

Impact evaluation of land projects: Towards an integrated approach

Outline & main message

Opportunities from methodological innovations

- Consider a wider range of interventions (legal or institutional change)
- Focus on broader outcomes (registered transactions by gender, land cover)
- Integrate spatial relationships (geo-referenced hh surveys; location)
- Experiment with incremental changes (e.g. for fee levels)
- Establish a basis for global & local reference, competition, and transparency

Providing a basis for long-term engagement

- Identify and address risks (inclusion, sustainability) in implementation
- Respond to emerging challenges (land use planning)
- Make case for action to policy makers (losses & potential benefits)
- Better use available instruments: Legal/regulatory (DPO) & interventions (P4R)

Need to work together to institutionalize this

- New PRR to lay out opportunities & new areas more broadly
- Bank role in SDGs and DB provide a good basis
- Enormous demand to feed this into country strategies

I. Methodological innovations



Use administrative data

Credit market effects rarely observed

- Not the most immediate in rural areas
- Need large samples to get power
- May go together with corruption

India: Registry computerization roll-out

- Phase in over 1999-2005 387 offices (SROs)
- Quarterly data on all Bank credit 1995-2007
- Annual registration data by SRO

Evidence of impact in urban, not rural areas

- 10% increase in no of Bank loans
- 30% increase in no of mortgages
- Impact on firm growth not explored (yet)

Many land interventions rolled out gradually

- Publicity of registry data
- Registration fees (preferential for women)
- Access points for services
- Legal changes in some jurisdictions



Outcome variables

- Population or firm censuses
- Registry data
- Governance

Interaction of interventions

- Population or firm censuses
- Registry data
- Governance



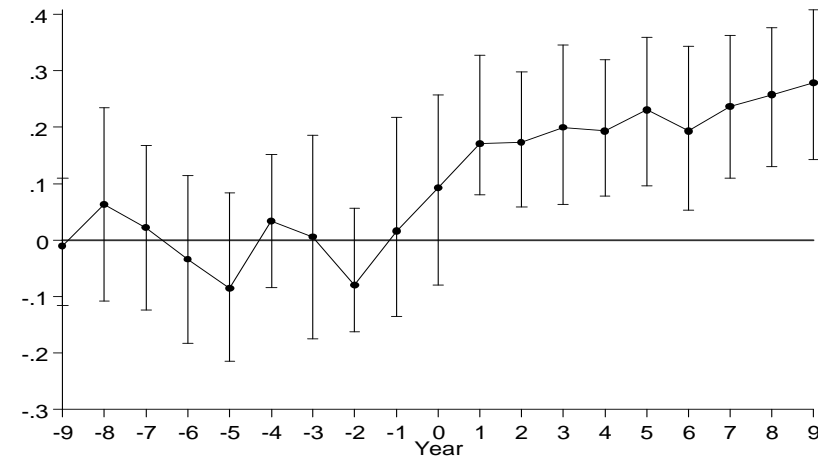
Impacts of legal change

India's Hindu Succession Act

- Inheritance a key way of land access globally
- But often biased against women
- Some states amended in 1986-1994
- Very robust identification strategy (HH FE; H-M)

Strong impacts in various dimensions

- Increased likelihood to inherit (not yet equal)
- Bargaining power (bank account)
- Daughters' marriage
- Educational outcomes of next generation



Likelihood of woman to inherit land (0=law change)



Substantive Implications

- Access to land not only via titling
- Rights may not be exercised for many reasons
- Gender dimension still too often neglected

Methodological implications

- Scope for awareness raising
- Choice of marital property regime

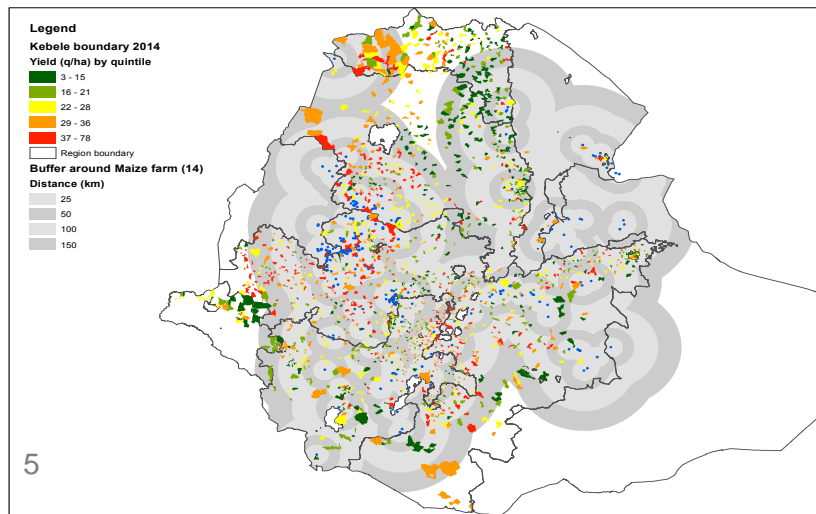
Link spatial, survey & remote sensing data

Lack of public large farms data a problem

- Creates reputational risk for investors
- Speculation: Undermines ability to plan
- Support to statistics office can go long way

