these would need to be addressed via additional project interventions or other sources and noted in the assumptions. Often to obtain an outcome, not only is reforming land sector (register, cadaster, notaries) required but also related institutions such as courts, planning agency, valuators, taxation and cultural/traditional land governance systems. A holistic understanding of the situation is required and an embrace of the continuum of land tenure rights.

Access to credit example: For example, legally recognized documentation of land rights, such as a land title does not automatically lead to access to credit or increase in mortgages as we have seen from the mixed results noted in the systematic reviews. Tenure security is necessary but not always sufficient by itself. To gain access to formal bank credit, land title is often required as collateral, but a person must also be credit worthy with sufficient income and demand formal credit. Similarly, the bank must also be accessible and have liquidity; while the legal system should allow transfer of land and have effective foreclosure laws and land courts to decrease risk to the banks in case of default. If these contextual factors are not in place, land may be one but not the only constraint to credit and the expected increases in formal credit not seen. Similarly, investments may still occur but not by using formal banks.

As such title is a preliminary step or a requirement but not the only decider of using land to access credit or to making investments.

Interdependence of linked boxes

Progression from shorter-term to medium-term outcomes is dependent on the linked shorter-term outcomes also being part of the intervention or already in place within the supporting environment. This is not to say that the outcomes will not be realized, but rather that it is more difficult or beneficiary streams may be smaller and harder to capture without larger sample sizes. The same applies when moving from medium-term to longer-term outcomes. For example, to result in higher land productivity, there is usually either an increase in land investments or transfer of land to better uses; however, if there are lingering issues with land conflicts or poor public management and administration of land leading to low perceptions of tenure security or ineffective land allocation, the improvements in productivity or utilization may not completely realize. Similarly, if dealing with a larger investment where land tenure and governance play a key role, yet is not addressed, these outcomes may be minimized.

Women's Land Use Rights Example: If the government recognizes women's right to own and inherit land, women's perception of tenure security and related bargaining power is expected to increase. However, the policy change allowing women's inheritance or ownership of land will likely require complementary awareness raising to the public, as well as capacity building of the local officials managing land. Similarly, not only legal change and awareness would be required but also recognizing those rights of women in practice with a clear understanding of rights for expected results to occur.

Transaction Time Example: Changes in transaction time and related costs are expected outcomes from policy interventions, such as the establishment of a new land agency, allowance for decentralization of offices, clarification of customary chiefs or local councils' land granting authority or streamlining of regulatory operations. Usually, the regulatory or policy change to be implemented in practice must be combined with related awareness raising of new legislation and implications for capacity building in the field, such as related establishment of the offices, digitization of records, creation of land information systems, or training and support for those offices. This will allow land users to save time by having a land office nearby or take less steps to complete a transaction. These decreases in land administration transaction costs can be further strengthened by not only streamlining land administration operational policies and procedures, awareness raising and capacity building but also interventions clarifying the existing land of rights and boundaries in order to provide the land offices with a clear land cadaster. Without the understanding of existing land rights and boundaries, the land administration system still could face inefficiencies in managing and allocating land due to incorrect assumptions about land use.

Municipal Services Example: An infrastructure investment in water or power is implemented to improve service supply but fails to consider land tenure and governance. Although these investments are completed, without considering existing land rights or land use planning, the supply of trunk infrastructure may have been at a high cost due to lack of servitudes/easements on the land or incorrect information on land use. If land rights were not secure, perhaps people were not willing to invest in individual connections. Lack of secure land rights during these investments can particularly harm vulnerable groups if consideration is not made for them. For example, those who were supposed to benefit from the water or power may not be the end beneficiaries as the intended beneficiaries could get kicked off the land or land rents could become unaffordable.

Applicability to a myriad of tenure situations and levels of analysis

The model applies to a variety of tenure situations, inclusive of rights in the customary, informal, and statutory system. The key is increasing tenure security and effectiveness of land governance regardless of the tenure system in place. Differences in the tenure system are more determinative of the type of approach to improving tenure and governance. The model does not assume that any type of documentation of ownership or use right is necessary during clarification and recognition of land rights. Studies have shown that customary land rights can yield similar or higher perceptions of tenure than those with formal land use rights if there is a strong land governance system and confidence in that system. Similarly, strengthening interim arrangements along the continuum of land rights can yield similar effects. For example, demarcation of individual boundaries or participatory mapping of village boundaries and land resources have been shown to have similar effects to formalization of land rights, including improving tenure security perceptions, increasing awareness of boundaries, decreasing conflict and improving related investments.

Importance of women and differentiating beneficiary impacts and pathways

Outputs and outcomes often depend on the type of beneficiary, including men and women based on the local land governance system, existing perceptions of tenure and intrahousehold power dynamics. Women and vulnerable groups, and those with varying land tenure along the continuum of land rights, may require different types of treatment or may have differentiated results from the same treatment. For example, squatters in flood zones or with unresolved disputes may not be able to obtain formal land rights, or the system may not allow for jointly held land rights. The project logic and related impact evaluation design should explicitly consider and detail such differences noting how these groups will be targeted (or not) during the interventions and evaluation, including looking beyond the level of the household or parcel when collecting and analyzing data.

Activities and outputs will be specific to the environment and project at hand. However, in terms of increasing bargaining power for women, the model assumes that women will be included within the activities, including inclusion of women in any clarification or documentation of use rights, awareness raising, governance system and related legal reforms. Studies that have analyzed recognition of women's rights have shown significant effects, especially in terms of intrahousehold control/decisions over of resources and investment in health and education. If women are not included and rights of women not incorporated throughout the process, benefits may be limited. Similarly, even with high tenure security of male head of household or legally documented evidence of tenure, women may still have low perception of tenure or de facto tenure security.

Logic model requires supporting materials detailing timing of inputs, outputs, and outcomes in each intervention area, as well as related assumptions in order to validate effects

Each project logic should have a clear and complete path in its logic model from inputs to outputs to shorter-term, medium-term and longer-term outcomes. These should be supported with documentation of expected timelines of each intervention and related outputs for each intervention area, as well as any related assumptions or conditions that must hold. An intervention may start at one point but only produce outputs years later. Interventions outcomes may be specific to one subset of treated beneficiaries or differ among them. These details are key to understand how activities were implemented, sustained, and led to outcomes. For example, if an evaluation finds an increase in productivity was it a result of increased investment, better land management or transfer of land to another land use like from degraded land to a commercial farm? Did benefits occur across all beneficiaries or just a subset and why? Did those changes lead to impacts on income? Recently, some evaluations are finding increases in income following land tenure intervention in rural areas, but in fact the income stems from off farm labor and not agricultural productivity. Understanding the path from shorter to longer-term outcomes is as important as the final result in order to improve future land tenure and governance interventions and have a better knowledge of the

drivers. In an impact evaluation, if interim effects are not found, it also serves as a decision point on whether to continue the evaluation or re-scope the evaluation.

Timelines are notional only

Timelines are notional and will vary by project, environment, and beneficiary group. Time to realize outcomes may take shorter or longer, though in theory a path from inputs/activities of the intervention up through shorter, medium, and longer-term outcomes can be followed. For example, in some cases, due to the nature of the intervention, housing investments, decrease in conflicts, productive land investments or improvements in collective action have happened in the short term whereas investments in labor and health may have happened only in the longer-term. Similarly streamlining of operations has led to immediate changes in land markets, including mortgages, while in other cases, it has been more gradual, especially for those who are new to the formal system and if other contextual factors are not in place.

Update Models with New Findings

The theory of change is not stagnant and should be updated as further evidence is gained. Similarly, the local intervention logic model should change as the activities are implemented in the field and as more data and assumptions are clarified. For example, stakeholders gave examples of where there were certain expectations of weak perceptions of tenure security but during implementation and data collection, there were higher levels of perception of tenure security than envisioned or only a subset of the population with weak tenure security. Not only could this information change how the intervention might need to intervene but the logic itself should be updated to clarify how and who the project will benefit. If the expectations are not updated in the logic, the evaluation will unlikely capture the results of the intervention as the related research questions and sampling are focused on the whole population and not the subset of those with weak tenure.

III. EVALUATION DESIGN

This section offers some guidance for four key components of evaluation design: 1) research questions, 2) methodology selection, 3) exposure period and 4) sampling. For each component, the guidelines discuss the basic elements and best practices, as well as common issues encountered and suggested solutions.

A. Research Questions

Evaluations are structured around key research questions, which are derived from the theory of change's outcomes and related variables of interest. Research questions might also consider what level of learning is available for the cost and whether the evaluation will have external validity. Some research questions might be more costly to answer than others due to the nature and type of data needed to answer the question. Different research questions often require different data sources, timing, and methods to collect. This includes collection of quantitative data but also qualitative data to help answer the how and why. For example, sometimes administrative data can answer information, such as the effect of the land reform recognizing women's land rights by showing that the land agency did or did not issue land rights to women, but it cannot tell you how and why this happened which often requires qualitative data. Although there are often numerous interesting research questions that could be asked, the key is to select those that are most vital and relevant for the specific intervention in question and what can feasibly be measured with the resources, data, and timeline available.

If a survey is used, the survey questions should be limited to no more than two hours per person, which will limit what can be asked using surveys. Research questions will need to be prioritized and selected based on the specific learning agenda. Triangulation of data can help answer additional questions as well as allow comparison of survey responses to administrative and qualitative data. Focusing on ensuring shorter-term and medium term outcomes have been achieved and outputs sustained before moving on to evaluating longer-term outcomes can be helpful in limiting research questions for early and later follow-up data collections. In that manner, if an outcome is not found, there will be a clear explanation if it is simply due to outputs/outcomes not sustained or an error in the logic model or a missing assumption or constraint.

B. Evaluation Methodology

Evaluations can be separated into two categories: performance evaluations and impact evaluations. Many implementers of land interventions conduct performance evaluations; however, few institutions consistently conduct land impact evaluations[10]. Impact evaluations are key as they can show causality of project impacts, while monitoring and performance evaluations can only show data trends but are key to understand program performance, implementation details and related analysis of impact evaluation data. The ability to attribute results to a specific land intervention requires an impact evaluation, but there is no one size fits all approach to evaluations and a mixed methods approach is usually key to gaining a comprehensive understanding of results. The research questions along with the details of the intervention, timing and specific environment will determine what evaluation methodologies are possible and most effective for capturing results.

Regardless of the evaluation methodology pursued, usually quantitative and qualitative methods using both secondary and primary data sources will provide the most effective capturing of results. The key in methodology selection is working in coordination with project implementers during the intervention design phase (ex-ante evaluations) so that the intervention allows for the most rigorous design possible for that specific intervention and environment. Waiting until the intervention has started or ended significantly limits the evaluation design and learning from results. Although, one can establish impact evaluations ex-post, including quasi-experimental designs if there is a reliable source of data to which to re-create a baseline and reliable recall data, it is not preferable and creates complexities in analyzing the data. Unless randomizing the treatment group, failure to have ex-ante evaluations and reliable comparison groups can lead to some significant issues, especially as there is not often a reliable source of existing land information that one can use to recreate a baseline.

