

Engaging the Challenge of Rapid Urbanization and Slum Upgrading and Enhancing the Role of Land Surveyors

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ABSTRACT

This paper aims at understanding the domain of rapid urbanization and slum upgrading. Therefore it collects facts in order to clarify the status quo. The paper highlights relevant aspects, such as development of new forms of spatial planning, modern slum upgrading methods, provision of security to flexible people-land relationships, linking informality and formality and enhancing land and property tax revenue to facilitate urban services. It appears that for all aspects, a role for the land surveying profession can be formulated. However, this role is not the conventional one of mapping and boundary surveying. ‘Fit for purpose’, ‘fast’ and ‘cost-effective’ are the key words that shape the professional skills of the future surveyor. Mastering the newest geospatial and non-spatial technologies, and the capability to design and maintain innovative cost effective land information systems, which can deliver relevant and interoperable services to urban residents and city managers, are prerequisites. When surveyors further enhance their external social capabilities, they can mobilize para-professionals and citizens to enlarge the surveying capacity, necessary to achieve such goals.

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1. INTRODUCTION: NEW ‘COMMON VISIONS’: HOW DO THEY RELATE TO RAPID URBANIZATION AND SLUM DEVELOPMENT.

Recently, the leadership of both UN and World Bank developed new ‘common visions’ for their respective organizations (Ban Ki-moon, 2013; World Bank, 2013b). Together they comprise sustainable development, prevention of conflicts, a more secure world, support of nations in transition, working with and for women and young people, ending extreme poverty, promoting shared prosperity.

Do these new ‘common visions’ bring a change in the priority of improving human settlements? No. Although poverty remains largely a rural problem (IFAD, 2011), a shift is expected in 2040 (Baker, 2008). With increasing urbanization, the number of urban poor will rise. Economic activity that drives economic growth in developing countries is heavily concentrated in urban areas (Bahl, 2013). Jobs that are best for development are those that make cities function better and connect the economy to global markets. Segmentation of space and social heterogeneity create a gap between the ‘have’s’ and ‘have not’s’ in dysfunctional cities. Urban centers play a key role in the increase of greenhouse gas emissions, through the rise of energy use, land use change, and industrial activities. At the same time, cities provide opportunities for reduction of emissions. Uncontrolled urban sprawl or urbanization in particular in coastal areas often leads to destruction of sensitive ecosystems. Quality of air, soil and water is at risk.

Thus rapid urbanization and slum development are still high on the international (and national) political agendas. Based on this fundament, this paper aims to addressing the question what land surveyors can contribute to the solution of these challenges (Enemark, 2010 speaks -by the way- about ‘*land professionals*’).

To that end, first we collect some objective facts, in section 2. Based on these facts, we look at the challenge ahead, namely how to cope with these urban challenges (section 3). Then we aim at analyzing whether (and if yes, how) land surveyors can

engage in good urban management of cities aimed at achieving the visions of UN and World Bank (section 4). We finalize with drawing some conclusions (section 5).

2. URBANIZATION: SOME FACTS

The domain of urbanization has various aspects. First, of course, we consider urbanization and slums. Then, knowing that slum dwellers are not secure in their tenure, we consider the issue of forced eviction. Slums are informal settlements, where people's livelihood occurs informally. Therefore we collect some facts about informal economies. Finally, we pay attention to the monitoring mechanism in the framework of the Millennium Development Goals.

Urbanization

Of the total world population in 2011 of 6.9 billion people 3.6 billion live in urban areas (52.1%): in Africa 36%, Asia 45%, Latin America and the Caribbean 79%, Europe 72%, North America 82% and Oceania 70%. The remaining 3.3 billion people live in rural areas (47.9%). The growth of the urban population commenced in the '50 then being 29.4%, growing in 2000 to 46.7%, in 2011 to 52.1%. Of the estimated world population in 2050 of 9.3 billion people 6.2 billion are expected to live in urban areas (67.2%) (UN, 2012a). The rural population is then expected to be 3.0 billion people (32.8%), which is a little bit less than the current population.

Population growth therefore settles in the city.

population	world	urban	%	rural	%
2011	6,974,000,000	3,632,457,000	52.1%	3,341,579,000	47.9%
2050	9,306,128,000	6,252,175,000	67.2%	3,053,963,000	32.8%

By consequence there will be a dramatic need for houses: in 2050 an extra of 3 billion people need a house. This results from 2.5 billion population growth plus the houses for slum dwellers which are without decent shelter. The completion of 96,150 housing units per day is necessary (UN/Habitat, 2005): for example 40 million houses in India, 735,000 in Indonesia, 709,000 in Malaysia, 700,000 in Angola, 659,000 in Bangladesh, 650,000 in South Africa, 240,000 in DR Congo (Augustinus, 2009).