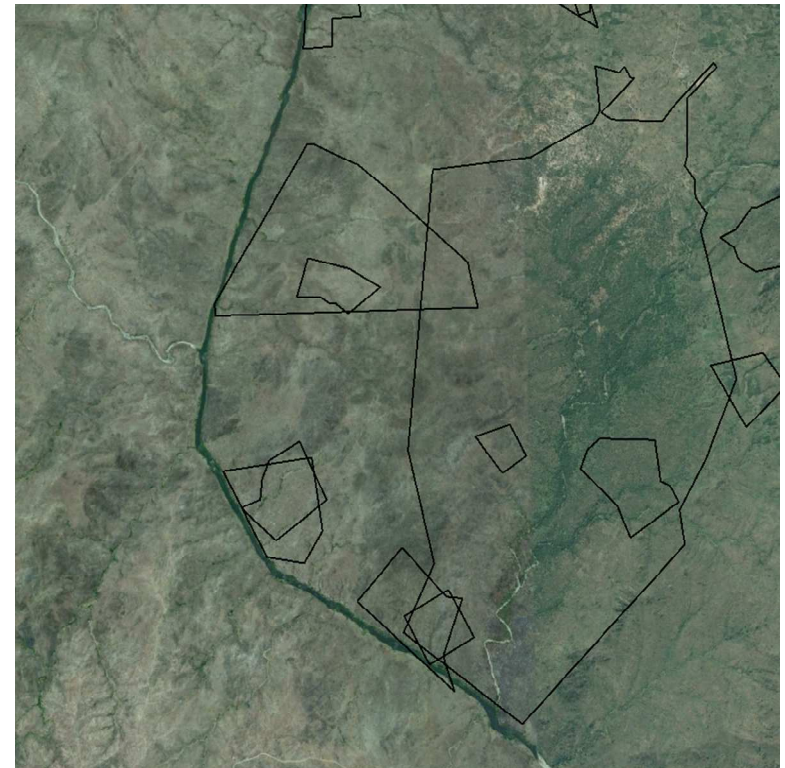
Put issue & policies in perspective

- 1.3 mn. ha in large farms; avg. size 200 ha
- 97% of farms (90% of area) to Ethiopians
- Only 55% of transferred land used
- 2007/8 boom fizzled out; back to early 2000s
- Yields highest for 10-20 ha in most crops
- Social impact modest at best (1 job/20 ha)



Link farm boundaries to utilization

- Free sentinel imagery to monitor crop cover
- Can provide basis for low-cost app - past
- Assess compliance with contract conditions
- Possibly also encroachment on smallholders
- Scope for admin. action



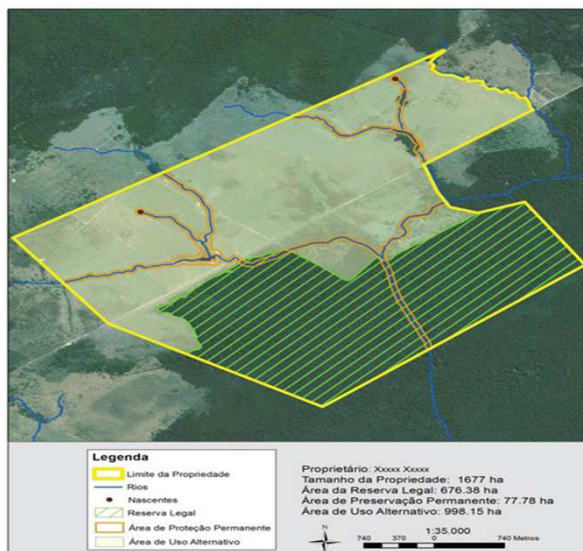
Work with private sector

Brazil's Forest Code

- Each property to keep min. area under forest
- But there was no enforcement
- Deforestation at alarming proportions

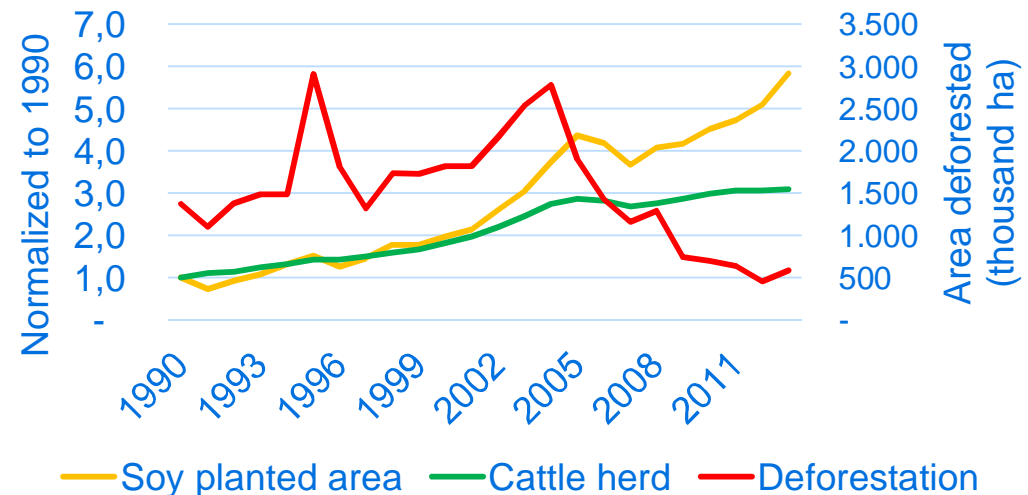
Establishing a credible monitoring system

- Establishment of Environmental Registry
- Real time monitoring of forest threat (Landsat)
- Backed by risk-based site visit system
- Blacklist of municipalities



Use by private suppliers (beef & soy)

- Transparent monitoring
- Local governments play a key role
- Individ. Producers/companies held accountable
- Link to public funds (credit)
- Consistent compliance monitoring
- Now used for determining rights (Terra Legal)



