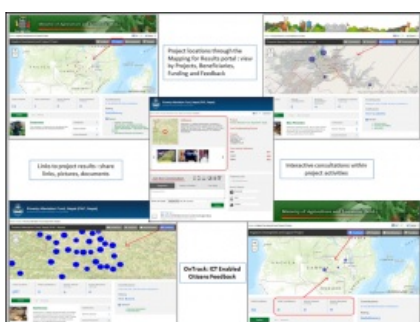


TECHNOLOGICAL DEVELOPMENTS AND GAME-CHANGING IDEAS

ICT-enabled Innovation and Land Administration



Apart from being a prerequisite for a functioning market economy, environmental action and secure livelihoods, land administration systems create invaluable base data for all spatially based innovation. Nevertheless, most countries still fail to provide inclusive land administration services that reach all stakeholders in equal terms, plus they tend to be slow in adapting alternative

new approaches and technologies or game-changing ideas.

The recently adopted FAO Voluntary Guidelines on the Responsible Governance of Tenure (VGs) provide a strong justification for establishing land administration institutions and systems in support of responsible governance of resources and equal treatment of stakeholders. The VGs set an ambitious agenda for land administration to enable responsible governance of land. The VGs call for the States to establish systems (such as registration, cadastre and licensing systems) to record individual and collective tenure rights that are appropriate for their particular circumstances and cover all tenure arrangements inclusive of the public and private properties, indigenous and customary tenure systems, and without discrimination on any basis. The VGs also call for the implementing agencies to adopt simplified procedures and locally suitable technology to reduce the costs and time required for delivering services. The information on the rights, the holders of those rights and the spatial units related to those rights should all be integrated and records should be indexed by spatial units as well as by holders to allow competing or overlapping rights to be identified.

The problem is that most countries fail to provide the type of inclusive systems and services the VGs promote and, in particular, fail to provide services that reach all stakeholders.

ICT Innovations

With the advent of personal computers, broadband internet and mobile phones, Information and Communication Technology (ICT) has become an important driver in fostering innovation leading to enhanced productivity and economic growth. Affordability of new technologies together with game-changing ideas can lead to more inclusive development whereby services can also reach out to those sections of the population that have so far been marginalised from the global knowledge economy.

In developing countries, innovation actors still operate in their own silos and systems do not connect across different sectors. Government as a technology client can establish conditions for ICT-enabled innovation by bringing stakeholders together to co-create services and re-invent ways for outreaching to disadvantaged groups with new business models. Implementing ICT innovations that are based on open, local data may empower citizens to communicate effectively with public service providers and also become a catalyst for a fundamental transformation of the relationship between government, civil society and development partners. Light innovation models known from the web industry – low-cost and agile development and rapid prototyping of ideas, concepts, products, services and processes in a highly decentralised and user-centric manner – are becoming more common and could set a new pace for every sector (including land administration) over the next decade.

Mobile Phones

Developing countries are beginning to adopt the concept of e-governance. Among various types of ICT that drives e-governance, the mobile phone is usually positioned as an entry point to the era of information and computer technology, and is now grabbing the emerging market share in developing countries with booming economies and rapid social development. The rapid penetration of cell phones in developing and middle-income countries is not only reshaping lives dramatically, but also provides a solid testing ground for traditional and social media that engages citizen voice and audits government information in the aim of promoting transparency, accountability and participation more effectively and at lower cost.

Citizen Access

Connecting the land registration system to personal mobile phones would allow citizens to use mobile services to locate land and property. They could record a geographic boundary of their holdings using a GPS tracker, take pictures of nearby area, and to edit and submit a land owner's profile. The technology would also allow the submission of legal documents as pictures, and oral evidence as audio or video files. The challenges of mobile disparity within countries caused by high service costs, product unavailability and lack of knowledge or support can hinder the adoption of mobile services. Not every citizen has equal access to ICT, high-speed internet and mobile technologies, in particular in remote areas. 'On/offline' technologies can bridge this digital divide and provide access to a wider group of people.

Organisations

Apart from citizens equipped with smartphones or tablets, international organisations are also in a transition phase to incorporate geographic information into their new policies. In October 2010, the World Bank undertook a major initiative to geocode over 30,000 activity sites of 2,000 World Bank-financed projects and visualised them on the 'Mapping for Results' platform, overlaying poverty and human development indicators at sub-national level. An Open Aid Partnership is bringing together development partners to replicate the initiative and support governments in creating their own mapping initiatives. The Inter-America Development Bank (IDB) and Global Agriculture and Food Security Program (GAFSP) also created interactive mapping platforms to display not only project sites but also processes, results and impact. Such mapping platforms bring forward the possibility of showcasing project-level profiles like images and videos in the next step. In the field of international development, more countries are joining the conversation of open government and open data, and launching publicly accessible data portals whereby government budgets and infrastructure locations are being released into the private sector and civil society.

Tanzania

Tanzania has sought to increase the use of citizen-based monitoring and feedback mechanisms through ICT (see an example in Figure 1). Such services are essential to achieve efficient and participatory government. The Tanzanian National Strategy for Growth and Poverty Reduction (MKUKUTA) states that ICT is critical to increased productivity and transparency in all sectors. Moreover, the Strategy states that good governance, accountability and participation are "bedrocks" for the overall development of Tanzania. These opportunities are also emphasised in the World Bank Country Assistance Strategy (CAS) for Tanzania for 2012-2015, which includes the goal of using ICT to increase social accountability. The experience exchange was directly linked to the Bank-financed Local Government Support Project. Tanzania lacked experience in two important aspects: the adoption of low-cost and user-friendly urban infrastructure mapping and the use of crowd-voicing tools to generate useful local data.