Impact Evaluation

At a basic level, an impact evaluation is feasible when there is a plausible counterfactual, or without project scenario, where the researcher can compare the group who received the intervention (treatment group) and those who did not receive treatment (control/comparison group). Those interested in conducting land impact evaluations should get buy in upfront to the impact evaluation, so that stakeholders during the intervention design phase can consider how best to implement the intervention activities that would support a robust impact evaluation. Impact evaluations can be either experimental via a RCT or quasi-experimental where intervention treatment groups or areas are then compared with a similar comparison area that is established on observable characteristics.

[10] MCC conducts evaluations of all its interventions, including impact evaluations when possible. Similarly, USAID has begun conducting impact evaluations of its land interventions. The World Bank and International Food Policy and Research Institute (IFPRI) are the other two key players conducting impact evaluations on land tenure and governance interventions. The majority of other land impact evaluations have been conducted and funded by the research community or by one off efforts of other development institutions.

Experimental Design

An RCT is the gold standard in evaluations. Beneficiaries are randomly selected from the target population by the evaluator to receive the intervention. Those who are not selected become the control group. Any difference between the two groups can be attributed to the intervention as they come from the same target group. Prior to randomization, the intervention can also shortlist a group of potential beneficiaries as long as there are sufficient number of potential participants for both the control and treatment areas.

The key is to build randomization into the intervention design phase and related expectations of stakeholders. Impact evaluations make the assumption that random assignment makes control and treatment groups equivalent on both observable and unobservable characteristics. This is not only the most rigorous method as it alleviates potential issues of differences and biases in treatment group selection, but randomization is also useful when there are limited resources and decisions have to be made on which areas can receive the intervention. However, it does require commitment by project and government stakeholders to give up control over who receives the intervention, which often is a difficult agreement. In land interventions which have used randomization (a lottery) to determine who received land rights, stakeholders viewed the selection as a way of creating a "fair" process. Lottery applicants appreciated the open and non-politicized process of strengthening land tenure.

Randomization is usually done at the lowest level of implementation of the intervention. This both ensures sufficient numbers of comparison and treatment groups, as well as minimizing the required sample size to capture effects. However, due to the nature of land tenure and governance interventions, it can be difficult to randomize the selection of individual/household participants. Land reforms and related institutional strengthening are implemented at the administrative level of land rights, which is usually at the level of commune for rural areas and municipality for urban areas. Similarly, implementation of awareness raising on land policies and procedures is usually at a village or neighborhood level. As such, these interventions usually randomize at these administrative levels.

When looking at clarification or rights and boundaries, it would be difficult for implementation of land mapping and call for land documentation and local review of those land rights at a household or parcel level. From a statistical side, there would also be a risk of spillover effects as when map boundaries of a parcel, the neighboring parcels often share a boundary and would have less risk of conflict and related higher tenure as well even if not a treatment parcel. As such, for land interventions, usually, randomization is done at the village or neighborhood level (a cluster) rather than individual or household level and can also be stratified by dividing into types of subgroups for analysis and then randomize within each group. There have also been cases of dividing the village or neighborhoods into smaller implementation units while keeping all units within the same village or neighborhood as either controls or treatment. Randomization by individual/household can occur in land. For example, MCC has randomized when allocating new land parcels for new irrigated perimeters where everyone on that perimeter will be a lottery or project beneficiary, as well as randomized herder groups who receive a long-term land lease across pastureland within larger common grazing areas. The strategy for randomization is something that will need in-depth discussions between the evaluator and project designer.

Quasi-Experimental Design

A quasi-experimental design uses other methods to construct a comparison group to compare with treatment beneficiaries, creating groups that are well-matched on key observable characteristics. One method of identifying comparison areas during the sampling stage is applying the selection criteria used by the intervention to non-intervention areas. Quasi-experimental designs make the assumption that since the groups are comparable on observable traits that represent their pre-project situation, that any difference between treatment and comparison groups can be attributable to the project. Implementers of land tenure and governance interventions and country

stakeholders often more readily support quasi-experimental evaluations as the project can select treatment groups rather than random selection dictating treatment groups.

The selection of comparison areas for land interventions can be problematic. A good comparison group is one that accurately represents how treatment beneficiaries would have progressed in the absence of the treatment. This means that, it is not only socio-economic factors that are important for creating an effective comparison but also key land constraints such as land quality, land tenure status, land governance system, conflicts, tenure security, parcel size, land use patterns, number of parcels, and access to markets and services . For example, if the evaluation compares households with large irrigated parcels closer to markets with household with smaller non-irrigated parcels in more remote areas with poorer soil quality, the evaluation may show higher productivity and related sales of the treatment group; however, the results are unlikely attributable to the intervention but rather the selection bias towards households with higher incomes.

Even when the evaluation selects a similar comparison area based on known observable characteristics, there might be some unobservable characteristics of the comparison group selected or many more observable differences with the treatment group found through field data collection than first understood[11]. These unforeseen differences (unobservable or unknown differences) between treatment and comparison groups lead to employment of statistical methods to control for these issues during data analysis. Although an evaluation can always control for these differences, it creates another layer of complexity and makes the evaluation less robust and open for debating results.

The most commonly used of the more rigorous quasi-experimental designs for land interventions have been regression discontinuity (RD), difference in difference (DiD), and matching.

- RD uses a treatment group selected based on scoring of potential beneficiaries which is usually carried out as part of project selection and implementation. For example, the unit of interest (individual, household, village/neighbourhood) is graded on how well they meet a list of project specified criteria. Anyone above the cut-off score receives the treatment and anyone below the cut-off score does not receive the intervention. The evaluation then compares those who are immediately below the cut off score (comparison group) with those who are immediately above the cut off score (treatment group). Although RCTs have used selection criteria in order to focus the intervention on those who meet a defined set of criteria, the RCT will randomize the selection of all beneficiaries which meet the minimum criteria or cut-off score. In comparison, the RD design allows for project implementation to treat the highest scoring applicants. In this way those the project thinks are most suited for the intervention are treated. .
- DiD works under the assumption that two groups should progress at the same rate over time, as long as their differences are time invariant. Thus, any difference in the progress made over time by a treatment and control group without time invariant differences can be reliably attributed to the intervention. Based on this reasoning, DiD compares groups that the evaluator selects to be similar to treatment groups based on a series of observable characteristics using panel data or repeated cross sectional data. Panel data relies on data measured from the same sample group over a period of time including baseline and at least one follow-up survey after project implementation. DiD compares the baseline and follow-up data of the comparison with those of the treatment group. The difference in the

[11] There have been cases of evaluators questioning well quoted earlier studies due to concerns of bias in the selection of comparison areas, which made the treatment and comparison areas selected fundamentally different and hence that the results might have simply been attributable to two different groups rather than the intervention.

difference between baseline and endline provides project results. Often DiD uses matching for comparison groups to improve accuracy and account for time invariant differences.

- Matching is used to control for large differences between observable characteristics for the selected sample groups. Treatment samples are matched with similar sample units in the comparison sample to create a sample group that is comparable. Propensity Score Matching (PSM) is the most common form of matching, which matches based on the estimated probability of being treated/participating in the intervention. Matching can be used at the sampling or data analysis stage.

If the intervention will take place across an entire country instead of a limited area, the evaluation can employ a randomized rollout strategy. In this method, the beneficiaries who receive the intervention early are the treatment group and compared with those who do not receive the intervention until later. The process still requires buy-in to randomizing which groups receive the treatment early versus later on.

The issue with using a rollout method for land tenure and governance interventions is there needs to be sufficient time (3-5 years) between the early and late treatment groups in order to compare the two groups. This methodology mitigates the problem of certain groups not receiving the land tenure or land governance intervention, such as when there may be an ethical issue in withholding the intervention from a subset of the population; however, this method does fail frequently when not an observational study due to insufficient exposure period from delays in the intervention or political process. If there is sufficient time and resources to change around the evaluation time with the delays in the intervention, then this methodology is a possibility. If a randomized rollout strategy is pursued, significant coordination is needed between the evaluation team and the implementation team to ensure timing of activities and a sufficient break between early and late treatment areas.

As impact evaluations require a counterfactual, historically land impact evaluations have largely been employed for site specific formalization activities; however, impact evaluations can also be carried out on other capacity building activities, such as system upgrades and institutional training, where a subset of land institutions will be selected for treatment within a country. For example, in Mozambique, through an evaluation for MCC by MSU, there is one of the first impact evaluations of institutional strengthening interventions. The evaluation is using similar comparison and treatment municipalities and districts within the same provinces. Similarly, although legislative reforms are national in nature, often implementing regulations, training and capacity building are necessary at the regional and municipal level to fully realize the expected benefit streams. If training and capacity building around the legislative reforms are only conducted in certain locations, there can be room to assess changes via an impact evaluation.

It is important to note that not every land tenure and governance intervention will be conducive for an impact evaluation. An impact evaluation may not be able to be pursued due to a myriad of issues, including the absence of a similar comparison group, insufficient evaluation power, conflict with intervention timing, or lack of stakeholder support. Even if an impact evaluation is feasible, the evaluation may not be cost effective compared to the level of learning that the evaluation could provide or stakeholders may not have sufficient resources to conduct the impact evaluation which often requires substantial resources and time to effectively capture results. Impact evaluations, including design, multiple rounds of surveys (baseline, interim and endline; or across wet/dry seasons when measuring agriculture productivity or land quality) and complimentary administrative and qualitative data collection, data entry and analysis, must be properly resourced for the impact evaluation to be effective.

Evaluation costs can vary depending on the sample size, number of research questions, project implementation area, timeline, number of data collection rounds and who designs and conducts the evaluation,. A private sector

evaluation firm can offer a comprehensive package when there is a lack of in house resources or preference for establishing clear independence of evaluator from project implementation; however costs can be much lower when the evaluation design, analysis and data collection oversight is done in house and only local data collection is outsourced. Partnering with a research institution can also lead to cost savings, as well as the benefits of working with a community who prioritizes understanding results for greater learning. Costs can also be reduced when the evaluation is able to add survey modules and/or increase sampling frame of an existing data collection instrument, such as working with the government to incorporate modules into an ongoing urban or agricultural survey. However, partnering can limit the number of questions and quality control, as well as the sampling frame which is often representative at the national level and not the intervention level. Using lighter touches, such as geospatial data and administrative data to track changes or smaller interim tracking surveys can also help decrease costs. Each of these options have their own benefits and drawbacks, which will come into play for institutions when deciding whether and how to support an impact evaluation.

Performance Evaluation

When an impact evaluation is not possible or cost effective, performance evaluations can still provide evidence of results. Performance evaluations are usually based on a mix of qualitative and quantitative evidence, including both secondary data, such as administrative data, census and project data, as well as primary data through pre/post household surveys, focus groups, KIIs. There can also be performance evaluations with solely qualitative data. Although pre-post household surveys provide data before and after the intervention, there is still not a comparison group (a counterfactual), so it can be difficult to attribute benefits to the intervention. Performance evaluations can answer questions on how well the intervention was implemented, lessons learned from implementation, how stakeholders perceive the effectiveness of the intervention, whether the intervention achieved and sustained intended outputs, and whether expected outcomes have occurred.