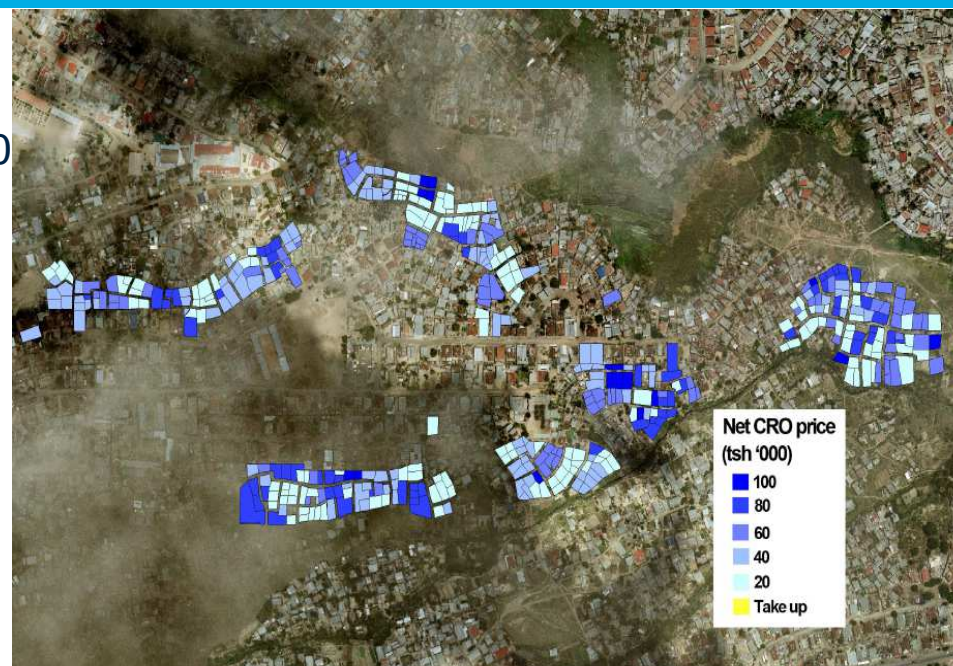
Do small pilots with random treatment

Urban informality a key issue in Tanzania

- 70% informal, despite Bank CIUP program
- CRO (formal tenure) unaffordable at \$400-500
- Little demand for intermed 'residential license'
- Would people/women appreciate CRO?

Experiment in 2 sub-wards

- Cad. survey in 50 randomly selected blocks
- NGO-led info campaign & payment scheme
- Voucher lottery to cut price to 20-100K TSh
- Gender-differentiated vouchers
- Baseline before (incl. who to put on CRO)



Surprising insights

- Even informal dwellers willing to pay
- Gender response to info (23%→89%; RL 5%)
- Complexity & politicization of process incredible
- Need high level policy dialogue



Highlight fiscal impacts

Own-source revenue from land underutilized

- Land rent/council rates a key local tax
- But issues leading to revenue loss:
 - Valuation outdated
 - Rolls not updated
 - Collection is deficient

Enormous potential of simple computerization

- Bank-supported **LGRCIS**
 - Local Gov't Revenue Coll.&Info Syst.
 - Coverage: Image-based verification/rating
 - Collection: Automated billing
- Jump in local revenue (e.g. 5 times in Arusha)
- Now in 7 cities – want to scale up to 80

Technology offers options for scale-up

- Satellite imagery to improve coverage/updating
- Apply mass valuation techniques for currency

Also opportunities to address informality?

- Title (CRO) costs \$400-500/plot
- Need for high prec. survey; difficult

How can we address this?

- Rewrite & streamline manual to lower cost
 - Use LGRIS-type index map as baseline
 - Abandon high-precision survey & beacons
 - Regularization, adjudication, display on top

Brings cost to about \$10/plot

This is currently tested in 3 towns

- Can help get vigor into land debate
- Make documentation accessible to everybody
- Could be self-sustaining even in Tanzania

Use global data to show of opportunities

Land information gaps undermine planning

- Limited coverage & paper maps only
- Infrastructure planning/construction difficult
- Basis for corruption

2015 'Doing Business' data

	World	SSA
Most private plots in capital reg'd	0.22	0.04
Most p. plots in capital mapped	0.46	0.13
Maps paper only	0.44	0.81
No. of countries	189	47

.. and public revenue generation

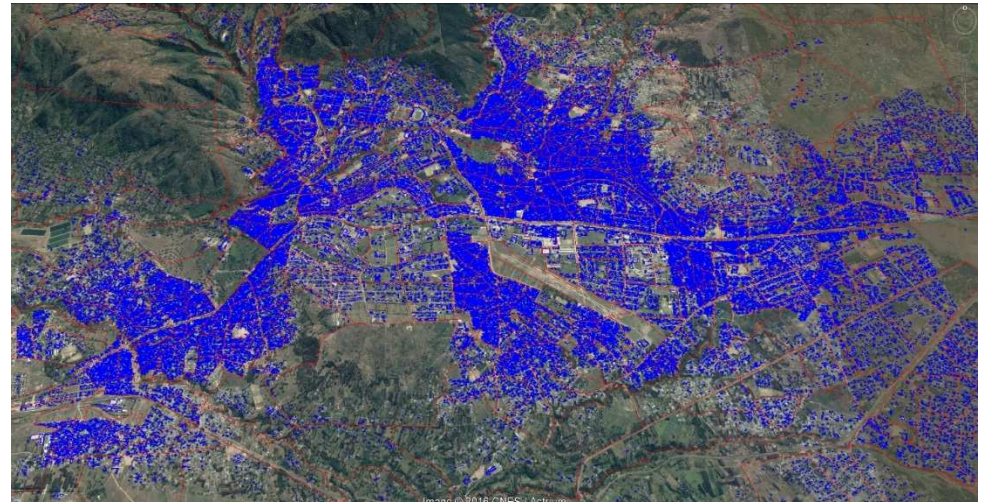
- Coverage gaps due to self-declaration
- No automated billing
- Rates often not up to date

Getting this information is easy technically

- Automated 3D image from satellite imagery
 - Building footprints & heights
 - Land use classification
 - Current rates are \$ 300/km²
- Why is it not happening?
 - Resistance by vested interests?
 - Lack of information?