Slums

The urban population, who lives in slums, increases: while in 1990 the number of slum dwellers was 656 million, the number grew in 2000 to 766 million and in 2010 to 827 million. Because of the growing urban population in general, the percentages

as such decline: from 46% in 1990, to 39% in 2000 and to 32% in 2010 (UN/Habitat, 2008a).

	slum dwellers	% of urban population
1990	656,739,000	46.1
2000	766,762,000	39.3
2010	827,690,000	32.7

Regionally the figures differ substantially: in 2010 -for example- Sub-Saharan Africa counted for 199 million slum dwellers which is 61.7% of the total urban population, Eastern Asia counted for 189 million slum dwellers which is 23.5% and Southern Asia for 190 million slum dwellers which is 35% (UN/Habitat, 2008a).

While the world's urban population grows annually with 66 million people (UN, 2012a), between 2000 and 2010 the number of slum dwellers increased with 60 million people, thus with an average per year of 6 million. This is the result of an annual increase of 28 million slum dwellers minus 22 million slum dwellers (see also the paragraph on Millennium Development Goals: 227 thus divided by 10) which are lifted from slum conditions (UN/Habitat, 2008a).

The situation in Sub Saharan Africa is problematic: when it concerns the slum population as a percentage of total urban population, figures range from 30% in Southern Africa, to 54% in Kenya towards 97% in Sierra Leone. The urban population in Africa as a whole increased from 220 million in 2000 to 298 million in 2010. The population growth settles in cities: in 1995 there were 28 cities with more than a million inhabitants in Africa; in 2005 this had increased to 43 cities.

In all regions of the world there is evidence of a positive relationship between economic growth and urbanization; the only exception unfortunately is Sub Saharan Africa, where GDP/capita does not grow along with increasing urbanization. This phenomenon is characterized as 'pathological urbanization' or 'urbanization without growth', because it would point at lack of political will and policies dictated by powerful interest groups (UN/Habitat, 2008a). Although some African countries show significant economic growth (Angola, Ethiopia, Sudan) this does not lead to poverty reduction: income inequality grows, making the UN-Economic Commission for Africa observe 'Africa's economic growth has not yielded commensurate dividends in poverty reduction' (UN/ECA, 2012).

Forced eviction

In 2007 and 2008 a total of 4.3 million people were affected by threatened and implemented forced. Implemented forced evictions counted for 1.5 million people, of which in Africa 270,660, in Latin America 433,296 and in Asia and the Pacific 872,926. Almost 42 % of all recorded forced evictions had been urban. In Asia, the proportion of urban forced evictions averages at 61% of the total number of evictions while in Africa the average percentage is 55%. Although forced eviction in rural areas occurs, eviction in urban areas is a majority.

The most common reasons for eviction are tenure insecurity/absence of formal tenure rights, authoritarian top-down planning, development and infrastructure projects, large international events, such as major sporting events, conferences, urban redevelopment and 'beautification' initiative, property market forces and 'gentrification', absence of state support for the poor, political conflict, ethnic cleansing and war (COHRE, 2009).

Informality

Currently, the informal economy is still substantially present in many countries: OECD-countries average on 18% of GDP, transition countries 38%, Latin America 41%, Asia 26% and Africa 42% (Schneider, 2002). In Africa, for example, the informal economy as a percentage runs from the lowest one, South Africa 28%, to the highest one, Zimbabwe 59% of the GDP. Research at city level reveals that the informal sector employment runs from 53% in Hanoi to 83 % in Lomé, of which roughly 2/3 is self-employment and 1/3 is wage-employment (Herreira, 2012). The contribution of the cities to the informal economy thus is high. The existence of an informal sector impacts negatively on a country's economy; the distinction between recorded and unrecorded economic activities is sometimes so large and therefore so economically important, that to leave it unrecorded is 'unsatisfactory' (Jerven, 2013). At the same time we should take cognizance from the fact that in countries, where policies, justices and the monopoly of violence have traditionally been controlled by the economic elite, there are good reasons for weak groups to keep their assets out of the reach of public control (Graner, 2005). So governance is an issue.

Economic activities require good rules; these rules include rules that establish and clarify property rights, reduce the costs of conflicts, that increase the predictability of economic interactions, and rules that provide contractual partners with protection against abuse (World Bank, 2013e). The integration of the informal and the formal economy is therefore steady policy (UN/Ecosoc, 2006, 2012; ILO, 2007). This means, that informal settlements inevitably will be connected to the formal economy in the future.

Monitoring: millennium development goal 7 target 1

MDG goal 7 target 11 reads that by the year 2020 a significant improvement in the life of 100 million slum dwellers should be achieved (UN, 2000). In fact, when the target was set in 2000, experts underestimated the number of people living in slums; when -in 2003- better data became available, the target of 100 million appeared to comprise only 10% of the dwellers population (UN, 2010). The target was simple set too low. The target, originally aimed at 2020, already was achieved around 2010 (UN, 2011). Between 2000 and 2010 227 million slum dwellers moved out of slum conditions: 172 million in Asia (of which 125 million in China and India, the rest in Vietnam, Turkey and Indonesia), 30 million in Latin America, 24 million in Africa (of which 9 million in North Africa, the rest in Sub Saharan Africa). Taking into account that in absolute numbers the amount of slum dwellers increases and that the target of 100 million already is achieved ten years ahead of schedule, the UN called for new realistic national and local targets (UN, 2011). This was done through a resolution of the 23rd UN/Habitat Governing Council in April 2011, stating that member states also should target access to land and security of tenure by slum dwellers to be improved significantly by 2020 (UN/Habitat, 2011b).