Some interventions are well suited for performance evaluations, particularly implementation of land policies or improvements to institutions at a national level or main urban city where there is no feasible counterfactual. Major changes around legislative reform (such as recognition of women's rights or removal of a lengthy regulatory procedure) or the introduction of new land systems or institutions can show quite stark results when reviewing historic trends in transaction volumes and times of land administrative records. When combined with key informant interviews and focus groups, the evaluation can make an informed determination of whether the intervention was likely behind any observed changes in outcomes.

C. Evaluation Exposure Period

The evaluation exposure period is the period of time measured by the evaluation from baseline to endline data collection. The timeline should be informed by project implementation timeline, the expected theory of change and related outcome timing. If there are both shorter and medium or longer-term effects of interest, the evaluation can consider not only baseline and endline data collection but also interim data collection rounds. Data collection should be at least two years apart to allow benefits to realize.

Project data regarding implementation timeline for each activity in each village or neighborhood is important in determining when data collection should occur. A project may take place over an expanded period of time and at different time periods as it rolls out. The key is when implementation and outputs occurred in each area for each activity so that an appropriate time period can pass before follow-up data is collected.

If evaluations collect data too early, not only is money potentially wasted but the evaluation could underestimate the impacts on outcomes of interest by showing no significant effect. One of the key issues raised in the review of the literature was limited exposure period of impact evaluations to allow for longer-term outcomes like productivity and incomes[12]. Evidence of shorter-term and medium-term outcomes like perception of tenure, demand for land services and investments have been shown but longer-term outcomes like agricultural productivity and incomes have mixed evidence. When key outcomes are expected to take time to develop, it is vital for evaluations to keep this timing in mind when developing the work plan and not simply plan on a final evaluation at the end of the intervention.

In order to determine the approximate timing of outcomes, evaluators can use the existing evidence and suggested broad level theory of change provided. However, each environment is different. It may take years for some populations with a deep rooted history of tenure insecurity to feel secure while others may very quickly change their perceptions once the perceived risk is mitigated. If there is a lack of clarity on the timing of certain outcomes, a tracking survey can also be incorporated to measure whether key outcomes are occurring at the MDE of the evaluation. A short tracking survey tests the environment for changes in key variables of interest without launching the full-scale follow-up survey and can be done via phone with spot checks in the field.

Interim data collection can also give the evaluation an idea of whether it is worth continuing an additional follow-up round of data collection. For example, if interim outcomes like increased perception of tenure or investments are not found, then the logic does not support the occurrence of the related longer-term outcomes like improved land utilization, productivity, and land markets. Similarly, if the evaluation finds the outputs were not sustained, such as the land information system or provision of titles, then the impact evaluation may no longer be worth pursuing and can be replaced by a performance evaluation to understand why outputs were not sustained.

D. Sampling Frame

An evaluation sample consists of both treatment and control/comparison groups. An evaluator selects the sample based on the logic for the intervention, particularly the expected beneficiaries of the intervention and the research questions trying to be addressed. The sample is dependent on what level of analysis is required. Is the evaluation interested in effects on a village, a household, an individual or a parcel? Based on the theory of change and unit of analysis, the evaluation will create a sampling frame that can capture that level of analysis. There may need for more than one sampling frame to capture various outcome streams.

MCC had issues in some of its early evaluations where the evaluation sample selected was indeed good for measuring changes in land tenure security, investments and productivity; however, these same populations were not the best sample to provide insights on changes in the countries' increase in demand for first time registration and transfers, access to mortgages, changes in transaction time or external investment. Reason being, those who benefited from site specific rights recognition interventions were not the same population which was most likely to access the formal banking and land system in the near-term. Even if they were the same population, the numbers of transactions that occur in a sample that is large enough to determine changes in land investments and land values is not necessarily large enough to capture a large enough sample size of those conducting these land-based transactions in the formal system to allow for statistical analysis of the data in a robust way. To capture the other group of beneficiaries, separate evaluation methodologies, sampling frames and data sources were required. Again, context and the theory of change is key.

[12] The exception being natural experiments.

There also may be an interest in understanding project effects on a subgroup due to beneficiaries benefiting differently from land interventions. When establishing a sampling frame, it is important to ensure that the evaluation has a large enough sample size to analyze data on these subgroups. However, depending on a random sample will often not allow for later analysis of these subgroups, such as by women versus men or those with lower versus higher levels of tenure. An evaluator will still be able to provide descriptive statistics of sub-groups within the sample but not the ability to show causality and statistical significance on key indicators unless there is a large enough effect that is detectable from the sample subgroup that responded in the random sample. As such, the evaluation needs to incorporate sufficient sampling of those types of land users or in-depth results analysis will only be able to be provided at an aggregate level of the entire sample. Robust subgroup analysis may require oversampling of subgroups. Conducting a listing exercise ahead of choosing the baseline survey sample can help ensure a certain number of subgroups of interest for the evaluation, such as women, parcels with businesses, those with less secure forms of tenure, or other categories of interest for the evaluation research.

The evaluation sample size is established to have a large enough number of observations to capture the likely effect for the key outcome variables of interest. A statistician/evaluator conducts power calculations to determine the sample size needed to obtain a certain effect size for a group or subgroup. The minimum detectable effect (MDE) is the smallest effect that an evaluation can capture. It is key that evaluations have adequate statistical power to detect effects (if they occur). If the project result is smaller than the MDE, it would appear as a null result. As such it is important for the evaluator to understand the parameters of change for the key research variables and how much the intervention will likely affect the outcomes of interest. A larger sample size can capture a smaller effect, but it is also more costly. Similarly, lower variance, even distribution between treatment and comparisons, and small intra-cluster correlation (households in the village/cluster are fairly independent in terms of socio-economic variables) can also help lower the MDE.

Evaluations lose power when they no longer can capture the MDE, such as a decrease in sample size. This can stem from changes in project implementation where areas selected for treatment or control groups do not remain due to changes in workplans or at times incorrect estimations of treatment populations. For example, a smaller number of land parcels or households met the required criteria to be treated so the eligible treatment population was reduced. A respondent could also be in a targeted treatment area but not actually receive the intended key treatment. For example, when sporadically title, the enumerated sample may not demand formal land recognition due to lack of interest or potentially the fee for services was too high. Even in systematic formalization of rights, the government may not process and deliver the land use certificate after the intervention maps and provides the documentation for these rights to be processed. This creates difficulties in overlapping the enumerated treatment sample with those who in fact received the intervention's intended key treatment. In multiple recent impact evaluations, evaluators resorted to overlapping geospatial data files to ensure there was sufficient overlap of enumeration and treatment areas and that the power of the evaluation was still sufficient to detect effects in key variables.

In order to mitigate the problem of insufficient sample size/power of the evaluation, it is advised to over sample if resources allow and compare findings with project and land administrative data when possible. Collecting some key data earlier on a larger number of parcels in potential treatment areas to inform the sample selection decision could also help the process. It also is helpful to ensure in-depth coordination between the evaluator and implementing contractor for the intervention, including discussion of any changes in treatment groups, as well as sharing geospatial data and workplans. An evaluator might also look at using "intent to treat" analysis, where individuals are considered treated if the project targeted them regardless if they actually received the key intended treatment. Although this might aid with the external validity as similar situation might occur if the intervention is tried elsewhere, this type of analysis risks showing a lower or potentially no effect.

IV. DATA SOURCES AND DATA COLLECTION INSTRUMENTS

Data collection instruments and related data sources are key components to an evaluation's ability to fully capture results. Early data collection and coordination is key. Early data provides a baseline and helps validate what type of evaluation can be supported. Although power calculations can be estimated and provide a MDE size for various sample sizes, field data will help confirm the comparability of the comparison and treatment groups. Early data collection also can provide insights into the beneficiary population that could inform intervention design and implementation, such as field data on conflicts, perceptions of tenure, intra-household dynamics, existing tenure, and use rights. As such, when data collection is carried out as part of project due diligence, it is helpful for the intervention stakeholders to work with the evaluation researchers on what data should be collected to support both project and evaluation design.

Early data collection can clear up misconceptions, as well as provide key baseline data for the evaluation. For example, there have been incorrect assumptions of pre-project levels of tenure security or tenure status due to anecdotal stories or reliance on faulty administrative data. This led to misconceptions about the treatment sizes, related benefit streams and sampling that was only discovered once field level data collection occurred.

A. Data Sources

Historically, impact evaluations depended solely on household surveys, but recent studies have begun incorporating best practices by triangulating data sources, including surveys, use of project and land administrative data, as well as qualitative data from focus group and key informant interviews. Triangulation of data is important for land as survey responses can have high error rates for key variables like whether parcel registered (titled) or not and parcel sizes, while administrative data in some countries can be out dated due to old paper records or lack of updating secondary transactions on the property, including changes in owners and boundary changes. More importantly, qualitative data collection can provide insights into the data, especially the why and how of results.

An overview of the main data sources follows, below, and Annex B for easy reference provides a table of potential data sources to capture each of the key outcomes.

<u>Surveys</u>

Household and business surveys are quite useful in understanding perceptions of tenure security, informal transactions, conflicts, income, resources, production, investments and intrahousehold dynamics. Surveys are the most costly type of data to collect but also provide valuable detailed quantitative data on specific questions of interest. Surveys can include those specific to the intervention (whether for due diligence or the evaluation) or take advantage of other existing surveys such as census, agricultural or housing surveys. If the surveys are georeferenced, the evaluation can take advantage of other surveys, which is especially helpful when measuring longer-term high level impacts like food security, poverty alleviation, decreased land degradation, the design can also link the survey with outside data sources if data is georeferenced. In order to get the most accurate and comprehensive data on the parcel, it is key to talk to various members of the household rather than solely the head of the household. This includes speaking with the parcel manager to collect parcel input and output data, as well as separate modules for spouses/women to understand the intrahousehold dynamics and differences in tenure, knowledge, and control of resources.

In order to lower evaluation data collection cost, the evaluation can try to add a land module on to an existing survey. This provides a wider sample and a constant source of data for lower cost than running separate standalone surveys. However, this limits the type of question, ability to determine sample and quality control and oversight. Often the surveys are representative at the national level but not at the level of the intervention. If only working on a subset of areas within a larger municipality or district it is difficult to rely on these datasets unless paying for additional sampling. National surveys often also only survey the household head, which is not always the most knowledgeable person to answer questions on all related land parcels nor will it provide accurate information on perceptions, de-facto tenure and resource control of those living within the household.