Provide information via local institutions

- Quantify potential tax gains without rate change
- Link to land values to show effective tax rate
- Show benefits for landowners (updated info/WTP)
- Generate peer pressure & good precedents



II. Country examples



Rwanda: National program can have impact

Largest program in Africa – DFID; TA by DEC

	Total	Kigali
Parcels regularized (mn.)	11.42	0.39
Area reg'd. (1000 km ²)	20.56	0.70
Share agric.	0.64	0.51
Yet unclaimed	0.16	0.12
Female (co)owner	0.86	0.83

Source: LAIS data

How was this possible?

Gradual, evidence-based approach

- Political will & regular follow up on progress
- Extensive piloting (15K parcels 2007-10)
- Low-cost part. approach (\$5-6/parcel)
- Adapting/expanding laws in line with need

Household level impacts

- Investment doubled – tripled for female heads
- Greater female ownership on average
 - Negative for those not legally married in pilot
 - Changed regulation to address this
- Land market activation

Awareness campaign =>



<= Field adjudication

Locate parcels on index map =>



<= Publicity

Processing of documents =>



Benefits go well beyond the household

Facilitates higher property tax coverage

- Now data sharing with Rwanda Revenue Auth'y
- In the past based on self-declaration
- US\$ 5.9 mn/a increment just by covering Kigali's residential plots – vs. US\$ 50 mn total prog cost
- Scope for simulating alternative tax regimes

Act. & potential land tax, Kigali	Resid.	Comm.
Taxable parcels (1000)	132.47	4.70
Parcels that paid in 2015	39.90	1.08
Total payment (US\$ mn)	2.06	0.13
Tax debt all parcels (US\$ mn)	7.96	0.85
Increment (US\$ mn)	5.90	0.71

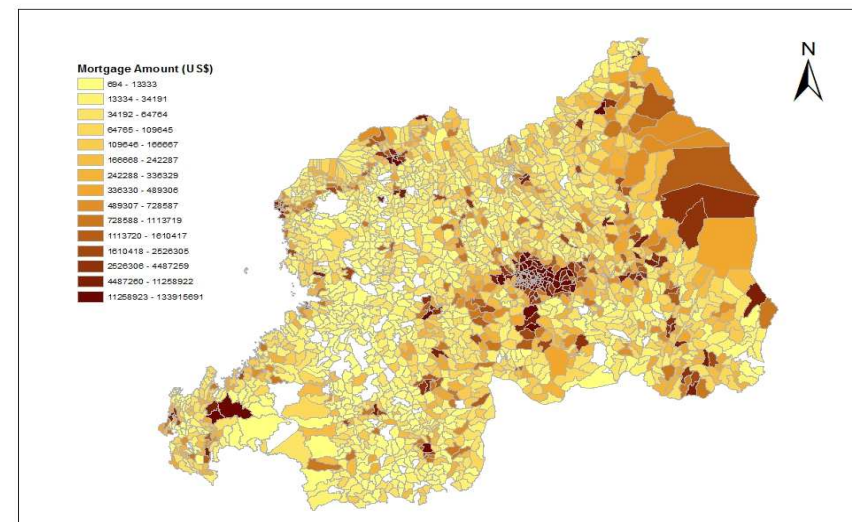
Source: LAIS & RRA data

Created a basis for mortgage lending

- US\$ 2.6 bn by end 2015
- Not only residential (450 mn against ag. land)
- Spatial distribution quite equal (see right)

Mortgages, Dec. 2015	Total	Kigali
Total no	49,694	19,285
Amount (US\$ bn)	2.60	1.66
... res. land	1.40	1.06
... agric. land	0.45	0.12
... comm. land	0.76	0.49

Source: LAIS data



Source: Based on LAIS data

Basis to attract ag biz investment

- Identify land available for investors; lower risk
- Basis for rural & urban land use planning

Non-registration of subsequent rural transactions may yet undermine the system

Admin data: Rural informality a challenge

- Share of registered transfers varies widely
- >50% of rural transactions informal
- Subdiv. restriction & flat US\$ 40 reg. fee
- Also lower gender equality

Short term: Hiring of 419 sector-level staff

- Information campaigns
- SMS-based customer feedback

Experiment with INES to assess reasons

- Data on all transactions in 100 villages
- Information campaign
- Vouchers to reduce fees (to indiv.)
- Discussing other options

Input into longer-term strategy

- Rural vs. urban fees
- Registry self-sustaining financially
- Information campaign

Share of reg. parcels formally transferred 2014/15 Kigali & main regions

	Kigali	South	West	North	East
Residential parcels					
% transferred/a	6.23	0.93	0.33	0.72	0.64
... of which sale	5.64	0.33	0.15	0.28	0.32
Sale value (\$/m ²)	39.4	9.92	14.4	12.4	4.75
Agric. parcels					
% transferred/a	1.67	0.10	0.06	0.10	0.23
... of which sale	1.54	0.05	0.03	0.05	0.12
Sale value (\$/m ²)	6.65	3.70	3.57	3.91	1.47
All: Female name	0.78	0.74	0.78	0.80	0.75