Security of tenure was included as an indicator (no. 32) in the target in 2000, but because of the lack of comparable data on tenure security it was not utilized (UN, 2012b). The development of the Urban Inequities Survey by UN/Habitat makes it now possible to present such data, as was done for the first time in the MDG Progress Report 2012 (Sietchiping, 2012). The applied definition of tenure security is that security of tenure is the right of all individuals and groups to effective protection by the State against forced evictions. People have secure tenure when:

- There is *evidence of documentation* that can be used as proof of secure tenure status;
- There is either *de facto* or *perceived* protection from forced evictions.

The survey results in figures regarding perceived risk for possible eviction, ranging from nearly 20% in Sao Paolo to 45% of inhabitants of Lagos.

So, in summary, this is the domain for which we try to formulate the land surveyor's contribution: a contribution that has to do with the need for better urban planning, better slum upgrading, avoiding forced evictions and connecting the informal economy with the formal one. In section 3 we aim to identify the fields where this contribution shall be entrenched.

3. THE CHALLENGE FOR URBAN MANAGEMENT.

'Managing the urban environment sustainably is one of the major challenges for the future' (UN/EP, 2002). Meanwhile, the wider concept of 'urban governance' evolved,

defined as ‘urban planning and management which is characterized by the principles of sustainability, subsidiarity, equity, effectiveness, efficiency, transparency, accountability, civic engagement, citizenship and security’. The lack of such good urban governance causes uncontrolled rapid urbanization and slum development. Slums are the visible result of failing policies (UN/Habitat, 2003).

There are a few fields that are relevant to meeting the problems as depicted in section 2 above. Those fields are the functioning of urban planning to cope with rapid urbanization and to prevent slum formation, slum upgrading, the importance of land tenure security and local tax revenue as an essential facilitator for local urban governance.

Urban planning approaches

To meet the requirements of sustainable cities, a twin track approach is needed, which comprises (a) prevention of future slum formation and (b) slum upgrading (Payne, 2005). We begin with slum prevention.

Prevention of future slum formation is a matter of urban planning: it is however widely observed that conventional ways of urban planning (the ‘master plan’ approach) completely fails to deliver appropriate livelihood for the growing number of inhabitants; existing zoning ordinances serve the wealthier people, poor people have to step outside the law in order to have shelter, planning is isolated and not integrated, unrealistic planning regulations force the poor to violate the law in order to survive, master planning is too much top down, technical and expert driven (FIG, 2008b; UN/Habitat, 2009; COHRE, 2009; Augustinus, 2011, UN/Habitat, 2011c; Odendaal, 2012; Nunas Silva, 2012). Conventional planning typically criminalizes the informal economy and is too much noted as controller in stead of enabler (Jaffe, 2011). (Fekade, 2000) argues that existing land use control and regulations are becoming parts of the problem, not the solution. Master plans are too often serving the elites rather than a majority (Payne, 2005). Too strong building standards can even make titled-plot-development illegal (World Bank, 2006). Subsidized housing estates for the poor have not worked too: these schemes so far have been too small and too slow (Augustinus, 2009; Augustinus, 2011).

Slum upgrading is much more expensive than preventing slums, therefore it is no question that urban growth has to be planned, and that governments will have to take the lead: new forms of urban planning should in general better meet the future needs of low income population, comprising (a) making land and trunk infrastructure available, (b) develop service on education, health, employment and other, and (c) create realistic and enforceable regulations and standards (UN/Habitat, 2009). Examples are strategic spatial planning, giving direction on the long term, with

flexible local projects; planning as coordination between sectoral development plans (Cities Alliance, 2006); urban management programmes (Cities Alliance, 1999). Land use regulation and land use management are the most powerful aspects of urban planning (World Bank, 2006; UN/Habitat, 2009).

The struggle for shelter by the low income groups is often a struggle for land, either getting land on which to build or getting tenure on land already occupied (Satterthwaite, 2009). Household tenure security is an important issue to achieve, although not necessarily freehold title; recommended instruments are land development, land pooling and land banking, value capturing, participation, and land readjustment (UN/Habitat, 2004).

In sum, cities shift away from the conventional master planning, and adopt innovative approaches which are less rigid, are flexible in coordinating local initiatives, put emphasis on infrastructure, and accept local housing standards. Flexible implementation methods (e.g. readjustment) are recommended.

Slum upgrading approaches

The second track next to preventing slums formation is the upgrading of slums.

Slums are characterized by lack of basic services (sanitation, water, waste collection, electricity supply, surfaced roads, road lighting, rain water drainage), substandard housing, overcrowding and high density, unhealthy living conditions, and insecure tenure (UN/Habitat, 2003). Urban slum dwellers are individuals residing in housing with one or more of the following conditions: inadequate drinking water; inadequate sanitation; poor structural quality/durability of housing; overcrowding; and insecurity of tenure (UN/Habitat, 2009).