Administrative Data

Administrative data is a good resource for land impact evaluations and includes land administration records on various land transactions, building permits, mortgages, conflicts, taxes and land values. Often this data needs to be digitized from paper records unless there is an effective land information system that can provide reporting. Administrative data is especially helpful in measuring changes from land reforms and institutional strengthening efforts where expected results include changes in land transaction volumes, times and land markets and investments. Survey data can measure perceptions of effectiveness and performance of institutions or trust in the land governance system; however, surveys are usually not an effective source of data to measure changes in volumes of transactions and transaction time as there are very few formal transactions in a random sample in the majority of environments where land tenure and governance interventions are conducted.

Administrative records provide a comprehensive picture of volumes of various transactions and timing to provide them, as well as details on the land parcel and owner. Administrative records also provide historical data and trends. The paper records or existing excel or software systems of land offices often include the date of application and the date of approval for various transactions so one can track changes in administrative time to process a transaction. If there is a national land information system, the key is to work with developers to allow for reporting out of the system, including capturing gender data and other key data disaggregation. However, administrative data does not necessarily contain all the variables an evaluator would like for analysis and it can contain outdated or incomplete information.

Qualitative Data

Qualitative data includes focus groups, key informant interviews and case studies. Qualitative data from project implementers and beneficiaries is key to understanding the story and nuances behind the quantitative data coming from the surveys and administrative data. It is the evaluator's way of digging into the results and allowing for open ended responses and feedback. Although older impact evaluations did not use qualitative data collection, it is considered a best practice now to triangulate the various data sources to get a complete picture of the how and why of intervention results.

Geospatial Data

Georeferenced data, satellite imagery and remote sensing can provide complimentary data to other data sources. Once the intervention areas are mapped and the enumeration areas collect GPS points of the sample's primary residence, the evaluation can conduct geospatial analysis of the results such as differences closer or farther from urban centers. Data can also be linked with other georeferenced data sets to expand the number of variables that can be explored. If the survey teams also walk the parcels with GPS or bring along a satellite imagery of the parcels, the evaluation can get a much better sense of parcel size than from recall data alone. In addition, recent improvements in remote sensing technology allows for tracking of certain outcomes like crop cover, land utilization, and natural

resources like forest cover and peatland rehabilitation. This technology allows for tracking these outcomes at a lower cost than typical data collection and across a wider area over a longer time span.

Project Data

Project data of the intervention provides vital data from project implementers and stakeholders on project implementation progress and performance. This project data, especially around timing, outputs and beneficiaries reached, helps evaluators understand who received the treatment, differences in the intervention among those who received treatment, changes in implementation and related expectations, and when to expect benefit streams. Project implementation records should be kept in detail and provide start and stop times for each activity in each village or neighbourhood, records of which beneficiaries (at the level of the individual) were or were not reached and why, as well as documenting any changes from design that occurred during implementation and related changes in assumptions. This includes if certain groups were targeted but not treated. Project data can be summarized in a project description and related details documented through project records.

Taking the example of a registration intervention, project data could provide how and when each activity took place, including outreach to leaders, public sensitization, call for land documents/evidence of land rights, parcel boundary mapping, local community review, legal approval of right, incorporation of parcel boundaries into the cadastre, entering parcel into registrar, printing of title/certificate of use right, notification to land user of approved land right and pick up or delivery of land title or use certificate. Additional information, as relevant, would be provided on any groups that were targeted but could not have their land rights registered and any future actions being pursued by the government or local stakeholders to solve outstanding issues and register those rights. This might include existing land conflicts that need to be resolved, additional documentation required or that the government cannot take further action since these areas are in an area unable to be registered such as a flood zone. Similarly, if there was an effort to jointly register those rights but only one household member was registered, details would be provided on what efforts were made to jointly register those rights, why joint registration was not able to be completed and any implications for expected outcomes.

It is important to ensure sharing and coordination of project data with evaluators, including progress reports, workplans and geospatial files. Any due diligence data collection by project designers could inform sampling for the evaluation. Similarly, baseline data collection should be coordinated between the evaluator and project implementer to ensure collection of data occurs prior to the intervention rolling out to beneficiaries, including before any public outreach or sensitization which could bias the treatment group data. During implementation, evaluators and project managers need to coordinate with each other to ensure areas established for treatment versus comparison/control are maintained and that there is a mutual understanding of any changes in project implementation, assumptions, expectations or outputs. Project data performance reports and geospatial data collected can similarly provide key insights for evaluator data analysis.

B. Survey Instruments

The research questions of interest drive the questions in data collection instruments. In this section, the focus is on some guidance to consider when designing survey instruments. There are also various publicly available resources to see sample survey instruments. The World Bank has developed a common land module for use in its Living Standards Measurement Study (LSMS) instrument. MCC and USAID publish their land evaluation designs, questionnaires, anonymized data sets and results online at https://www.mcc.gov/our-impact/independent-evaluations and https://www.land-links.org/evaluations-and-research/ respectively.

Parcel Roster

All land impact evaluation surveys should incorporate a parcel roster at the beginning of the survey instrument. A parcel roster provides an overview, similar to a household module, of every parcel a household uses whether owned, rented in, rented out or sharecropped, who is the owner and/or parcel manager and type(s) of land use on each parcel. Often when dealing with multiple parcels, various members of the household own or manage these parcels. The parcel manager is better able to provide accurate details on a specific parcel's tenure history, productivity, income and investments. Data quality hence is dependent on obtaining the most knowledgeable respondent and a complete picture of land assets and related tenure. The roster provides the full list of land assets and should be used as a basis for who should respond to key questions in the land survey instrument and which modules to conduct. Annex B provides a simple sample parcel roster.

Land Tenure SDG Module

For the first time, there is a global standalone indicator on land tenure-SDG 1.4.2. The data custodians of SDG 1.4.2 (World Bank and UN Habitat) and 5.a.1 (FAO and UN Women) have agreed on a common set of questions to collect data and report on these two indicators. These questions have been reviewed by a wide range of stakeholders, including land experts and national statistical officers. In order to facilitate regular comprehensive and comparable global reporting on land tenure, those who are conducting land surveys are asked to adopt the land tenure module language and questions into their surveys. Annex B includes the modules.

Survey Modules

Depending on the research questions and variance in land, the researcher may want to include specific modules for various types of land use (agricultural, forest, residential, pastoral, commercial), land tenure and related land tenure regimes, and beneficiaries (women, men, groups, businesses). For example, if interested in intra-household allocation and control of resources, conflict, or perceptions of tenure, it is important to collect data from both the household head and spouse. One might also want to ask different questions on agricultural land vs urban land or area where land is rented versus owned vs commonly shared or under customary versus formal system. Tailoring the questionnaire to the specific types of beneficiaries and land use can be helpful. The parcel module at the very beginning of a survey instrument provides the basis for determining which modules should be asked for each parcel.

Utilization of GPS

Many surveys now utilize a GPS point of the respondent's house to allow for finding the household again, to link the analysis with other georeferenced datasets, or to conduct geospatial analysis of benefit streams, such as how the effect differs closer or farther from urban centers and markets. The GPS point can also be used to link with project or administrative data. For example, in projects working on recognizing land rights, the survey data can be compared with project data or land administrative data to see if in fact the parcel did in fact get incorporated in the cadaster or receive a title. If an area was mapped by the intervention, the GPS point of the household can also be linked with the official land record to see the size of the parcel and who is on the official documentation of land rights. Expanding utilization of GPS by the survey team to map the whole parcel instead of one point can also be helpful in obtaining parcel sizes of control and treatment groups.

There are often large error rates in respondents' answers on parcel size. Bringing a geospatial expert with the survey team to map the parcel boundaries is helpful in obtaining key data. To increase parcel size accuracy, the survey can include mapping a subset of land parcels managed by the household or use categories like small/medium/large. Training and oversight of these processes is important to ensuring data quality. Having an accurate parcel size is key when trying to capture productivity per hectare and land value outcomes as land size is a key determinant of both.

Verification of Tenure

Survey responses to some key land tenure variables (especially land tenure status and parcel size) are susceptible to high error rates. Where feasible, collect and compare responses with other data sources in the field. There have been cases, where people's responses when compared to administrative data showed over 70% error rates in tenure status due to mistakenly believing they were fully registered when in fact they had another form of documentation such as unregistered deed but not a full title. Even overlapping survey data with administrative records and project records has been problematic as records are often inaccurate. In order to verify tenure status, during the survey, it is helpful to request to see whatever legal documentation of tenure or other forms of documentation of tenure a household owns and verifying the document held. Some types of land rights documentation will also include other key information such as whose names are on the documentation, the type of right, the date of the right, the size of the parcel, and amount paid. If just interested in tenure status, one can also include pictures of the documents and ask respondents to point to their document.

Complexities of Land Tenure

Simply asking about land ownership does not capture the often broad and complex bundle of rights of a respondent. Some people may have no legal right to live on the parcel and are squatting, others may have informal rental arrangements or legal occupancy permits while others may have customary or territorial rights but no statutory documentation. Some may be in the statutory system with leaseholds or freehold title but are unable to transfer fully (buy, sell, bequeath) either by themselves or jointly with others. Others may have usufruct rights to these land areas. Understanding the broad range of land rights in each context and the bundle of rights a person has, including their legal rights and actual de facto ability to manage, use and transfer the land is key to understanding any changes in tenure and outcomes. Similarly, understanding the multiple types of rights that may exist over the same land parcel is important to understanding outcomes. As such, having someone on the evaluation team who is a land expert, as well as someone who knows the country context are key in being able to establish an effective survey and sampling strategy to capture these complexities.

Perception of Tenure

Perception of tenure is one of the most important but complex aspects of tenure to capture. Perception of tenure is based on a variety of factors including past history of conflicts or insecurities, awareness and understanding of rights and boundaries, confidence in the land governance system, intrahousehold dynamics, roles within the community, neighbor/boundary issues and both de jure and de facto bundle of rights on that parcel. Understanding the drivers and nuances are key as perception of tenure drives changes in land use behavior. Someone can have high perception of tenure security without legal documentation of tenure due to a strong confidence in the governance system and land use rights or someone can have weak perception of tenure security with legal documentation of tenure due to weak land governance system or intrahousehold or family dynamics. Although clarification and recognition of rights, including legal documentation can increase perception of tenure security it can also weaken land rights, such as for women and vulnerable groups, if the process is not inclusive. If someone already has a high perception of tenure, their behavior is not likely to change. Drivers of insecure tenure can also be seen as high risk or low risk. If the intervention addresses a high risk, there is a higher likelihood to see a change in someone's perception of tenure and related behavior. Within the household, members can also have different perceptions of security of tenure. Even the same individual can have differing perceptions of tenure security for various parcels.

As such, it is important to incorporate a set of questions on perception of tenure that is tailored to that specific context and which tries to understand the degree of tenure insecurity felt by each respondent in a household, what is driving the tenure insecurity and the level of insecurity or concern from each driver. Testing by the Global Property

Rights Index (PRINDEX)[13], which measures perception of security of property rights, also stresses the importance of asking respondents not only the "likelihood" but also if they are "worried" about losing use of land.