Source: LAIS data



... many land registries in Africa like Malawi

Information on paper, inaccessible & closely guarded

- Everybody loses
- Creates insecurity & undermines investment
- Reduces revenue (who to bill?)
- Promotes bad governance, speculation, and rent-seeking

Magnitude are large – but something can be done

Make all information digital as a first step

Taking a strategic approach in Malawi

ANALYSIS TO MAKE CASE -> SCD/DPO

1. Digitize all estate leases to quantify issue

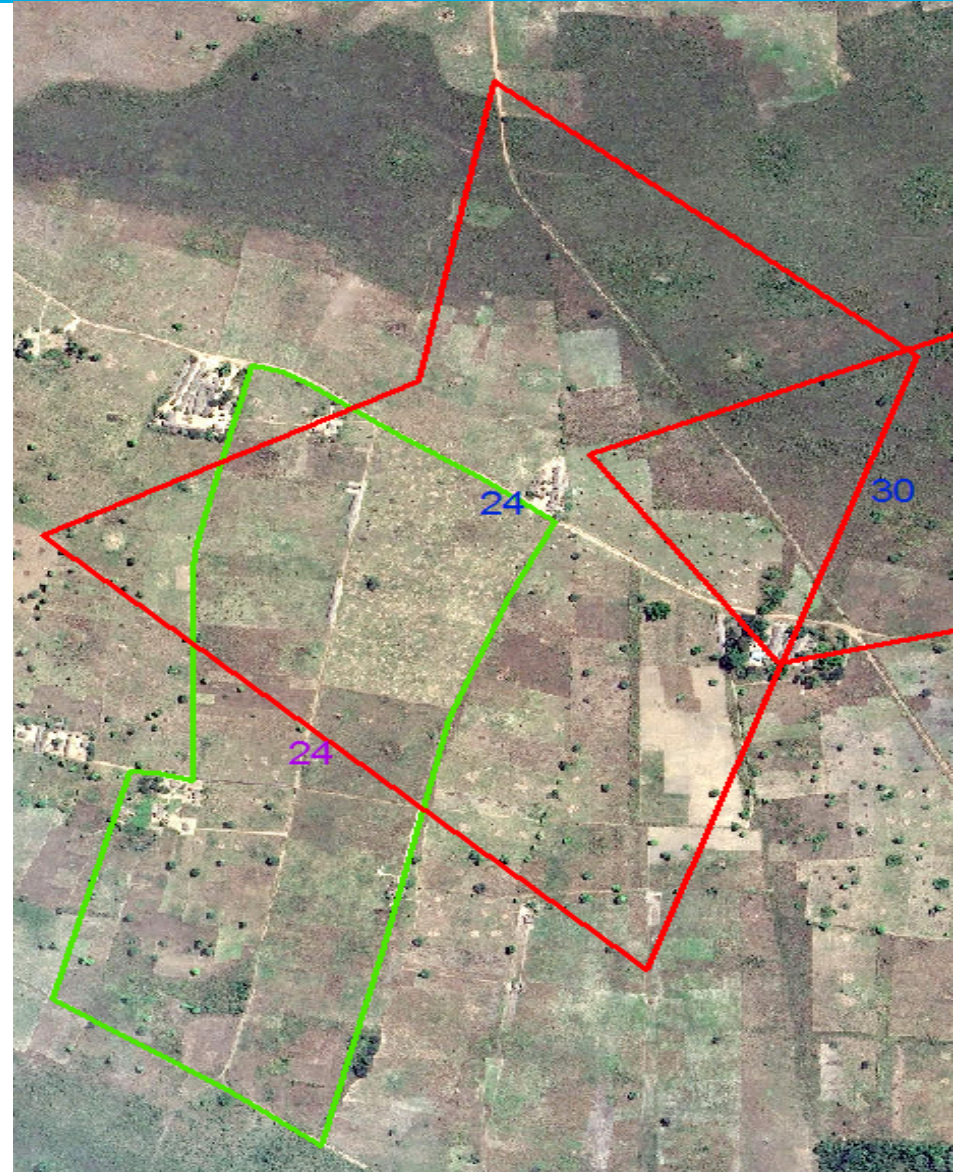
- >20% of Malawi's area (but 15,000 outside)
- 65% are agricultural; lease fee < \$1/ha
- 74% expired & 15% unclear lease term
- Imagery: 0.5 mn ha not utilized for agric.