Until the '70's, the usual approach of governments to deal with slums was negligence and clearance (UN, 2003). It was estimated that governments were destroying more low income housing than they constructed, which -with a growing urban population- was worrisome (Werlin, 1999, Mukhija, 2002).

Since the '70's however, slums were recognized as urban realities that require adequate response. Upgrading slums underwent a significant shift in approach: from non-recognition in the '60, to repression in the '70's and '80's, to tolerance in the '90's (Durand-Lasserve, 2006).

The policy of the World Bank was conceptually influenced by (Turner, 1972) who wrote that demolishing houses was not the solution but the improvement of the urban environment was: through self-help mechanisms slum dwellers would make themselves benefit. When the environment improves, houses will improve, especially

when security of tenure and access to credit becomes possible. Security of tenure is in Turner's view important, but not a precondition; besides that, minimal government interference is desired, because government are too large, centralized, bureaucratic; a minimal government could just safeguard basic conditions.

Evaluation however revealed that the approach of the 'minimal state' was too optimistic: in projects in which basic facilities were provided, housing conditions did not improve, infrastructure was not publicly maintained and leakages in the sewerage system not publicly repaired, reason to encourage stronger government involvement, with a emphasis on security of tenure, as slum dwellers appear not to be willing to pay for services and not to improve their house with a certain security of their tenure (Werlin, 1999).

Property rights are critical to sustainable approaches to upgrading, amongst better governance, financial systems, and social frameworks (Cities Alliance, 1999). Although employment remains of major importance: it appeared to be more important than having security of tenure or access to formal credit (Payne, 2005). Frequently development of informal settlements is hampered by conflicting and unrecorded ownership claims and double or multiple sale of the same plot of land (Fekade, 2000).

When it regards tenure formalization, basically there were two main approaches, namely a first focusing on formal tenure regularization providing freehold titles and a second aiming at the provision of administrative measures against forced evictions, including the provision of titles that can be upgraded later, both approaches with the provision of basic services; the first may hinder social cohesion, dissolve social links, and induce market eviction, while the second gives communities time to consolidate their settlements with a view to further upgrading their tenure status (Durand-Lasserve, 2006). A point for attention is that projects so far put emphasis on home ownership, while there are more renters than squatters: rental markets should therefore included in upgrading approaches (UN/Habitat, 2003).

The three basics for slum upgrading and prevention which are core to investment decision-making: (1) land availability and land security – meaning that once occupied, the occupants will not be forcibly evicted, (2) responsibility of municipalities to ensure basic affordable services – road access, drainage, sanitation and water supplies, etc. – this may require credit facilities against the revenue generation of the entire city asset base, and (3) access to formal and affordable lines of credit specifically for the slum dwellers' of projects – such access is dependent upon the land and services issues being agreed with local authorities as a basis for community groups approaching the commercial banks for their involvement (FIG, 2008a)

In sum, approaches to slum upgrading changed substantially over time. Today, the improvement of the physical environment appears to have priority: such as infrastructure, drinking water, sanitation, electricity supply, waste collection. Simultaneously a certain minimum of tenure security should be provided, for example in the form of an individual or collective anti-eviction ‘right’ with an evolution towards more robust land rights as a perspective.

Land tenure security: important or not?

Insecurity of tenure is a major characteristic of slum dwelling (Cities Alliance, 1999; UN/Habitat 2007). In many slums, the local authority is not the municipal staff, but slumlords and mafia. Without any lack of property right, slum dwellers have no access to regular forms of credit, and are forced to have loans from informal sources against high rates and short pay back times (UN/Habitat, 2003).

Security of tenure is considered as the most important cornerstone for improving the rights to adequate housing, and therefore the Centre for Housing Rights and Evictions (COHRE) calls for ensuring legal security of tenure for all people and households who currently lack such protection, ensuring that any housing rights violations by "third parties", such as landlords or property developers, are prevented, protecting residents, by legislation and other measures, from discrimination, harassment, withdrawal of services or other threats, ensuring that housing-related costs for individuals, families and households are commensurate with income levels, establishing a system of housing subsidies for people unable to afford adequate housing, and to protect tenants against unreasonable or sporadic rent increases (COHRE, 2012).

There is however worry about granting full titles as a solution, as experience reveals that titling increases land prices, which encourages new land owners to sell their plots, realize the higher capital value and re-squat again (Payne, 2005). One of the ways to ensure that low income settlements are sustained is the granting of group titles (Baker, 2008), provided that the community is organized (Mukhija, 2002). Collective title however might prevent members from moving out, and encourage them to invest in their homes (Satterthwaite, 2009). Therefore a community can choose to shift to individual ownership when for example a loan for acquiring the collective title is repaid (Boonyabancha, 2009). (Patel, 2013b) argues that formal freehold titles are not seen by slum residents as an adequate response to their understanding of tenure security. By abiding certain social rules in the community, they felt fairly tenure secure already, although enhanced by the issuing of a House Handover Certificate by the municipality. However, she maintains that legally protected tenure might be invaluable should there be a change in for example settlement leadership of should neighbors would die. Also (Minnery, 2013) finds that

tenure security is important. Without some form of tenure security, residents felt they had no base for a sustainable livelihood, although tenure security was not necessarily equated with fully titled ownership. Protection against forced eviction is an overriding priority but the provision of property titles must thus be framed over a long term time horizon (Durand-Lasserve, 2006).