Clarify Transaction Time

Changes in transaction time can be tracked in a variety of ways. When using surveys to capture transaction time, it is often unclear whether times requested and provided refer to the time spent by customer, total duration of transaction time, back office processing time, or official times for processing a transaction. When developing the questionnaire, it is helpful to clarify the type of transaction time trying to capture, as well as specifically for what types of land transactions and parcels as land transaction time and related procedures often vary dependent on whether first time registration or transfer, the size of the parcel and type of the parcel. It is also key to understand what is the starting and ending point for a transaction. Is it the first time someone comes to the land office with a request? Is it when they first come with proper paperwork? Does it just include registration or all steps and offices prior? These issues are important to clarify to avoid the questions and data are interpreted in different ways. Similar clarifications are needed when collecting land administrative data to capture transaction time.

V. CONCLUSION

In order to establish a wealth of evidence for land tenure and governance interventions and to make use of limited evaluation and development funds, those designing and implementing land impact evaluations should continue to share evidence and lessons learned and the related implications for land impact evaluation and land intervention designs. This could include incorporating updates to the land literature database and related updates to the theory of change/logic model. Although impact evaluations and randomization of intervention areas are not always feasible, hopefully these options will be increasingly considered by those supporting evaluations. The starting point is a clear theory of change for the intervention and incorporation of impact evaluation into the early stages of the intervention design phase through coordination with land sector and statistical experts.

In this environment of evidence-based decision making and calls for global land data, it is important to improve and broaden the body of rigorous evidence on the results from land tenure and governance interventions. Using common questions and methodologies can support global reporting and monitoring initiatives, while more research and empirical evidence can provide a clear understanding of the contextual factors and causal chain necessary to support land tenure security (and related progress on SDG 1.4.2) and effective land governance systems that best contribute to development outcomes for all. Already the first few RCTs have published midterm results and longer-term analysis from a series of impact evaluations from USAID, the World Bank and MCC will be coming out in the next couple years. As more impact evaluations are funded, the evidence gaps in the theory of change will narrow and lessons can be applied to future land tenure and governance interventions.

[13] http://www.prindex.net/about

ANNEX A: IMPACT EVALUATION RESOURCES

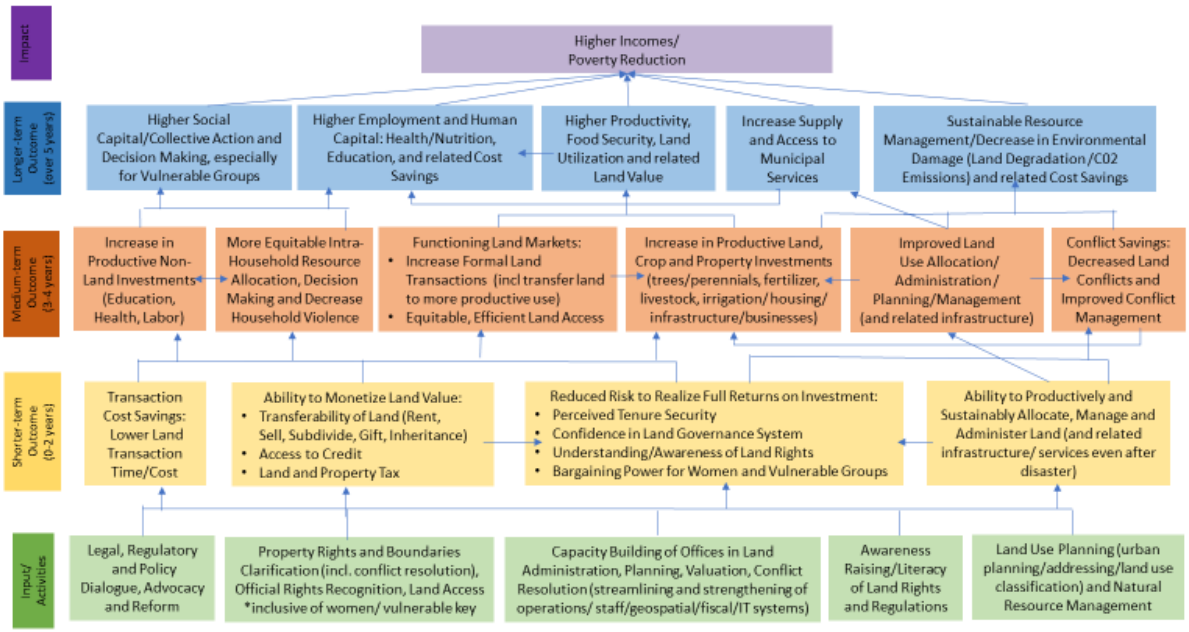
1) Gertler, Paul J.; Martinez, Sebastian; Premand, Patrick; Rawlings, Laura B; and Vermeersch, Christel M. J. 2013. Impact Evaluation in Practice. World Bank. Washington, DC. http://siteresources.worldbank.org/EXTHDOFFICE/Resources/5485726-1295455628620/Impact_Evaluation_in_Practice.pdf

2) Bamberger, M., Rugh. 2006. Conducting Quality Impact Evaluations Under Budget, Time and Data Constraints. World Bank. Washington, D.C. http://lnweb90.worldbank.org/oed/oeddoclib.nsf/DocUNIDViewForJavaSearch/757A5CC0BAE22558852571770059D89C/$file/conduct_qual_impact.pdf

3) Conning, Jonathan and Partha Deb. 2006. Impact Evaluation for Land Property Rights Reforms. World Bank. Washington, D.C. http://documents.worldbank.org/curated/en/450791468313825981/pdf/423820NWP0Doin10Box321452B01PUBLIC1.pdf

ANNEX B: TOOLS FOR LAND IMPACT EVALUATION

1: Overall Logic (Theory of Change) for Land Tenure and Governance Interventions (Lisher 2018)



2. Parcel Roster Example (Ghana MCC/World Bank Gender Integration Lab)

HOUSEHOLD PLOT ROSTER

VILLAGE ID:	HHN:	RESPONDENT ID:	RESPONDENT NAME:

Instructions:

Fill this form with the husband/wife/household members sitting together. Include ***all plots used and/or owned by the*** *household.* ***Include all commercial, residential, and farm plots.*** *We will be asking later about only those plots farmed and owned by the head and the spouse. For each plot, only the person who controls the plot should provide the responses in the plot roster and the Agricultural Module. Control of the plot is defined as the person who makes most of the decisions on this plot*

Plot Number	1.Plot name	2 Brief Description of the location	3. ID of person who controls the plot	4. Size (quantity)	5. Size (units)	8. Type of Plot 1=Agric 2=Residential 3=Commercial 4=Mixed
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Size unit codes: 1. Acre –AC; 2 Hectares; 3. Pole – PO; 4. Rope – RO; 5. Plot – PL; 6. other – OT (specify)

3: Land Tenure SDG Module

The data custodians of SDG indicators 1.4.2 (UN Habitat and the World Bank) and 5.a.1 (F.A.O) developed a combined survey module to collect data on secure land tenure for computation of both indicators. Below, follow the five different versions of the Land Tenure SDG module, which vary based on who is responding to the questionnaire and whether a parcel roster is included in the larger survey instrument. The below modules provide a module for cross-country comparable data collection for computation of SDG indicators 1.4.2 and 5.a.1. Due to the differences of tenure between household members, especially women and men, whenever feasible, the custodians recommend self-respondent data rather than proxy data.

Version 1 – Parcel level data, no parcel roster elsewhere, self-Respondent (administered to one randomly selected adult household member).

Implementation / CAPI Notes	Use "currently" or set a specific date – country level decision	Local/traditional area unit codes to be customized at country level	Codes to be customized at country level	Codes to be customized at country level	Named agencies and examples to be customized for context	Codes to be customized at country level - to include all legally recognized documents. Rental contracts of some form should be included, as long as rights are legally protected Photo aid to be shown to respondents.	skipped for short term rental & sharecropped in	skipped for short term rental & sharecropped in

Respondent Roster ID: _____

Q0. Do you own or hold use rights to any parcel of land, either alone or jointly with someone else, irrespective of whether the parcel is used by your or another household, and irrespective of the use of the parcel (including dwelling plot, agricultural, pastoral, forest and business/commercial plots)?

YES...1
NO....2 >> END OF QUESTIONS ☐

ENUMERATOR: AFTER CREATING THE ROSTER OF PARCELS, GO THROUGH THE ENTIRE MODULE ONE PARCEL AT A TIME.

PARCEL ID	1. PARCEL NAME Please tell me about each parcel for which **you** currently own or hold use rights for, either alone or with someone else. Please describe or give me the name of each parcel, starting with the parcel you reside on, if applicable.	2. What is the area of this [PARCEL]? CODES FOR UNIT: ACRE.....1 HECTARE.....2 SQUARE METERS....3 OTHER (SPECIFY)..4			3. How was this [PARCEL] acquired? GRANTED BY CUSTOMARY/ COMMUNITY AUTHORITIES....1 ALLOCATED BY GOVERNMENT.....2 ALLOCATED BY FAMILY MEMBER...3 INHERITED BY THE DEATH OF A FAMILY MEMBER..4 PURCHASED.....5 RENTED IN, SHORT-TERM (< 3 YEARS).....6 >> 5 RENTED IN, LONG-TERM.....7 SHARECROPPED IN ...8 >> 5 BORROWED FOR FREE.....9 BRIDE PRICE.....10 GIFT FROM NON-HOUSEHOLD MEMBER.....11 MOVED IN WITHOUT PERMISSION....12 >> NEXT PARCEL OTHER (SPECIFY)..13	4. Under which tenure system is this [PARCEL]? CUSTOMARY.....1 FREEHOLD.....2 LEASEHOLD.....3 STATE.....4 COMMUNITY/GROUP RIGHT.....5 COOPERATIVES...6 OTHER (SPECIFY)...7	5. What is the primary current use of this [PARCEL]? RESIDENTIAL...1 AGRICULTURAL..2 PASTORAL.....3 FOREST.....4 BUSINESS/ COMMERCIAL..5 DON'T KNOW....6 OTHER (SPECIFY)...7	6. Is there a document for this [PARCEL] issued by the Land Registry/Cadastral Agency, such as a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract? YES...1 NO....2 >> 8	7. What type of documents are there for this [PARCEL], and is your name listed on any of the documents as owner or right use holder? LIST UP TO 3, SHOW PHOTO AID CODES FOR DOCUMENT TYPE: TITLE DEED.....1 CERTIFICATE OF CUSTOMARY OWNERSHIP.....2 CERTIFICATE OF OCCUPANCY...3 CERTIFICATE OF HEREDITARY ACQUISITION LISTED IN REGISTRY.....4 SURVEY PLAN.....5 RENTAL CONTRACT, REGISTERED.....6 LEASE, REGISTERED.....7 OTHER (SPECIFY).....8 CODES FOR NAME LISTED? YES.....1 NO.....2 DONT'KNOW..98 REFUSAL....99					8. Do you have the right to sell this [PARCEL], either alone or jointly with someone else? YES.....1 NO.....2 DONT'KNOW..98 REFUSAL....99	9. Do you have the right to bequeath this [PARCEL], either alone or jointly with someone else? YES.....1 NO.....2 DONT'KNOW..98 REFUSAL....99	10. On a scale from 1 to 5, where 1 is not at all likely and 5 is extremely likely, how likely are you to involuntarily lose ownership or use rights to this [PARCEL] in the next 5 years? NOT AT ALL LIKELY..1 SLIGHTLY LIKELY....2 MODERATELY LIKELY..3 VERY LIKELY.....4 EXTREMELY LIKELY...5
		a.		b.						DOCUMENT #1		DOCUMENT #2		DOCUMENT #3				
		FARMER ESTIMATION		GPS MEASURE						DOC. TYPE	NAME LISTED?	DOC. TYPE	NAME LISTED?	DOC. TYPE	NAME LISTED?			
		AREA	UNIT	AREA IN ACRES														
1		_ _ _ _ . _ _		_ _ _ _ . _ _														
2		_ _ _ _ . _ _		_ _ _ _ . _ _														
3		_ _ _ _ . _ _		_ _ _ _ . _ _														
4		_ _ _ _ . _ _		_ _ _ _ . _ _														
5		_ _ _ _ . _ _		_ _ _ _ . _ _														