2. Put size of issue on the table

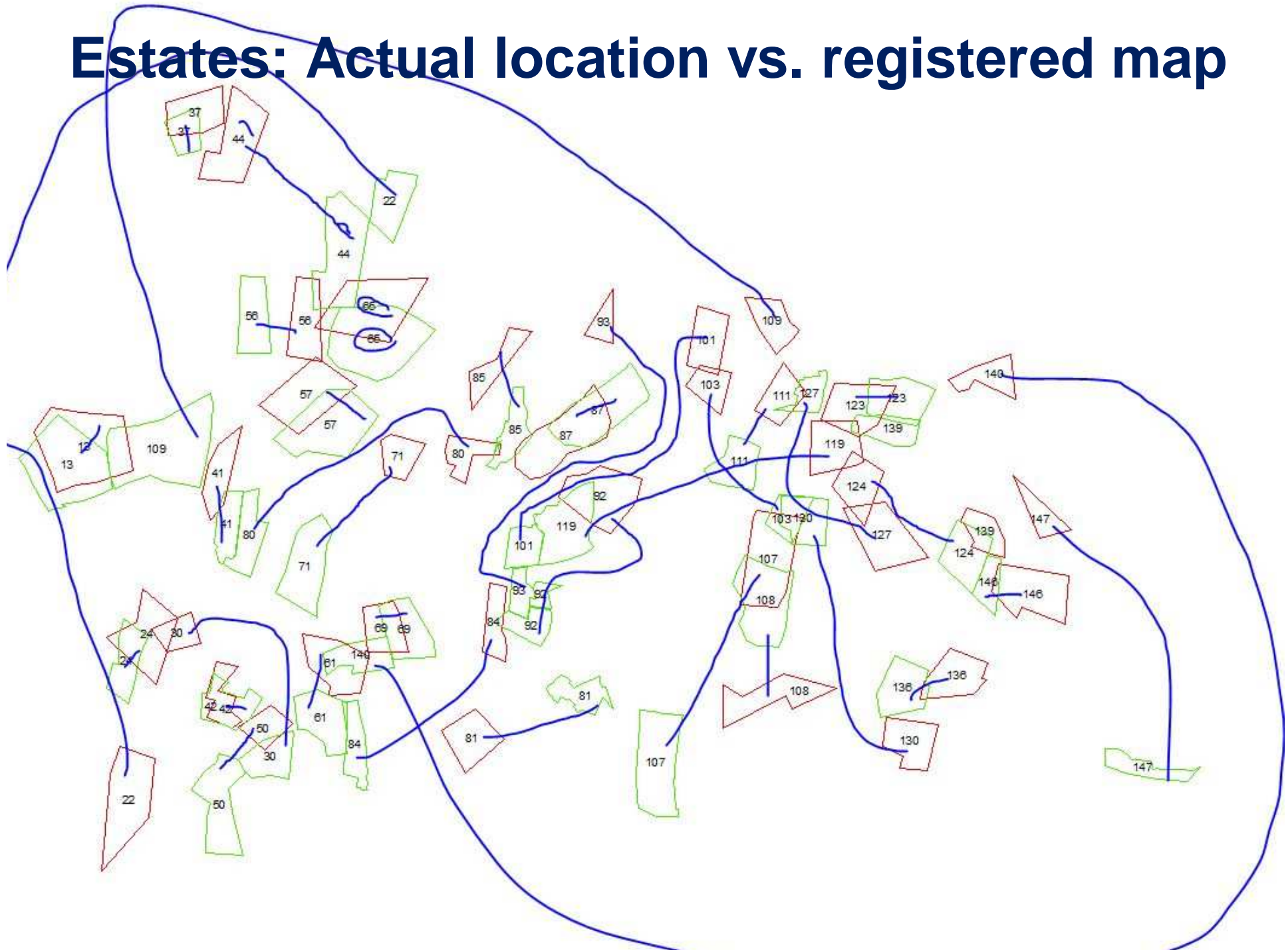
- US\$ 50 mn lost gov't revenue/a (5% of total)
- Tenure insecurity: 12% prod. loss for women
- This alone is large enough to finance program

3. Show integrated way forward

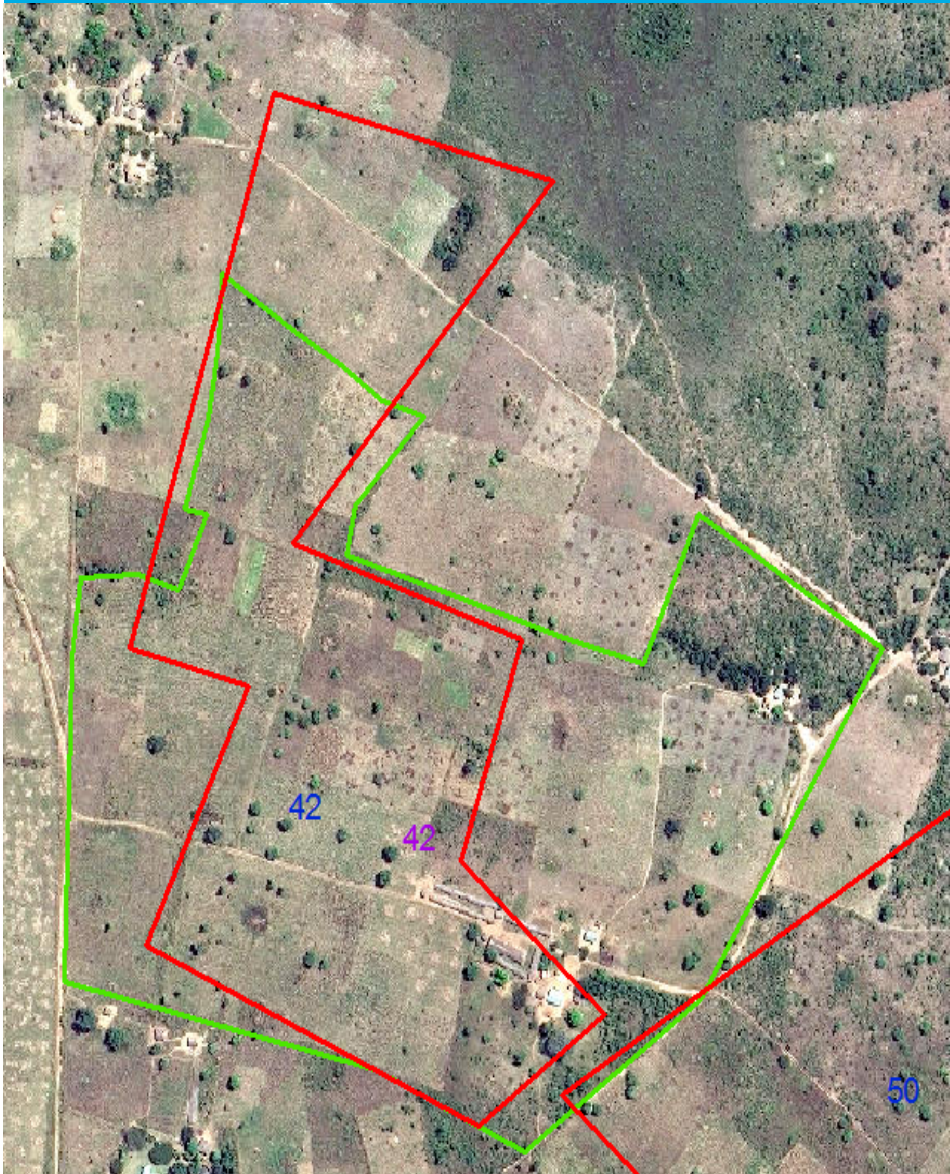
- Field based verification & mapping
- Inform regulations for estate lease renewal
- Link to piloting of systematic regularization
- Carefully evaluate & adjust
- Draft regulations based on pilot experience
- ¹⁵ Scale up