The World Bank, considering the question whether titling is the answer for urban land policy, recognizes the practical problem that occurs during titling processes (such as costly, contradictory claims, illegal squatting, value of broader social contracts, not usable as collateral, continuum of tenure categories) but believes that it does not take away the fundamental point of tenure security in slum upgrading; housing policy should remain, including tenure improvement and reform of the legal framework for individual ownership, but they are not sufficient condition for releasing the ‘dead capital’; however, formal titling is likely not the first step in upgrading, the assurance for slum dwellers that their house is not demolished is a better first step; although on the long run formal titles are more valuable (World Bank, 2006).

Comprehensive and regularly updated housing, property and land registration systems are a crucial element of the security of tenure process; although land registration as such does not automatically provide security of tenure; registration processes might favour the wealthier people and marginalize the poor further (UN/Habitat, 2007). The establishment of other forms of land inventories which simply records claims of landownership and property rights, without the legal authority to determine them, can be considered (Zevenbergen, 2013).

In sum: land tenure security is important. However, that secure tenure can be provided by a range of tenure types is increasingly recognised; this is often named the ‘continuum of land rights’ (FIG, 1996; Payne, 2001; UN/Habitat, 2003; UN/Habitat, 2004; Payne, 2005; UN/Habitat, 2008c; UN/Habitat, 2011d). Methods of land rights recording need innovative approaches (Fourie, 2001; UN/Habitat, 2003; UN/Habitat, 2007; Augustinus, 2009; Zevenbergen, 2013).

City tax revenues

It would be impossible to insist on better urban governance and not addressing the funding of all this: without funds no urban management.

To know how cities are financed, a first step is to find out how developing countries (for example in Africa) are financed. The African Economic Outlook 2013 (OECD, 2013a) clarifies that states in Africa in general are financed by external financial flows into the country and by tax revenue. Expressed in terms of % of the GDP, external financial resources count for 9% (158 billion) of the GDP, which include 42

billion foreign direct investments (FDI, thus ‘structural money’), 7 billion portfolio investments (‘quick money’), 51 billion development aid, and 57 billion remittances. Tax revenue counts for 27% (513 billion) of the GDP, namely 10% of the GDP by resource tax, 6% direct tax, 5% indirect tax, 2% trade tax and 4% others. Resource tax (revenue from upstream exploitation to processing activities in oil, gas and mining, thus royalties and corporate income tax) is in average 40% of the total tax revenue. Levying resource tax is relatively easy, which means that other forms of taxes get less attention, both because they might be politically demanding (OECD, 2013a) or statistics about the tax base are lacking (Jerven, 2013). Compared with OECD countries, we observe that -for example- direct taxes on individual and corporate income form 33% of the total tax revenue, indirect taxes 31% and property tax 5% (OECD, 2013b), thus substantially different from e.g. Africa.

The importance of the revenue from oil, gas and mining is also observed by (Jerven, 2013) who found that in developing countries individuals and enterprises are less likely to be officially registered and that formal records of their economic activities are likely not kept. In addition, in Africa, land has not been subject to private property rights historically and by consequence was not taxed. In general, states have been unable to collect taxes on land, income and production, and tax collecting was limited to collecting duties on imports and exports.

Now is the question what does this mean for the budget of cities. Budgets of cities (‘local governments’) normally have two components, namely transfer of revenue from state to city level and the competence of cities to generate own income, based on fiscal decentralisation policies. Statistics from 2007 reveal that transfer from state level varies widely. In Botswana, for example, 92% of the (rural) local government budget stems from the central government, and 64% of the budget of urban local government. At the other end of the spectrum are local governments in Zambia (2%), South Africa (11%) and Kenya (26%). (Fjelstad, 2012).

That means, that cities have to generate income from own sources. The challenge to urban finances therefore is to capture a share of the economic growth to finance expenditures through enhancing its creditworthiness by first securing cash flows from user fees and taxes, and by leveraging the value of land in several ways. Such leverage can exist of land and property taxes, land sales and lease, charges for impact and for development, betterment levies (value capture taxes) (World Bank, 2013c).

Essential part of the ability of cities to capture a necessary part of economic growth is the lack of certain basic institutions. As the key to efficient economic land use is the price of land, determination of such land prices is a prerequisite to value capturing. Cities in developing countries lack systems to record and manage relevant information, such as land registers, real estate transactions, valuation mechanisms.

The latter is important, as land values form the basis for activities such as property taxation and land sales and leases (World Bank, 2013c).

Surveys show that citizens don't want to pay tax because they lack confidence in the local government (e.g. corruption), but when local services are adequately provided, they tend to comply (Fjelstad, 2012). Thus widening to tax base to the informal sector requires governments which are more accountable to their taxpayers for the level of government services that they provide (Njeru, 2012). This is in line with the argument of (Moyo, 2009) that donor-grants force recipient-governments to be accountable to its donors in stead of to its own people, which she denounces.