Color Codes: SDG 1.4.2 SDG 5.a.1 Both 1.4.2 & 5.a.1 Analytical purposes only

Version 2 -- Separate parcel roster elsewhere, self-respondent, fed forward (i) the interview of one randomly selected adult household member or (ii) the interviews of all household

Implementation / CAPI Notes	Use "currently" or set a specific date -- country level decision	Named agencies and examples to be customized for context	Codes to be customized at country level - to include all legally recognized documents. Rental contracts of some form should be included, as long as rights are legally protected Photo aid to be shown to respondents.	skipped for short term rental & sharecropped in	skipped for short term rental & sharecropped in

Respondent Roster ID: _____

Q0. Do you own or hold use rights for any parcel of land, either alone or jointly with someone else, irrespective of whether the parcel is used by your or another household, and irrespective of the use of the parcel (including dwelling plot, agricultural, pastoral, forest and business/commercial plots)?

YES...1
NO....2 >> END OF QUESTIONS ☐

ENUMERATOR: AFTER CREATING THE ROSTER OF PARCELS, GO THROUGH THE ENTIRE MODULE ONE PARCEL AT A TIME.

PARCEL ID [FED FORWARD]	1. **PARCEL NAME** [FED FORWARD]	2. Do you own or hold use rights for this [PARCEL], either alone or jointly with someone else? YES...1 NO....2 >> NEXT PARCEL	3. Is there a document for this [PARCEL] issued by the Land Registry/Cadastral Agency, such as a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract? YES...1 NO....2 >> 5	4. What type of documents are there for this [PARCEL], and is your name listed on any of the documents as owner or right use holder? LIST UP TO 3, SHOW PHOTO AID CODES FOR DOCUMENT TYPE: TITLE DEED.....1 CERTIFICATE OF CUSTOMARY OWNERSHIP.....2 CERTIFICATE OF OCCUPANCY...3 CERTIFICATE OF HEREDITARY ACQUISITION LISTED IN REGISTRY.....4 SURVEY PLAN.....5 RENTAL CONTRACT, REGISTERED.....6 LEASE, REGISTERED.....7 OTHER (SPECIFY).....8 CODES FOR NAME LISTED? YES.....1 NO.....2 DONT'KNOW..98 REFUSAL....99					5. Do you have the right to sell this [PARCEL], either alone or jointly with someone else? YES.....1 NO.....2 DONT'KNOW..98 REFUSAL....99	6. Do you have the right to bequeath this [PARCEL], either alone or jointly with someone else? YES.....1 NO.....2 DONT'KNOW..98 REFUSAL....99	7. On a scale from 1 to 5, where 1 is not at all likely and 5 is extremely likely, how likely are you to involuntarily lose ownership or use rights to this [PARCEL] in the next 5 years? NOT AT ALL LIKELY..1 SLIGHTLY LIKELY....2 MODERATELY LIKELY..3 VERY LIKELY.....4 EXTREMELY LIKELY...5
				DOCUMENT #1		**DOCUMENT #2**		**DOCUMENT #3**				
				DOC. TYPE	**NAME LISTED?**	**DOC. TYPE**	**NAME LISTED?**	**DOC. TYPE**	**NAME LISTED?**			
1												
2												
3												
4												
5												

Color Codes:

Version 3 -- Individual level (not parcel level), self-respondent, assuming separate household member roster with gender.

Implementation / CAPI Notes

Use "currently" or set a specific date -- country level decision

Named agencies and examples to be customized for context

Codes to be customized at country level - to include all legally recognized

Use "currently" or set a specific date -- country level decision

Named agencies and examples to be customized for context

Codes to be customized at country level - to include all legally recognized documents. Rental contracts of some form should be included, as long as rights are legally protected

Photo aid to be shown to respondents.

Q0. Do you or does any member of your household own or hold use rights for any parcel of land, either alone or jointly with someone else, irrespective of whether the parcel is used by your or another household, aand irrespective of the use of the parcel (including dwelling plot, agricultural, pastoral, forest and business/commercial plots)?

YES...1 >> ASK FOLLOWING QUESTIONS TO EACH ADULT HOUSEHOLD MEMBER (OR RANDOMLY SELECTED MEMBER)
NO....2 >> END OF QUESTIONS ☐

	Agricultural Land											Non-Agricultural Land											
1. RESPONDENT ID	2. Do you currently own or hold use rights for any **agricultural land (including pastoral land)**, either alone or jointly with someone else? YES...1 NO....2 >> Q8	3. Is there a document for any agricultral land you own or hold use rights to that is issued by the Land Registry/Cadastral Agency, such as a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract? YES...1 NO....2 >> 5	4. What type of documents are there for the agricultural land you own or hold use rights to, and is your name listed on any of the documents as owner or right use holder? LIST UP TO 3, SHOW PHOTO AID CODES FOR DOCUMENT TYPE: TITLE DEED.....1 CERTIFICATE OF CUSTOMARY OWNERSHIP....2 CERTIFICATE OF OCCUPANCY....3 CERTIFICATE OF HEREDITARY ACQUISITION LISTED IN REGISTRY....4 SURVEY PLAN.....5 RENTAL CONTRACT, REGISTERED.....6 LEASE, REGISTERED.....7 OTHER (SPECIFY).....8 CODES FOR NAME LISTED? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99 DOCUMENT #1 / DOCUMENT #2 / DOCUMENT #3 DOC. TYPE / NAME LISTED?	5. Do you have the right to sell any of the agricultural land you own or hold use rights to, either alone or jointly with someone else? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99	6. Do you have the right to bequeath any of the agricultural land you own or hold use rights to, either alone or jointly with someone else? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99	7. On a scale from 1 to 5, where 1 is not at all likely and 5 is extremely likely, how likely are you to involuntarily lose ownership or use rights to any of the agricultural land you own or hold use rights to in the next 5 years? NOT AT ALL LIKELY..1 SLIGHTLY LIKELY....2 MODERATELY LIKELY..3 VERY LIKELY.....4 EXTREMELY LIKELY..5	8. Do you currently own or hold use rights for any **non-agricultural land, such as** land used for residential or commercial purposes, either alone or jointly with someone else? YES...1 NO....2 >> NEXT INDIVIDUAL	9. Is there a document for any non-agricultural land you own or hold use rights to that is issued by the Land Registry/Cadastral Agency, such as a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract? YES...1 NO....2 >> 11	10. What type of documents are there for the non-agricultural land you own or hold use rights to, and is your name listed on any of the documents as owner or right use holder? LIST UP TO 3, SHOW PHOTO AID CODES FOR DOCUMENT TYPE: TITLE DEED.....1 CERTIFICATE OF CUSTOMARY OWNERSHIP....2 CERTIFICATE OF OCCUPANCY....3 CERTIFICATE OF HEREDITARY ACQUISITION LISTED IN REGISTRY....4 SURVEY PLAN.....5 RENTAL CONTRACT, REGISTERED.....6 LEASE, REGISTERED.....7 OTHER (SPECIFY).....8 CODES FOR NAME LISTED? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99 DOCUMENT #1 / DOCUMENT #2 / DOCUMENT #3 DOC. TYPE / NAME LISTED?	11. Do you have the right to sell any of the non-agricultural land you own or hold use rights to, either alone or jointly with someone else? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99	12. Do you have the right to bequeath any of the non-agricultural land you own or hold use rights to, either alone or jointly with someone else? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99	13. On a scale from 1 to 5, where 1 is not at all likely and 5 is extremely likely, how likely are you to involuntarily lose ownership or use rights to any of the non-agricultural land you own or hold use rights to in the next 5 years? NOT AT ALL LIKELY..1 SLIGHTLY LIKELY....2 MODERATELY LIKELY..3 VERY LIKELY.....4 EXTREMELY LIKELY..5

Version 4 -- No parcel roster elsewhere. Proxy respondent OK. Assuming separate household member roster with gender.

Implementation / CAPI Notes

Use "currently" or set a specific date -- country level decision

Local/traditional area unit codes to be customized at country level

Codes to be customized at country level

Codes to be customized at country level

Ask 'owned' if parcel is purchased or inherited, otherwise 'holds use rights'

Named agencies and examples to be customized for context

Codes to be customized at country level - to include all legally recognized documents. Rental contracts of some form should be included, as long as rights are legally protected

Photo aid to be shown to respondents.

skipped for short term rental & sharecropped in

skipped for short term rental & sharecropped in

skipped for short term rental & sharecropped in

skipped for short term rental & sharecropped in

Asked for each owner/user right holder separately, where [NAME of owner/user right holder] is linked to all persons reported in Q6.
If short term rental, rephrase as [for the remaining duration of the rental contract]

Q0. Do you or does any member of your household own or hold use rights for any parcel of land, either alone or jointly with someone else, irrespective of whether the parcel is used by your or another household, and irrespective of the use of the parcel (including dwelling plot, agricultural, pastoral, forest and business/commercial plots)? YES...1 NO....2 >> END OF QUESTIONS ☐

ENUMERATOR: AFTER CREATING THE ROSTER OF PARCELS, GO THROUGH THE ENTIRE MODULE ONE PARCEL AT A TIME.