Estates: Actual location vs. registered map



Taking a strategic approach in Malawi



POLICY OPTIONS

1. Regularize/update existing estates

- Set realistic lease rates (linked to potential)
- Establish procedure to update record/renew leases (incl. local community benefits)
- Could even be initiated by estate owners or their successors

2. Address conflicts/non-operating estates

- Dispute resolution mechanisms if overlaps
- Balance of occupancy vs. ownership rights

3. Link to documenting communal tenure

- TA for legal drafting
- Possibly with piloting & real-time evaluation
- DPO to reward for passage of regulations?

III. Implications



Knowledge sharing

New PRR: Focus on land as a ...

- Place of economic activity
- Factor of production
- Source of public goods
- Private asset
- In the context of new technology
- and a results-based approach

Enormous demand from countries

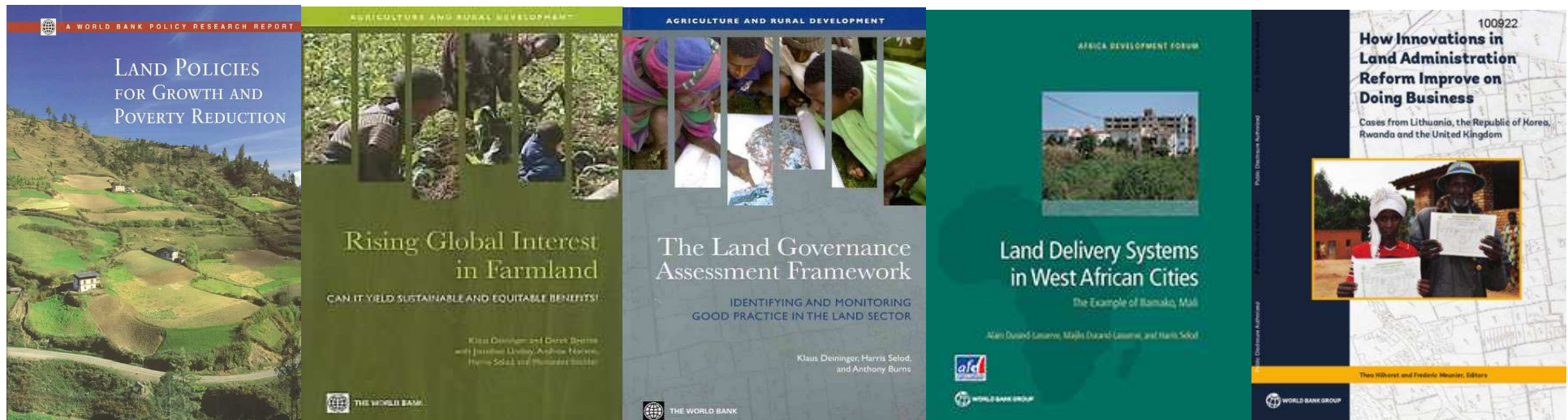
- Africa regional study

Capacity building in academia & Ministries

- Making data available; farm surveys
- Use & analysis of spatial & admin. data
- IE techniques for different policy issues
- Link to national policy monitoring & dialogue

South-South exchange

- Land conference
- PhD/MSc fellowships in land economics



Data to link local realities to global picture

GLOBAL

SDGs

Ownership/access

Perceived security:

- HH surveys: Residential & agric. by gender

Legal recognition

- Administrative data (see key variables)

‘Doing Business’ with 3 new elements

- Annual data on 189 countries; motivate reform

- **Transparency**

Share of state land mapped/registered & public

Disposition via auction & publicity of key contract details

- **Effectiveness**

Interoperability (courts, banks, land acquisition)

- **Inclusion**

Gender disaggregated monitoring

Recognition & documentation of group rights

- **Coverage**

Yes/no question only – link to admin. reports

LOCAL

Household surveys

- Causal impact & behavioral mechanisms
- Differentiation by poverty & gender

Administrative data & censuses

- Near real-time; zero marginal cost
- High granularity to compare admin. units
- Can include SMS-based customer feedback

Remotely sensed data

- Land cover, moisture, soil carbon standard
- Forward-looking & going back in time