In sum, land and property tax revenues provide necessary funding without which local government cannot perform urban governance. Tax collecting is severely hampered by lack of record keeping, valuation mechanisms and enforcement. Without knowing taxpayers, taxable objects, street addresses to deliver the tax bill, how to levy land and property taxes? A bit of a chicken and egg problem: without funds the city cannot deliver services, and because the city doesn't deliver services, citizens don't want to pay tax. The challenge here is to develop cheap and simple land and property tax systems, which are very cost-effective, and which allows cities at least to make a modest start, guaranteeing upscaling.

4. WHAT CAN LAND SURVEYORS CONTRIBUTE.

Looking at the FIG-definition of the functions of a surveyor (FIG General Assembly 2004), several of the functions relate to contributing to the challenges of rapid urbanization and slum upgrading as depicted in section 3. A question is whether currently these contributions are indeed delivered. Despite the efforts of many, observations reveal that we have a serious problem, whether we like it or not. To refer to just a few: only 1.5 billion out of 6 billion land parcels will have land rights formally registers, current methods are thus not quickly enough and cannot be scaled up (McLaren, 202); from all rural lands world wide only 1-2% has formal title (Alden Wily, 2012); only in about 50 countries (most western) a land information system exists which potentially can support land infrastructures for better governance (Enemark, 2010); all disaster relief in Port-au-Prince in Haiti after the devastating earthquake was supported by voluntary street maps (BBC, 2010); land surveyors are unreasonable when insisting on outdated methods and extreme technical accuracy in survey work (Adlington, 2009); after the calculation of a cadastre agency that they needed 500 million € and 100 years to develop a national EU-parcel identification system, a government went to the remote sensing agency which developed it in 3 years for 12 million € (Silva, 2005). It is quite sad to learn that we as land surveyors create 'painstaking slow work processes that hamper the completion of the cadastre.....' (Adlington, 2009). Notwithstanding all the excellent work done by land

surveyors (view many papers at FIG events), the message is still strong: we have to change.

Better planning and slum upgrading.

Land surveyors can provide relevant spatial and non-spatial information.

A well-functioning land information system is one of the most important preconditions to providing land for housing the poor: without a clear land information system planning for a city's roads, infrastructure networks, social amenities, public facilities and housing becomes extremely difficult (UN/Habitat, 2011c).

Land information systems that support rapid urbanization therefore include spatial, economic, social, administrative and legal data (Sliuzas, 2004). Because most countries have incomplete land registration and land records systems, land and also tenure data should be included which does not exclusively rely on existing legal data, but for example also on social or community relationships (Augustinus, 2009).

In general better information should contribute to the capacity of local and central government to deal with increasing demands for services, land and infrastructure; if the government's capacity is not solved in -for example- Asia there are doubts whether the Asian region can sustain its high economic growth (Cochrane, 2010).

Land information management (LIM) and -broader- spatial information management (SIM) is a solution, using technical innovations in data collection, integration, processing and management, and the use of appropriate spatial data infrastructures (FIG, 2002; FIG, 2010). Land surveyors should better exploit their mastering of the newest technologies on data acquisition, processing and presentation, which provide cost-effective information supply to citizen and decision makers (Doytscher, 2013). Land surveyors are also used to have an eye for maintenance, thus safeguarding the return on investment in land information systems. Development and maintenance are two sides of the coin of sustainability, not only of databases, but also of the physical improvements when upgrading slums, as (Minnery, 2013) shows that a crucial weakness of slum upgrading programmes in the past has been the failure to ensure ongoing maintenance and upscaling. Land surveyors should exploit their maintenance knowledge much better.

Land surveyors should also be capable to not only addressing spatial data, but also attributive data (non-spatial), in order to provide meaningful information. Therefore other methods should also be mastered, such as effective street-addressing (World Bank, 2005) and enumeration methods (Huchzermeyer, 2008; UN/Habitat, 2010a).

When governments refrain from taking action, participatory mapping and cadastres may be optional (McLaren, 2012). By being reluctant to mobilize para-professionals and volunteering citizens, land surveyors don't create an opportunity to enhance their total professional capacity which leads to under performance.

In sum, land surveyors should engage in new forms of spatial planning and slum upgrading and identify the associated need for spatial and non-spatial information. Making use of new geo-spatial technologies and improved skills in non-spatial data handling, both likely to be managed in data-infrastructures, land surveyors can facilitate urban governance with timely, relevant and cost-effective information. Partnerships with non professional land surveyors appear to be a 'must'.

Land surveyors can manage urban land readjustment processes.

According to (Doebele, 1982), land readjustment is the 'process whereby land owners pool their lands and then re-subdivide the assembled property, setting aside a portion of the total parcel for improved access and infrastructure and an additional portion for sale or commercial development to pay for the improvements to the property'. Historically applied particularly in areas of rural-urban transition, the tool developed towards application in inner city areas of urban regeneration. (Li and Li, 2007) report about land readjustment even within high rise apartment buildings in Hong Kong, phrasing it as a 'vertical land readjustment'.