PARCEL ID	RESPONDENT ID	PARCEL NAME Please tell me about each parcel for which you or any household member currently owns or hold use rights for, either alone or with someone else. Please describe a different parcel of each parcel, starting with the parcel you reside on, if applicable.	What is the area of this [PARCEL]? CODES FOR UNIT: ACRE.....1 HECTARE.....2 LOCAL UNIT(S).....3 OTHER (SPECIFY).....4 a. FARMER ESTIMATION: AREA / UNIT b. GPS MEASURE: AREA IN ACRES	3. How was this [PARCEL] acquired? GRANTED BY CUSTOMARY COMMUNITY.....1 ALLOCATED BY GOVERNMENT.....2 INHERITED FROM FAMILY MEMBER.....3 INHERITED BY THE WIDOW FROM FAMILY MEMBER.....4 PURCHASED.....5 RENTED IN.....6 RENT FREE.....7 SHARECROPPED IN.....8 RENTED OUT.....9 SHARECROPPED OUT.....10 BORROWED FOR FREE.....11 BRIDE PRICE.....12 GIFT FROM HOUSEHOLD MEMBER.....13 MOVED IN WITHOUT PERMISSION.....14 OTHER (SPECIFY).....15	Under which tenure system is this [PARCEL]? CUSTOMARY.....1 FREEHOLD.....2 LEASEHOLD.....3 STATE LAND.....4 COMMUNITY/GROUP RIGHT.....5 DON'T KNOW.....8 OTHER (SPECIFY)...7	5. What is the primary current use of this [PARCEL]? RESIDENTIAL.....1 AGRICULTURAL...2 COMMERCIAL.....3 FOREST.....4 BUSINESS.....5 RECREATIONAL.....6 DON'T KNOW.....8 OTHER (SPECIFY)...7	6. Who is the household [name holds use rights to] this [PARCEL]? LIST UP TO 4 JOINT OWNERS OR USE RIGHT HOLDERS FROM HOUSEHOLD ROSTER. HOUSE CODE #1 / #2 / #3 / #4	7. Does your household have a document for this [PARCEL] issued by the Land Registry/Cadastral Agency, such as a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract? YES...1 NO....2 >> 9	8. What type of documents does your household have for this [PARCEL], and which household members are listed as owners or use rights holders on each? LIST UP TO 3, SHOW PHOTO AID DOCUMENT TYPE: TITLE DEED.....1 CERTIFICATE OF CUSTOMARY OWNERSHIP....2 CERTIFICATE OF OCCUPANCY....3 CERTIFICATE OF HEREDITARY ACQUISITION LISTED IN REGISTRY....4 SURVEY PLAN.....5 RENTAL CONTRACT, REGISTERED.....6 LEASE, REGISTERED.....7 OTHER (SPECIFY).....8 IF NO HOUSEHOLD MEMBER LISTED AS DOCUMENT, ENTER "NA" IF DON'T KNOW, ENTER "98" DOCUMENT #1 / DOCUMENT #2 / DOCUMENT #3 DOC. TYPE / HOUSE CODE #1 / #2 / #3 / #4	9. Does anyone in the household have the rights to sell [PARCEL], either alone or with someone else? YES.....1 NO.....2 >>11 DONT KNOW..98 >>11 REFUSAL....99 >>11	10. Who can decide whether to sell [PARCEL]? LIST UP TO 4 ID CODES FROM HOUSEHOLD ROSTER AND 1 CODE FROM OUTSIDE HOUSEHOLD, IF APPLICABLE. CODE FOR NON-HH MEMBER: RELATION.....1 LOCAL OFFICIAL...2 COMMUNITY LEADER..3 OTHER.....4 HOUSE CODE #1 / #2 / #3 / #4 / NON-HH MEMBER	11. Does anyone in the household have the right to bequeath this [PARCEL], either alone or with someone else? YES.....1 NO.....2 >>13 DONT KNOW..98 >>13 REFUSAL....99 >>13	12. Who can decide whether to bequeath this [PARCEL]? LIST UP TO 4 ID CODES FROM HOUSEHOLD ROSTER AND 1 CODE FROM OUTSIDE HOUSEHOLD, IF APPLICABLE. CODE FOR NON-HH MEMBER: RELATION.....1 LOCAL OFFICIAL...2 COMMUNITY LEADER..3 OTHER.....4 HOUSE CODE #1 / #2 / #3 / #4 / NON-HH MEMBER	13. On a scale from 1 to 5, where 1 is not at all likely and 5 is extremely likely, how likely is [NAME of owner/use right holder] to involuntarily lose ownership or use rights to this [PARCEL] in the next 5 years? REFER TO ID CODES IN Q6 NOT AT ALL LIKELY..1 SLIGHTLY LIKELY....2 MODERATELY LIKELY..3 VERY LIKELY.....4 EXTREMELY LIKELY..5 INDIVIDUAL 1 ID / RESPONSE INDIVIDUAL 2 ID / RESPONSE INDIVIDUAL 3 ID / RESPONSE INDIVIDUAL 4 ID / RESPONSE
1																						
2																						
3																						
4																						
5																						

Version 5 -- Individual level (not parcel level), proxy respondent, assuming separate household member roster with gender.

Implementation / CAPI Notes

Use "currently" or set a specific date -- country level decision

Named agencies and examples to be customized for context

Codes to be customized at country level - to include all legally recognized

Use "currently" or set a specific date -- country level decision

Named agencies and examples to be customized for context

Codes to be customized at country level - to include all legally recognized documents. Rental contracts of some form should be included, as long as rights are legally protected

Photo aid to be shown to respondents.

Q0. Do you or does any member of your household own or hold use rights for any parcel of land, either alone or jointly with someone else, irrespective of whether the parcel is used by your or another household, and irrespective of the use of the parcel (including dwelling plot, agricultural, pastoral, forest and business/commercial plots)?

YES...1 >> ASK FOLLOWING QUESTIONS ABOUT EACH ADULT HOUSEHOLD MEMBER
NO....2 >> END OF QUESTIONS ☐

	Agricultural Land											Non-Agricultural Land											
LIST ALL ADULT HOUSEHOLD MEMBERS FROM THE HOUSEHOLD ROSTER [FED FORWARD]	1. **ENTER THE ID OF THE INDIVIDUAL RESPONDING FOR [NAME]**	2. Does [NAME] currently own or hold use rights for any **agricultural land (including pastoral land)**, either alone or jointly with someone else? YES...1 NO....2 >> Q8	3. Is there a document for any agricultral land [NAME] owns or holds use rights to that is issued by the Land Registry/Cadastral Agency, such as a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract? YES...1 NO....2 >> 5	4. What type of documents are there for the agricultural land [NAME] owns or holds use rights to, and is [NAME] listed on any of the documents as owner or right use holder? LIST UP TO 3, SHOW PHOTO AID CODES FOR DOCUMENT TYPE: TITLE DEED.....1 CERTIFICATE OF CUSTOMARY OWNERSHIP....2 CERTIFICATE OF OCCUPANCY....3 CERTIFICATE OF HEREDITARY ACQUISITION LISTED IN REGISTRY....4 SURVEY PLAN.....5 RENTAL CONTRACT, REGISTERED.....6 LEASE, REGISTERED.....7 OTHER (SPECIFY).....8 CODES FOR NAME LISTED? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99 DOCUMENT #1 / DOCUMENT #2 / DOCUMENT #3 DOC. TYPE / NAME LISTED?	5. Does [NAME] have the right to sell any of the agricultural land [NAME] owns or holds use rights to, either alone or jointly with someone else? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99	6. Does [NAME] have the right to bequeath any of the agricultural land [NAME] owns or holds use rights to, either alone or jointly with someone else? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99	7. On a scale from 1 to 5, where 1 is not at all likely and 5 is extremely likely, how likely is [NAME] to involuntarily lose ownership or use rights to any of the agricultural land [NAME] owns or holds use rights to in the next 5 years? NOT AT ALL LIKELY..1 SLIGHTLY LIKELY....2 MODERATELY LIKELY..3 VERY LIKELY.....4 EXTREMELY LIKELY..5	8. Does [NAME] currently own or hold use rights for any **non-agricultural land**, such as land used for residential or commecial purposes, either alone or jointly with someone else? YES...1 NO....2 >> NEXT INDIVIDUAL	9. Is there a document for any non-agricultural land [NAME] owns or holds use rights to that is issued by the Land Registry/Cadastral Agency, such as a title deed, certificate of ownership, certificate of hereditary acquisition, lease or rental contract? YES...1 NO....2 >> 11	10. What type of documents are there for the non-agricultural land [NAME] owns or holds use rights to, and is [NAME] name listed on any of the documents as owner or right use holder? LIST UP TO 3, SHOW PHOTO AID CODES FOR DOCUMENT TYPE: TITLE DEED.....1 CERTIFICATE OF CUSTOMARY OWNERSHIP....2 CERTIFICATE OF OCCUPANCY....3 CERTIFICATE OF HEREDITARY ACQUISITION LISTED IN REGISTRY....4 SURVEY PLAN.....5 RENTAL CONTRACT, REGISTERED.....6 LEASE, REGISTERED.....7 OTHER (SPECIFY).....8 CODES FOR NAME LISTED? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99 DOCUMENT #1 / DOCUMENT #2 / DOCUMENT #3 DOC. TYPE / NAME LISTED?	11. Does [NAME] have the right to sell any of the non-agricultural land [NAME] owns or holds use rights to, either alone or jointly with someone else? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99	12. Does [NAME] have the right to bequeath any of the non-agricultural land [NAME] owns or holds use rights to, either alone or jointly with someone else? YES.....1 NO.....2 DONT KNOW..98 REFUSAL....99	13. On a scale from 1 to 5, where 1 is not at all likely and 5 is extremely likely, how likely is [NAME] to involuntarily lose ownership or use rights to any of the non-agricultural land [NAME] owns or holds use rights to in the next 5 years? NOT AT ALL LIKELY..1 SLIGHTLY LIKELY....2 MODERATELY LIKELY..3 VERY LIKELY.....4 EXTREMELY LIKELY..5

Color Codes: SDG 1.4.2 / SDG 5.a.1 / Both 1.4.2 & 5.a.1

4: Key Criteria for Land Impact Evaluations

**What stage is the project intervention in?* Impact evaluations are best to incorporate during the design of the intervention (ex-ante evaluation).

**Is there a detailed theory of change/logic model that details the project interventions, expected benefits and related beneficiaries, timeline of those benefit streams, and assumptions?* The logic model forms the foundation for development of an impact evaluation.

** Is there stakeholder buy-in?* Stakeholder support, including by the project manager and local government is key.

** Is there enough time and resources to pursue the impact evaluation?* An impact evaluation must be properly resourced and should span from project design phase to at least 2-5 years after the treatment to capture variables, depending on if shorter, medium, or longer-term outcomes.

** Is there a counterfactual?* A counterfactual is necessary for an impact evaluation. The counterfactual can be randomly selected (control group) or selected based on comparability on observable factors (comparison group).

** What are the parameters or the likely expected change for the key outcome variables of interest?* The likely effect size or the needed effect size for a project to be considered successful should be known. The evaluation will be powered to ensure can capture that effect size.

** Is there a large enough sample group of comparable (statistically equivalent) eligible intervention areas to support the Minimum Detectable Effect (MDE) required to be able to capture key outcome variables of interest?* A large sample size can power the evaluation to capture a smaller MDE size. Beyond the effect size, sample size required can be affected by type of evaluation and traits of the sample. Smaller sample sizes can be used for RCT designs, when similar number of comparison and treatment areas, when the sample has a small intra-cluster correlation coefficient (characteristics of the population within the village/neighborhood are not strongly correlated) and low variance.