Local analysis & monitoring

- Link systematic **evidence** to strategy/policy

Key variables from admin. data

- Area registered & mapped
- Share of land registered by women
- No. of registered transactions
- Land taxes received
- Individuals/area expropriated
- No. of land disputes (priv. & public)

Ensure this is available routinely in any country with a Bank/donor land project

Feed into country strategies & move to action

Opportunities are great

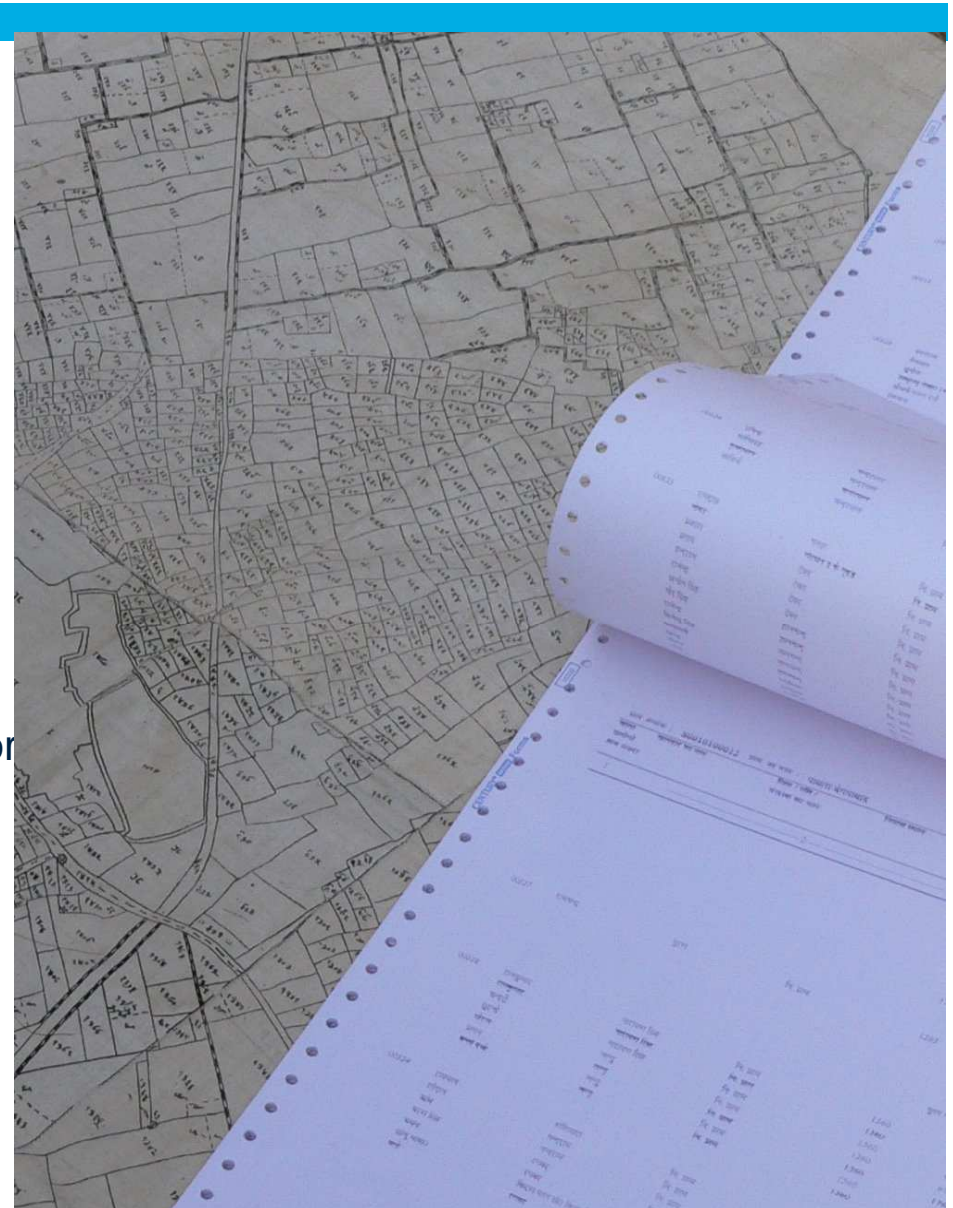
- Bank with regular dialogue at highest level
- Willingness to address issues exists
- Issues are viability, sequencing and risk
- Link policy (DPL) to pilots & monitoring system
- \$\$ for scale up if viable & sustainable method
- One success better than 7 failures

Impact evaluation a continuous process

- Document status quo in global perspective
- Quantify benefits from action
- Identify feasible steps (using new tools)
- Link tenure to land use & markets/private sector
- Show heterogeneity

Data a key obstacle

- Mainly admin (hh improved a lot already)
- Need to develop standard approaches
- Will help to build local capacity
- Can feed into global monitoring efforts



To sum up

Not addressing land causes countries to lose out on

- Government revenue & effective service provision
- Productivity, sustainability of land use, and structural transformation
- Land use planning, infrastructure construction & attracting private investment
- Inclusion, (gender) equality, and political stability

New data and tools allow quantification of tasks & impact

- Foregone tax revenue, effective land use (density vs. sprawl)
- Productivity gaps from tenure insecurity, overlaps, or failure of recognition
- Formal & informal market activity; investment differentiated by gender & assets

This can open the door to a more dynamic type of IE

- Looking at law, policy & regulations as well as specific interventions - sequencing
- Prioritized and results-oriented; real time & experimental rather than punctual & delayed
- The Bank's dialogue & operational muscle provides an ideal basis for advancing this
- We look forward to partnering with you to make this a reality