When pursuing slum upgrading and urban renewal, the conventional case is that local governments have to apply eminent domain (expropriation) to acquire land. In case of renewal by private developers they have to use the land market mechanism. In the worst case, slums are just cleared through bulldozing (Tunas, 2010). This conventional approach puts pressure on the government's budget because expropriation is costly and takes a long time, there is risk of delay because of red tape and resistance by owners, and costs have to be met by the public. In the case of private renewal, project developers should acquire through private purchases for prices normally higher than the market value and parcels that cannot be acquired disturb a balanced urban renewal (Turk, 2011). When private developers request eminent domain, local governments have problems providing evidence of the public interest, when private parties also have an interest. Research shows that owners are normally upset by the sold-out approach, and prefer compensation in kind instead of in cash, which they usually perceive as inadequate to resettle (Yau, 2012).

Land readjustment has the potential to benefit both the local community and the local government: it can thus create win-win situations. However, the processes are complex and demanding. Only skilled staff is able to pursue successfully; without, many projects fail (Hong and Needham, 2007).

In sum, land surveyors potentially can master these processes, both in the urban environment (called ‘land readjustment’) and in the rural environment (called ‘land consolidation’, ‘land pooling’). Recent experiments by UN/Habitat in Medellin Columbia can provide further ideas in particular on involvement of citizens-participants (Haile, 2013). This is of particular importance as (Patel, 2013a) shows that participation is a key to successful upgrading. Land surveyors should recover their involvement.

Better security of land and housing tenure

Land surveyors facilitate flexible forms of land tenure and relevant registration procedures

Key words which are repeatedly mentioned in the literature referred to in this paper are ‘innovative land information and land information systems’. These systems should support the government to manage urban spaces adequately, with a focus on providing appropriate forms of secure tenure, processes of land management (land use planning, land pooling, land banking, land readjustment) and land markets, where there is no space for speculators and powerful elites. These innovations do not only address the urban area, but also the rural area and the transition zone rural-urban. Policy-wise, the aim is to achieve leveling the urban divide and the rural-urban divide.

Land tenure security remains a cornerstone of planning and upgrading, however not necessarily in the form of full fledged title, but rather in other forms, also collective urban tenure which might develop into individual tenure at a later stage.

A major problem is the existence of poor land record systems and centralized information systems (Fourie, 2001); innovative approaches include: local land registers, effective central-local information and function linkages, more inclusive registers, parallel land registration, digital access, better public awareness, privatized services and simplified recording of spatial representation (UN/Habitat, 2004).

(Zevenbergen, 2013) defines principles for pro-poor land recordation. Land surveyors should internalize these principles and find ways to implement these. Briefly these principles are as follows. First, land administration systems should be affordable for the poorest, Second, also the system should be affordable to the government, both establishment and maintenance of the system. Third, the system should facilitate complex layered tenures, so that communities can record existing tenures in use. Fourth, the establishment is not an end in itself: it aims at preventing conflicts. Fifth, recordation should be possible sporadic, and sixth, the specs for the index map should

be fit-for-purpose. Finally, the records should be transparent, inclusive and equitable and be co-managed by the local community.

With regard to system development, in particular the land administration domain model *is the* answer to these challenges (Augustinus, 2009). Today (Lemmen, 2012) offers the -meanwhile ISO certified- model, as an extensible and multi functional domain model.

The observations at the beginning of this section reveal that the land surveyors community is still far from delivering these innovative services. As the cadastral surveying is a cornerstone in our profession, improvements here are touching our ‘reason for existence’ (our ‘raison d’être’).

In sum, land surveyors should quickly improve their capacity to deliver fast and cheap methods to record various types of land tenure, within the modern approach to slum upgrading, in which providing jobs and improvements of the physical environment should create a social environment where slum residents can improve their livelihood with social and legal security as a fundament.

Linking the informal and the formal economy

Although –sometimes- there might be good reasons for citizens to protect themselves against the formal society, the existence of two different economies in one society is harmful for a nation’s economic development and social cohesion (Smith, 2007). When regulations are onerous, levels of informality are higher, say the well known Doing Business reports (World Bank, 2013e). (Jerven, 2013) shows that leaving informal economic transactions unrecorded is unsatisfactory: how can we maintain that a country shows economic growth when a major part of the economy is unrecorded? How can we speak about GDP per capita when countries don’t know the number of citizens? But the problem of informality is worse: (Setel, 2007) observes that most poor people in Asia and Africa render unseen because of the lack of up to date civil registration systems. By consequence they are born and die without being counted. Since the Universal Declaration of Human Rights in 1948 the right to an identity is a human right: to have one’s identity recognized and securely registered (Szreter, 2007). Bringing informality to formality therefore has an aspect of being counted, being registered.