BEST PRACTICES FOR LAND EVALUATION DESIGN

- Evaluation design should start with project design and coordinate through the process to ensure the most rigorous evaluation design possible and the effective capturing of results of the intervention.
- Prior to designing an evaluation, ensure there is a detailed project logic containing: a) key outputs, interim and longer-term outcomes, b) expected timelines for outcomes; and c) for each outcome, who is the beneficiary and how will they benefit.
- Fit the evaluation design to logic with a realistic timeline for obtaining the Minimum Detectable Effect (MDE) in key variables, such as land-based investment and property values.
- Legal and institutional reforms can still allow room for an impact evaluation by comparing areas that did and did not receive the treatment. For policy reform, this means where there was not support for rolling out related implementing regulations, capacity building and awareness raising on the new legislation.
- Use mixed methods for the most robust evaluation
- Randomization (lottery) can be seen as creating a "fair" structure to providing intervention treatment.
- When creating a comparison group, consider key land variables beyond socioeconomic factors.
- For separate analysis of a subgroup (female/commercial) ensure sampling and power calculations are appropriate for that subgroup.
- Over sample and ensure coordination with the implementer as there are often unexpected issues in the power of the evaluation due to loss of control areas, poor overlap between evaluation sample and households treated and lack of demand for/or delays in outputs.
- Plan for a smaller tracking survey prior to rollout of full follow-up survey if unclear when best to conduct follow-up survey. This will provide some understanding of whether a subsample has yet experienced minimal detectable effects in key variables.

6: Potential Data Sources by Outcome

Potential Data Sources by Outcome					
Outcomes	**Evaluation/ Project Surveys (household, individual, parcel: crop yield/ grass clipping)**	**Qualitative: Focus Groups, Key Informant Interviews, Case Studies**	**Geospatial: orthophotos, remote sensing, GPS mapping**	**Administrative Data from land agencies, municipalities, villages, districts, banks, courts: land records, building permits, land use plans, conflicts, mortgages**	**Other surveys or secondary data: Census, DHS, LSMS, Agric surveys, real estate listings**
Shorter-term Outcomes					
Transaction Cost Savings	X	X		X	
Ability to Monetize Land Value (Transferability, Credit, Tax)	X	X		X	
Ability to Realize Full Returns (Tenure Perception, Confidence, Awareness, Bargaining Power)	X	X			
Ability to Sustainably Allocate, Manager and Administer Land	X	X			
Medium-Term Outcomes					
Non-Land Investments (Education, Health, Labor)	X	X			X
Equitable Household Resource Allocation, Decision Making, and Decrease Violence	X	X			
Functioning Land Markets		X		X	
Land and Property Investments	X	X	X	X	
Improved Land Use Allocation/Admin/Planning/Mngt.	X	X	X	X	
Conflict Savings	X	X		X	
Longer-term Outcomes					
Social Capital, Collective Action and Decision Making	X	X			
Employment and Human Capital (Health, Education)	X	X			X
Productivity, Food Security, Land Utilization, Land Values	X	X	X		X
Access to Municipal Services	X	X	X	X	X
Sustainable Resource Management/Decrease in Environmental Damage	X	X	X		

BEST PRACTICES FOR DATA COLLECTION

- Early data collection can inform both the evaluation and intervention, including understanding drivers of perception, intra-household dynamics, sales and markets
- Collect data from a variety of sources and triangulate data where possible. Both quantitative and qualitative data are key.
- Project data (performance monitoring, progress reports, workplans) is vital for understanding beneficiaries and timeline to measure and analyse results. Project manager and implementers should detail the start and stop dates and individual beneficiaries for each land activity in every village or neighbourhood treated.
- When capturing changes in land use/quality/production, land transaction volumes and times, and mortgages; non-household data, such as land records, imagery, clippings, real estate and bank data, often provide a more comprehensive and accurate outlook.
- Teams should include local and international land experts who understand local land environment and processes. Geospatial experts and land quality experts can add additional expertise.
- Ensure common agreed upon standards between implementers and evaluator to collect and share project and geospatial data.
- Incorporate a parcel roster at the start of the survey, which ensures an accurate picture of all household parcels, who manages them and type of land use(s).
- Include the SDG 1.4.2 and 5.a.1 modules in all surveys to enable global comparable data on secure land tenure
- Incorporate separate modules to focus on various types of land use and beneficiaries.
- Use GPS to allow for linking dataset with other georeferenced data, as well as finding parcel again and linking with project and administrative data.
- Map at least a subset of land parcels to assure accurate capturing of sizes.
- Train field team to request and verify land tenure documentation.
- Include nuances around land tenure, including perceptions of land tenure and the influencing factors around potential tenure insecurity.
- Verify type of transaction time captured-office processing, consumer or official time.

ANNEX C: KEY LAND EVIDENCE WITH PARAMETER EFFECTS AND EXPOSURE PERIOD

Land Evidence[14]			
Date	**Title**	**Authors**	**Key Findings/Effect Size (Location and Exposure Period)**
Recognition of Land Rights (Rural Farmers)			
2004	Effects of land titling on child health and education.	Sebastian Galiani & Ernesto Schargrodsky	Health and Education (Argentina) Land titling shows a positive and significant effect on Weight-for-Height, decreased teenage pregnancy rates (12.9%), and investments in human capital. Also showed 7.3% decrease in school repetition rate and statistically significant correlation between titled parcels and child occupant weight-for-height Z scores (indicating short run health status).
2006	Property Rights and Crop Choice in Rural Peru	Alfred j. Field, Erica Field and Maximo Torero	Agricultural Productivity (Peru) * Households that acquire a property title between 1994 and 2004 are an estimated 68% more likely to begin producing an export-oriented crop.
2009	Impacts of Land Certification on Tenure Security, Investment, and Land Markets: Evidence from Ethiopia	Klaus Deininger, Daniel Ayalew Ali, & Tekie Alemu	Investment in Environmental Conservation (Ethiopia) Titling increases propensity to invest in soil and water conservation measures increases between 20-30%. Land Markets (Ethiopia) Increased household propensity to rent out their land.
2013	Links between Tenure Security and Food Security: Evidence from Ethiopia	Hosaena Ghebru Hagos & Stein Holden	Health (Ethiopia-12 years) Land registration and certification had significant positive effects on food availability and BMI of children, especially calorie intake for female headed households, either through enhanced land rental market participation or increased investment and productivity on owner-operated land. Investment in Agriculture and Land Markets (Ethiopia-12 years) The positive food security effects and higher BMIs were associated with land rental market participation, which has been enhanced not only by the land certification program but also by increased investment and productivity on owner-operated land.
2014	Can Government-Allocated Land Contribute to Food Security? Intrahousehold Analysis of West Bengal's Microplot Allocation Program	Florence Santos, Diana Fletschner, Vivien Savat, & Amber Peterman	Investment in Agriculture (India-2 years) Land allocation and titling resulted in increased investment in fertilizer and improved seeds Access to Credit (India-2 years) Found, on average, that beneficiary households of titles were 12% more likely to have taken a formal bank loan since 2009 and 88% more likely to use a loan for agricultural purposes.
2014	Environmental and Gender Impacts of Land Tenure Regularization in Africa: Pilot evidence from Rwanda	Daniel Ayalew, Ali Klaus Deininger, & Markus Goldstein	Investment in Environmental Conservation (Rwanda-2.5 years) Land tenure regularization resulted in significant increase in soil conservation investment (10 percentage points more likely to use soil conservation techniques), especially for female headed households.
Recognition of Rights (Urban[15])			

[14] The evidence includes studies including use of natural experiments and instrumental variables.
[15] Note that studies are specific to squatters in informal settlements

2004	Property rights, community public goods, and household time allocation in urban squatter communities: Evidence from Peru.	Erica Field[16]	Labor (Peru) * Urban land titling efforts rolling led to substantial changes in the pattern of time allocated to guarding property or participating in neighborhood groups by previously untitled households. Titled households have a 36% decrease in the fraction of households that keep members at home to guard property (especially women). * Newly titled households work an average of 17% more hours than those who are awaiting title
2005	Property Rights and Investment in Urban Slums	Erica Field	Investment in Housing (Peru-4 years) Land titling associated with 68% increase in housing renovation (investment) within 4 years.
2006 and 2010	Property Rights for the Poor: Effects of Land Titling	Sebastian Galiani & Ernesto Schargrodsky	Investment in Housing (Argentina-1984 law/1989 early titles issued and 1998 late titles issued with surveys 2003 and 2007-so exposure period of 5-18 years) * Squatters with usufruct rights who were granted a title increased housing investment: Housing quality was 37% higher for titled households compared to other squatters. Family and Education (Argentina) [17] * Reduced household size: Titled households had less extended family residing (0.68 fewer non-nuclear relatives per household, and approximately 20% fewer offspring). * Enhanced children's education: Children from titled households show a 0.42 years shorter delay in school achievement, and 0.4 fewer days absent (out of the past 5 days). Access to credit -Effects seen through the slow channel of increased physical and human capital investment and not access to credit
Awareness Raising			
2006	Legal Knowledge and Economic Development: The Case of Land Rights in Uganda	Klaus Deininger, Daniel Ayalew Ali, & Takashi Yamano	Investment in Agriculture (Uganda) * Incremental increases in knowledge of the 1998 law are associated with significantly higher levels of long-term investment (tree planting) but do not have any significant impact on the propensity to undertake soil conservation. Agricultural Productivity (Uganda) and Land Value * Moving an unaware household to complete awareness of the law boost agricultural productivity (output) by 20%, and land values by 25%.
Change in Conflict and Perception of Tenure			
2004	Incidence and impact of land conflict in Uganda	Klaus Deininger, & Raffaella Castagnini	Agriculture Productivity (Uganda) Land-related conflicts have a negative impact on productivity, estimate that plots under conflict experience agricultural productivity loss of 5 - 11%
Mapping and Understanding of Land Boundaries			

[16] Mitchell (2005) notes the problematic comparison of the areas sampled noting some issues of those areas which did not yet receive the titling intervention.

[17] In 95.2% of parcels women was co-titled or held right individually as right was given to household head and spouse if married or co-habiting.

2015	Formalizing Land Rights in West Africa: Early Evidence from a Randomized Impact Evaluation in Benin	Markus Goldstein, Kenneth Houngbedji, Florence Kondylis, Michael O'Sullivan, & Harris Selod	Demarcation was enough to create marginal shifts in tenure that positively affected investment decisions. Specifically, demarcation led to: Investment in Agriculture (Benin-1-2 years) * A substantial increase in long-term investment with treated parcels 1.7 percent points more likely to have a newly-planted tree. * The share of parcels growing cash crops (such as oil palm and teak) increased by 39% (only 2.6 percentage points) *Women were 1.5% more likely to leave land fallow, relative to 1% of households in the control group.