How Big is Global Insecurity of Tenure?

Dr Robin McLaren
Know Edge Ltd, UK
Why Do We Have Problems with Global Land Indicators?

Source: http://www.shutterstock.com/pic-11778223
The Cadastral Divide

70% world’s population have no access to formal Land Administration services

Only 25% of the 6 billion land parcels worldwide are formally registered and have robust security of tenure.

Tenure insecurity has a knock on effect on sustainable cities, climate change management, food security, poverty alleviation and more.

How can we obtain information on the excluded?

Source: http://reliefweb.int/map/world/world-food-security-risk-index-2013
Where did this statistic come from?
The Source of the Statistic

• Willie Zimmermann, in conjunction with UN-FAO, had an educated guess at the figure.
• I then published the caveated statistic in my ‘Crowdsourcing support of Land Administration’ paper in 2011.
• The statistic has now become a de facto standard that is quoted globally.
• This is the best we have!

Source: http://www.govloop.com/community/blog
Sources of Land Information

- Official Sources
- Unofficial Sources
- Potential New Innovative Sources

GLI
Accelerating Official Sources

Source: http://www.shutterstock.com/pic-11778223
Official Sources of Land Information

Enabling and accelerating land administration systems

Fit-For-Purpose Land Administration

• Flexible
• Inclusive
• Participatory
• Affordable
• Reliable
• Attainable
• Upgradeable
Official Sources of Land Information

Enabling and accelerating land administration systems

Mobile Application to Secure Tenure (MAST)
USAID Pilot Project in Tanzania

An easy-to-use, open-source mobile application that can capture the information needed to issue formal documentation of land rights.

Source: USAID
Official Sources of Land Information

Enabling and accelerating land administration systems

• Land professionals / NGOs train trusted intermediaries in communities.
• Self-organize into collaborating networks.
• Intermediaries could be shared with other information services, e.g. health and agriculture.
• Land rights simply a bi-product of other services, e.g. microfinance, micro-insurance.

Source: www.flickr.com

©Know Edge Ltd
New Unofficial Sources

Source: http://www.shutterstock.com/pic-11778223
The Citizen Crowd

The Citizen as a Sensor

Capturing evidence of land rights

Robin McLaren (2011)
New Initiatives Delivering Unofficial Land Rights Information

- Rights Resources Initiative
- Rainforest Foundation UK
- BRAC
- The Indigenous Peoples Alliance of the Archipelago (AMAN)
- Habitat for Humanity
- Open Tenure (SOLA)
- Landmapp
- Cadasta
- STDM
- .......
Unofficial Sources of Land Information

Landmapp - Delivering affordable land tenure mapping to rural communities

Linking smallholder tenure and productivity

First pilot in Ghana with Kuapa Kokoo

Source: http://landmapp.net

©Know Edge Ltd
Potential New Innovative Sources of Land Information

Source: http://www.shutterstock.com/pic-11778223
Crowdsourcing Perception of Security of Tenure through Social-Media

But how can we engage with communities and convince them to contribute – what is the incentive?
Crowdsource Perception of Security of Tenure through Social-Media

Build communities

• Outreach through building a community.
• A good example is UNICEF uReport in Uganda.
• A free SMS-based system that allows young Ugandans to speak out on what's happening in communities across the country, and work together with other community leaders for positive change.
Crowdsourced Perception of Security of Tenure through Social-Media

Outreach through existing information services

• Connect to existing information service infrastructure, e.g. health or agriculture.

Source: http://africagreenmedia.co.za

Source: https://www.betterhealth.vic.gov.au
Crowdsourced Perception of Security of Tenure through Social-Media

Market research with SMS surveys

• Arrange SMS based surveys through mobile service providers.

Source: http://africagreenmedia.co.za
Property Valuation

- Micro-financing
- Mortgages
- Addresses
- Business Register
- School Registers
- Census

Mobile Phone Users

- Agricultural Grants
- Property Tax
- Social Security
- Environmental Constraints
- Marketing Campaigns

Source: http://blogs-images.forbes.com/emc/files/2014/02/Big-Data.jpg
Crowdsourcing information from satellite imagery

Permanent dwelling

Permanent dwellings include tukuls (circular-shaped local homes) and concrete block buildings. Tukuls have cone-shaped tops and a shadow will be visible due to its height. Many tukuls have been burned down in this area due to conflict. Do NOT tag burned-down dwellings. Burned dwellings will lack a shadow (height) and the usual cone shape.

Traditional round tukuls are an example of a permanent dwelling in South Sudan

Permanent dwellings include structures with thatch roofs or metal roofs

Traditional tukuls are round in shape

Source: http://www.tomnod.com/campaign/
Facebook has used its AI tools to identify human-made structures in 20 countries

• Facebook has announced it will make highly detailed maps of places where it believes people are living available to the public later this year.

• 14.6 billion satellite images analysed covering 20 countries.

• Resulted in 350TB of data with a spatial resolution of 5m.

• Inform its Internet.org initiative

Can we Identify Clues in Imagery to Indicate Perception of Security of Tenure?

Can we identify evidence of longer term investments that indicate greater security of tenure?

Source: https://www.digitalglobe.com/gallery?category=&page=3 ©Know Edge Ltd
Can we Identify Clues in Imagery to Indicate Perception of Security of Tenure?

Terracing

Source: http://www.delange.org/HighLands2/HighLands2.htm
Can we Identify Clues in Imagery to Indicate Perception of Security of Tenure?

Crop Planting

Can we Identify Clues in Imagery to Indicate Perception of Security of Tenure?

Tree Planting

Source: http://www.wri.org/blog/2015/05/regreening-africa-could-help-stem-tide-migration
Can we Identify Clues in Imagery to Indicate Perception of Security of Tenure?

Irrigation

Can we Identify Clues in Imagery to Indicate Perception of Security of Tenure?

Fence Building

Source: http://www.alamy.com/stock-photo/boma-fence.html
Urban Sensing: Beyond Science

Interactive 12 metre D-Tower in Doetinchem, the Netherlands.

Activated by responses to a website that surveys the mood of the townspeople.

Fearful: yellow
In love: red

Source: Communications of the ACM, March 2008
The Robot Crowd
Exploration & Mapping with Autonomous Robot Teams

Source: http://mags.acm.org/communications/201303#pg1
Thank You
Know Edge Limited
Location Information Innovation

Contact Information:
Mobile: +44 7803 163137
Email: robin.mclaren@KnowEdge.com
Twitter: @knowedgeltd
Skype: robinmclaren Edinburgh, Scotland