CROWDSOURCING (1)

The Crowdsourced Cadastre

There is nothing new under the sun. Or is there? Cadastral practitioners are becoming increasingly interested in 'crowdsourcing'. Using location-enabled mobile phones, citizens could themselves perform – at least partially – adjudication, surveying, demarcation, and recordation. Some suggest it could revolutionise cadastral establishment and maintenance. At first glance the concept appears highly innovative. It could help lower costs of registration, speed up recording, deliver more complete cadastral coverage, and improve the relationship between citizens and their governments. But, have we been through all this before? As part of *GIM International's* dialogue on Cadastre 2034, the authors discuss the potential of crowdsourcing applied to cadastres.

On the surface, proponents of crowdsourced cadastres appear to be agitating for the deconstruction or circumvention of our well-established cadastral and land registration institutions. They deliver a strong case. Daniel Roberge, current chair of Commission 7 of the International Federation of Surveyors (FIG), explained in GIM March 2012 how more than 25% of the world's 6 billion land interests remain unregistered. At current rates it will take decades or centuries to get near full registration in some places. So, putting aside the debate as to whether land records actually result in economic and social development, the majority of land administrators agree that we need faster, cheaper, and more fit-for-purpose methods for building and maintaining cadastres in many countries, if not in general. In this way, the crowdsourced solution provides another instrument in the expanding land administration toolbox.

BEYOND THE HYPE

So where then are these crowdsourced cadastres? Unlike topographic or street map equivalents, where services such as OpenStreetMap are leading the way, examples of crowdsourced cadastres are not as prominent (yet). However, Robin McLaren of Know Edge Ltd., recently provided numerous examples during his address at the World

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◀ Going beyond the hype: RICS and Robin McLaren provide examples from practice (Source: RICS).
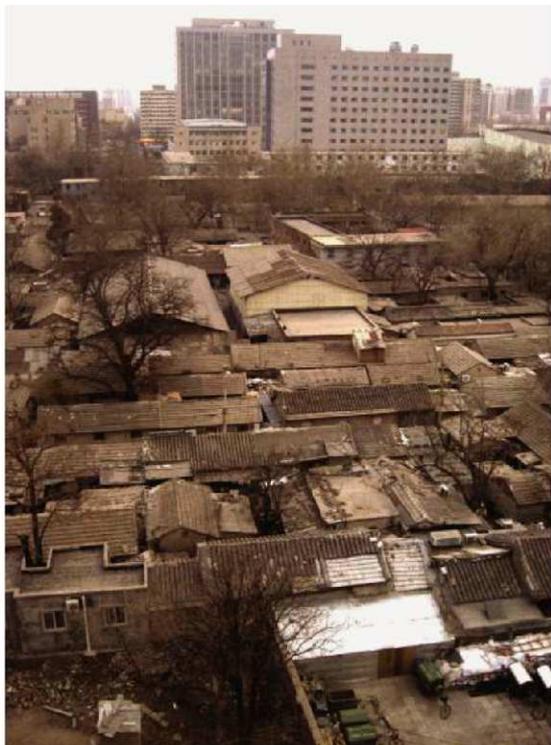
◀ Who is best placed to map these interests? Licensed surveyors or local para-surveyors? (Source: P. van der Molen).

Bank Conference on Land and Poverty in Washington on April 24. Experiences of co-operation between local communities in Laos, Cambodia, and Azerbaijan with German Development (GIZ and KfW) reveal land rights can be validated using a mix of captured data, public consultation, and local land committees. Kyrgyz Republic people were hired 'off the street', trained in a few weeks, given basic equipment and maps, and sent out to survey almost 4 million parcels. Despite the crudeness, the records were apparently accepted by banks and used to access credit. McLaren also provided examples of customary tenure recordation by rainforest communities using handheld GNSS, and also argued that costs could be reduced to as little as USD3 per parcel.

DIALOGUE

Practical examples aside, there is already plenty of dialogue on the crowdsourced cadastre. Most of it appears to be coming from the practitioners, or the existing 'empire', as Gavin Adlington from the World Bank might put it. There are now introductory documents

like *Crowdsourcing Support for Land Administration* from the Royal Institute of Chartered Surveyors (RICS) and *Cadastre 2.0* from FIG. Meanwhile, industry workshops and conferences continue to focus on the issue. In January 2012, EuroSDR (↳1) organised a crowdsourcing workshop in Nottingham to bring together researchers with practitioners from national mapping organisations. The 9th edition of the 'Fill the Gap' seminar (↳2) in April 2012, co-organised and sponsored by IICD (↳3) and Hivos (↳4), also examined crowdsourced solutions in less developed contexts. In a sign that the experts are conscious of all the excitement, the entire discussion was directed at decoupling the 'substance' from 'hype' surrounding crowdsourcing.