A good example of including existing tenure relationships is Kenya, where the National Land Policy 2007 changes the post-colonial categories of ‘government land’, ‘trust land’, and ‘private land’ into ‘public land’, ‘community land’ and ‘private land’. The new Land Act 2012 states that the National Land Commission shall ‘keep a database of all public lands, which shall be geo-referenced and

authenticated by the statutory body responsible for land survey'. The Act also prescribes community land to be registered in a community land register. So, Kenya will establish and maintain a public land register, a land register for private property and a community land register (Mwathane, 2010).

In sum, linking informality and formality is to a certain extent a matter of recording. When this recording regards immovable goods, in particular land surveyors can take the lead, likely in an interdisciplinary team of land lawyers and social scientists. More than today, land surveyors should develop the capacity to address a broad range of people-to-land relationships and provide low cost methods for quick recording processes, including safeguarding the sustainability through sound maintenance mechanisms.

Providing tax administration for improving municipal tax revenues.

Based on realistic assumptions, the revenue from land and property tax has the potential to grow from 0.5% to 5% of the GDP in average. That would mean for Chile for example from 34 to 136 \$ per capita, for Malaysia from 14 to 139\$ per capita and for Latvia from 29 to 158\$ per capita (Bahl, 2010). Constraints are the absence of property registers and valuation rolls and street addresses which makes revenue collection weak (Fjelstad, 2012). Historically, cadastral systems in many countries were established to serve fiscal purposes (Dale, 1999). So, identifying taxpayers, taxable objects, property values, and taxes payable, have always been a mainstream in the land surveyors duties. However, considering the constraints for local land and property tax generation as observed in developing countries, obviously new and fresh approaches are needed, in particular the redesign of such systems should gain greater emphasis on cost-effectiveness, not only direct costs of revenue collecting but also compliance costs for whole society (Fjelstad, 2012).

The aspects that are at stake when designing an appropriate land and property tax system are well described by (UN/Habitat, 2011e, 2011f). Important lessons taken from included case studies, is that advanced technology (satellite imagery) is suitable to be used to providing a first outline of a tax administration, that additional field inspection allows upgrading of the system, that the system should concentrate on tax and not on dispute resolution, that informal properties should also be included (see earlier), that an incremental effort is needed, that incomplete records should not immediately hamper implementation, and that computerization is helpful. Given the observed poor administrative capacity of many local governments (Fjelstad, 2012), appropriate capacity building is a prerequisite. (UN/Habitat, 2011e) postulates that the development of a fiscal cadastre, thus a cadastre that does not meet all the requirements for -say- a full fledged legal cadastre, still can improve the use for other functions (such as the legal one). Already ten years ago (Nieminen, 2004) argued that

land surveyors should engage in designing simple land taxation systems and follow an evolutionary path to more demanding cadastres in stead of aiming at the latter too quickly.

In sum, having historically a leading role in land and property taxation, land surveyors should recover their role in local taxation matters again and improve skills to include informal properties, create innovative city wide systems at a cost-effective basis.

5. CONCLUSIONS

Poverty eradication, dominant in the new ‘common vision’ of both UN and World Bank, requires a solution to rapid urbanization and slum development. Research provides us with knowledge how attempts to cope with urbanization are evaluated. Also we can learn what -in the eyes of the residents- is considered as important for improving livelihoods. Clearly, jobs and income are high on the agenda, and a living safe from disasters. But residents also appreciate a certain form of tenure security, access to credit, better planned cities and local government services.

The deliverance of all this, requires governance institutions and professional support, in particular from the land surveyors. Observations show that fulfilling such a role poses serious challenges to current land surveyor’s capabilities. Providing cheap, quick and relevant geographical information requires knowledge of the newest geospatial technologies. By acquiring non-spatial data through methods as street addressing and enumerations, and linking it with spatial data land surveyors might enhance the value and relevance of information supply. By putting emphasis on maintenance of datasets land surveyors might contribute to a sustainable return on investments in information systems. In this way, land surveyors can support new approaches to urban planning and slum upgrading.

Also a clear message is that land surveyors should increasingly be sensitive to other forms of tenure than fully formal ownership only, and that preciseness and reliability can hamper the low cost and quick delivery of results, at the disadvantage of both government and citizens. Tenure security is important, and by recording the people-to land relationship land surveyors also contribute to linking the informal and formal economy, which is a prerequisite for enhanced nation building.

Local governments have difficulty in generating sufficient revenue, in particular land and property tax, land sales and leases and value capturing. This hampers delivery of services within a framework of good urban management. Again, cost effective systems are needed, now serving land and property taxation both in terms of direct costs of exploiting the tax-system and in terms of compliance costs for society as a

whole. To design and maintain such systems is a dedicated challenge for land surveyors, who historically involved in creating fiscal cadastres in many countries with a proven opportunity to develop towards multifunctional cadastres.

Finally, observations (also from outsiders, see section 4) reveal that our professional performance is not undisputed. In particular, when it regards the core of our profession, land administration, these observations touch our fundamental reason for existence. Although we may object to certain critical observation, they cannot be neglected. Indeed, in psychology it is said ‘feelings are facts’. However, with all new technology in our hands and with the development of a good social antenna for what ‘fit for purpose’ is, our profession has much to offer.

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