Meanwhile, Kenya has had extensive experience with both strategies in the Kibera area of Nairobi. Using South-South Facility funding, World Bank staff connected Dar es Salaam city planners and community leaders with experts from Kenya to help the Tanzanians increase stakeholder awareness about issues and tools related to community mapping. The exchange also increased the capacity of the Dar es Salaam City Council and other relevant institutions such as University of Ardhhi and its students studying spatial planning – to systematically monitor and verify urban infrastructure and service validation (see Figure 2). The exchange allowed citizens to use publicly available maps, visualise the city's urban infrastructure and submit their own community feedback.

Crowdsourcing

Crowdsourcing leveraged by initiatives such as dataset creation, correction and open data refers to efforts and donations of spatial or real-time information contributed voluntarily by the public. As a comparatively new approach experimented in development, crowdsourcing is particularly prominent in the field of geography, with the world's largest crowdsourcing and open source project, Open Street Map, being an example. While geolocation information such as facility coordinates or road networks is generated in some crowdsourcing projects, there are quite a few projects where information is created based on feedback from citizens in the form of text messages or emails. When it comes to natural resource conservation and ground condition monitoring using crowdsourcing, WWF's Moabi website allows searching, adding and discussion to track mining, roads and REDD+ projects in the Democratic Republic of Congo. Meanwhile, Global Forest Watch 2.0 (launched in spring 2013) visualises forest status on a two-monthly basis in tropical countries and accepts datasets on deforestation areas submitted by citizens.

Innovation Needed

Once land administration records, cadastres and land registries – which even in developing countries are increasingly available in digital form – are put on the web-mapping platform and made publicly accessible, they can break down silos between different states, regions and municipalities as units for data collection. However, many countries lack consistent data models and technical standards across the country, which hinders possibilities for capitalising on new opportunities in ICT. The new ISO standard on the Land Administration Domain Model (LADM, ISO 19152) presents a generic solution and a way forward for countries starting with little background. Generally OECD countries plus many others are very advanced in adopting geo-enabling solutions to link and share data in land administration, such as European Union (EU) countries implementing the EU's INSPIRE directive, Australia's national framework for managing land information that involves multiple levels of government agencies, and the national cadastral database in the US. The question is, how can these experiences – or parts of them – be adapted in a developing-country context?

Vulnerable Groups

More often than not, conventional land administration systems fail to serve the poorest and most vulnerable groups of the society. The problem lies not in the level of knowledge or understanding; the VGs promote principles of good land administration that have been known for a long time. Rather, land administration systems live in their time, but are also heavily influenced by their long history, traditions and establishments – such as professions – that impact on policies and approaches applied. The history and traditions are assets. They

provide continuity to the arrangements of secure tenure such as formal land administration systems, which ensure the predictability, continuity and stability required for positive investment decisions. However, the history and traditions are often also a hindrance to the adoption of new approaches, thinking and innovation in land administration.

Moving Forward

By facilitating citizen participation, crowdsourcing bridges the gap in the relationship between government and citizens by opening a direct channel for information transmission from ground level to policymakers and the government's land registration system. By utilising devices owned by citizens both in urban and geographically marginalised areas, it successfully transfers the workload from professionals to the masses, thus 'breaking down the cost barriers' in labour and research. Crowdsourcing provides a potential opportunity for dataset submission in remote areas without physical presence of land administration personnel, when an effective arbitration process is applied between data collection and utilisation. Furthermore, when citizens are involved in the process of governance, they are able to monitor the administration processes of civil servants and therefore help to reduce corruption.

Further Reading

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Authors

Mika-Petteri Törhönen is a land professional and project manager with outstanding knowledge in the fields of land tenure, policy and administration. Mika has held the post of senior land policy specialist at the Europe and Central Asia Region of the World Bank since August 2011. He is the task team leader and technical expert of several lending and technical assistance projects. Previously Mika worked in FAO's Climate, Energy and Tenure division as a senior land tenure officer co-ordinating the work towards the Voluntary Guidelines for Responsible Governance of Land, Forests and Fisheries. Mika is a Finnish national and holds a Doctor of Science degree from the Helsinki University of Technology.

Qiyang Xu is geospatial specialist in the World Bank Institute's Innovation Labs. She has worked in the areas of open data and open governance, innovative use of ICT and geospatial technology in international development. She is currently leading geospatial components and activities for various initiatives for World Bank groups, sectors and countries including Kenya, Malawi, Bolivia and the Philippines involving spatial and statistical analysis, data management and visualisation, web-mapping and crowdsourcing applications. Between 2011 and 2012, Qiyang also worked for Sustainable Development Network Information Services at the World Bank focusing on the Climate Change Knowledge Portal and infrastructure mapping, and the Foundation Center in New York facilitating spatial analysis for CSOs and NGOs using open source applications.

Ilari Patrick Lindy is senior ICT policy specialist at the ICT Sector Unit. Ilari has been involved in a wide range of international, regional and national initiatives supporting innovation policy and systems development with particular focus on development and take-up of ICT-enabled innovations. Most recently he co-chaired the European expert group of EU-Africa strategic partnership No. 8 focusing on science, information society and space.

Johannes Kiess is an operations officer for the Mapping for Results initiative in the Innovation Practice at the World Bank Institute. Prior to this position, he worked as an economist at the World Bank doing research and advising on and implementing innovative finance for development initiatives. Johannes holds a doctorate in economics and a master's in finance from the University of St. Gallen, Switzerland.