NOTHING NEW

All these works are good starting points, but the crowd itself is missing. Crowdsourcing endeavours require an active community of participants and followers to build, popularise, and legitimise content and these tend to sit outside the traditional mapping institutions, are built from the bottom-up, and most
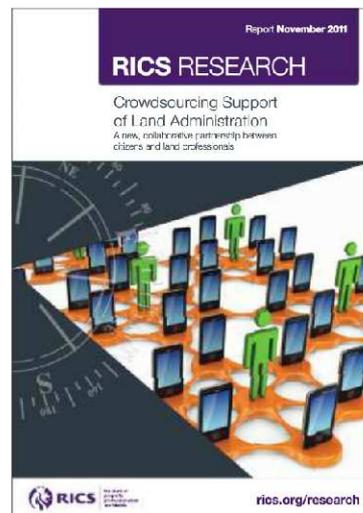
often work under a different set of incentives. They even maintain their own hierarchies and create their own institutional norms. A crowd of this nature is not evident in the cadastral realm, yet. Why has it not emerged? Do we need to wait a little longer or do existing embedded institutional norms impede traction and legitimisation of the crowdsourced cadastre? To answer this question perhaps we should think back to when our modern cadastres were established. From where, when, and how did these cadastral and land registration systems emerge?

Early western property systems were heavily reliant on the citizens for legitimacy. In early deeds systems documents were not booked or checked by a central agency. Outside the western context often a mere symbolic gesture meant a transfer had occurred. These systems were far more local in coverage and legitimacy. No central government was recording transactions, ensuring titles, or measuring boundaries: these tasks were the role of the transacting parties, if completed at all. It was only with the development of modern cadastres – let's say post Napoleon – and land registration systems that central governments increased their role. Increasingly, they began organising adjudication, surveying, demarcation, and recording tasks. In some cases, as seen in 'positive' or title-based systems, they began examining and even assuring

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documents. So our modern land administration institutions evolved over time, from the agreed norms and basic rules of a local community (or crowd), to today's dense institutional arrangements. These norms have taken decades to embed, if not centuries. From this viewpoint it seems we can make a number of predictions about the future of the crowdsourced cadastre.

SUPPORTING EMPIRES

Perhaps the most promising application of crowdsourcing for cadastres, in the short term at least, will be, as demonstrated by Robin McLaren, where existing land administration agencies embrace and nurture the concept. Land administration agencies will need to change strategies and operations. They will also need to provide support and incentives for participants. Such innovations might commence on a trial basis or at smaller scales. Over time they could become essential components of operational workflows and strategic positioning. The Netherlands Kadaster, for example, provides web tools to notaries, who usually have non-technical backgrounds, for updating cadastral boundaries at the time of transaction. More accurate cadastral surveys occur later when time permits. Additionally, in a pilot project, citizens are helping identify the Netherlands-Germany border using iPhones and accompanying applications. Eventually this approach could be extended to cadastral surveys, demarcation, and recordation.

A NEW INSTITUTION

In places with unregistered customary lands, urban slums, or other places where land administration institutions are not evident, crowdsourced solutions might emerge from the bottom up. These might be local in scale and use, but, with support from NGOs could utilise a low cost and easy to use platform hosted somewhere in 'the cloud' or perhaps more locally using

pen and paper. They may have some relationship with, or recognition from existing state or national land administration institutions, but, potentially not. The example from the Kyrgyz Republic springs to mind here. Even if governments do not legitimise the data, financial institutions and the surrounding community may. This would be enough to enable some of the simple benefits of land registration: more tenure security, access to credit, less land disputes, and faster land dealings. A key concern would be maintaining completeness and access to the web server, the geodatabase, or even the paper records. Whilst advanced technologies are being increasingly simplified and made freely available, they still require a certain level of capacity to implement and maintain. This is where McLaren's local land committees could play a crucial role.

ANARCHY

Crowdsourced cadastres may also emerge in direct opposition to conventional cadastres. In these cases they may represent outright antagonism to existing land administration institutions and the land tenure arrangements they support. Rather than being tools for securing land tenure or enabling taxation, these cadastres would be used for exposing corruption, lack of transparency, and unfair dealings in the land sector. They could expose the existence of pre-existing land interests in the cases of large-scale land acquisitions or 'land grabbing'. They would demonstrate how elites manipulate, undervalue, and acquire land holdings at the expense of local communities. Much like provocative propaganda maps used heavily in the 19th and early 20th centuries by various regimes, these cadastres would be tools for garnering political will and promoting citizen action.

LOOKING AHEAD

The longevity of any of these crowdsourced cadastres is not

clear. Institutions take time to build. Any cadastre attempting to operate without the legitimacy of the 'existing empire' will most likely take decades to gain such legitimacy. Those that do carry the support of governments need to be made long lasting through a mix of incentives and controls. Where existing land administration institutions do not carry legitimacy, the crowdsourced cadastre might be one of the first signs that a nation, country, or state is undergoing conflict or reconstruction. Whatever the case, whilst the technological approach might be new, the underlying driver is not: a cost efficient system for enabling fair and secure land access is still the necessity. Governments, the private sector, and citizens should keep this in mind as crowdsourced cadastres begin to emerge more fully in concept, if not practice. ◀

▲ Citizens have always made the physical boundaries, now crowdsourcing allows them to make the virtual ones (Source: P. van der Molen).

FURTHER READING
- FIG, 2011, Cadastre 2.0, Proceedings FIG Symposium and Commission 7 Annual Meeting, September, Innsbruck, Austria.
- McLaren, R., 2011, Crowdsourcing Support of Land Administration: A new collaborative partnership between citizens and land professionals, Royal Institute of Chatered Surveyors (RICS), London, United Kingdom.

WEBSITES
1. www.eurosdr.net/start
2. http://fill-the-gap.nl
3. http://www.iicd.org
4. http://www.hivos.nl