1. INTRODUCTION

In relation to the conference of the Society of Chartered Surveyors focusing on Ireland’s Future in a Global Economy—there is one big question to be asked: Is the role of the surveyors changing? In a global perspective the answer will be “Yes”!

There is a big swing that could be entitled “From Measurement to Management”. This does not imply that measurement is no longer a relevant discipline to surveying. The change is mainly in response to technology development. Collection of data is now easier, while assessment, interpretation and management of data still require highly skilled professionals. The role is changing into managing the measurements. There is wisdom in the saying that “All good coordination begins with good coordinates” and the surveyors are the key providers.

Another question should be asked: Do surveyors have a role to play in the global agenda? Again, from a FIG point of view, the answer to this question is clearly “Yes”! The move from measurement to management includes an increased focus on the social science issues of the surveying disciplines such as land tenure, land policies and land management. These are all issues placed in the heart of the global agenda such as the Millennium Development Goals.

The surveyors play a key role in supporting an efficient land market and also effective land-use management. These functions underpin development and innovation for social justice, economic growth, and environmental sustainability. No development will take place without having a spatial dimension, and no development will happen without the footprint of surveyors—the land professionals.

Today the accepted theoretical framework for all land administration systems is delivery of sustainable development— the triple bottom line of economic, social, and environmental development, together with the fourth requirement of good governance. Land Administration Systems are the basis for conceptualizing rights, restrictions and responsibilities related to people, policies and places.
Property rights are normally concerned with ownership and tenure whereas restrictions usually control use and activities on land. Responsibilities relate more to a social, ethical commitment or attitude to environmental sustainability and good husbandry. This paper provides an overall understanding of the concept of land administration systems for dealing with rights, restrictions and responsibilities in future spatially enabled government.

The surveyors – nationally and globally – will have a key role as providers of the relevant spatial information and also as builders of efficient land tenure systems and effective measures for urban and rural land use management. This should support economic growth, social equity, and environmental sustainability. The paper presents the role of FIG with regard to building the capacity in this area and responding to the global agenda.

2 PROPERTY RIGHTS

“Civilized living in market economies is not simply due to greater prosperity but to the order that formalized property rights bring”

The quote is from a famous article “The Missing Ingredient” in The Economist, September 1993. The quote may also be used as an expression of the importance that international organizations, such as the UN, FAO, and Habitat attach to building cadastral systems. The World Bank has also recognized the importance of establishing appropriate land administration systems as a basis for generating economic development, social coherence and environmental sustainability. Security in land rights is seen as a basic element in this process where land is increasingly seen as a key asset.

In the Western cultures it would be hard to imagine a society without having property rights as a basic driver for development and economic growth. Property is not only economic asset. Secure property rights provide a sense of identity and belonging that goes far beyond and underpins the values of democracy and human freedom. Historically, however, land rights evolved to give incentives for maintaining soil fertility, making land-related investments, and managing natural resources sustainably. Therefore, property rights are normally managed well in modern economies. The main rights are ownership and long term leasehold. These rights are typically managed through the cadastral/land registration systems developed over centuries. Other rights such as easements and mortgage are often included in the registration systems.

Cadastral Systems are organized in different ways throughout the world, especially with regard to the Land Registration component. Basically, two types of systems can be identified: the Deeds System and the Title System. The differences between the two concepts relate to the cultural development and judicial setting of the country. The key difference is found in whether only the transaction is recorded (the Deeds System) or the title itself is recorded and secured (the Title System). The Deeds System is basically a register of owners focusing on “who owns what” while the Title System is a register of
properties presenting “what is owned by whom”. The cultural and judicial aspects relate to whether a country is based on Roman law (Deeds Systems) or Germanic or common-Anglo law (Title Systems). This of course also relates to the history of colonization.

However, these legal or formal systems do not serve the millions of people whose tenures are predominantly social rather than legal. “Rights such as freehold and registered leasehold, and the conventional cadastral and land registration systems, and the way they are presently structured, can not supply security of tenure to the vast majority of the low income groups and/or deal quickly enough with the scale of urban problems. Innovative approaches need to be developed” (UN-HABITAT 2003). This should include a “scaling up approach” that include a range of steps from informal to more formalised land rights. This process does not mean that the all societies will develop into freehold tenure systems. Figure 2 shows a continuum of land rights where each step in the process can be formalised, with registered freeholds offering a stronger protection, than at earlier stages.
2.1 Comparing Cadastral Systems

A website has been established http://www.cadastraltemplate.org to compare cadastral systems on a worldwide basis. About 40 countries are currently included (August 2007) and the number is still increasing. The web site is established as a result of one of the objectives of Working Group 3 “Cadastre” of the PCGIAP (Permanent Committee on GIS Infrastructure for Asia and the Pacific). The cadastral template is basically a standard form to be filled out by cadastral organizations presenting their national cadastral system. The aims are to understand the role that a cadastre plays in a state or a National Spatial Data Infrastructure (NSDI), and to compare best practice as a basis for improving cadastres as a key component of NSDIs. The Cadastral template project is carried out in collaboration with Commission 7 “Cadastre and Land Management” of the International Federation of Surveyors (FIG), which has extensive experience in comparative cadastral studies. (Steudler, et.al. 2004).

It is generally accepted that a good property system is a system where people in general can participate in the land market having a widespread ownership where everybody can make transactions and have access to registration. The infrastructure supporting transactions must be simple, fast, cheap, reliable, and free of corruption. And the system must provide safety for housing and business, and for capital formation. It is estimated that only 25-30 countries in the world apply to these criteria.

3 PROPERTY RESTRICTIONS

Ownership and long term leasehold are the most important rights in land. The actual content of these rights may vary between countries and jurisdictions, but in general the content is well understood. Rights to land also include the rights of use. This right may be limited through public land use regulations and restrictions, sectoral land use provisions, and also various kind of private land use regulations such as easements, covenants, etc. Many land-use rights are therefore in fact restrictions that control the possible future use of the land.

Land-use planning and restrictions are becoming increasingly important as a means to ensure effective management of land-use, provide infrastructure and services, protect and improve the urban and rural environment, prevent pollution, and pursue sustainable development. Planning and regulation of land activities cross-cut tenures and the land rights they support. How these intersect is best explained by describing two conflicting points of view – the free market approach and the central planning approach.

3.1 The free market versus the central planning approach

The property rights activists, most of them influenced by private ownership viewpoints, argue that land owners should be obligated to no one and should have complete domain over their land. In this extreme position, the government opportunity to take land (eminent
domain), or restrict its use (by planning systems), or even regulate how it is used (building controls) should be non-existent or highly limited. Proponents argue that planning restrictions should only be imposed after compensation for lost land development opportunities is paid (Jacobs 2007).

Throughout the European territory, another view appeared. In this, the role of a democratic government includes planning and regulating land systematically for public good purposes. Regulated planning is theoretically separated from taking private land with compensation and using it for public purposes. In these jurisdictions the historical assumption that a land owner could do anything than was not expressly forbidden by planning regulations changed into the different principle that land owners could do only what was expressly allowed, everything else being forbidden.

The tension between these two points of view is especially felt by nations seeking economic security. The question however is how to balance owners’ rights with the necessity and capacity of the government to regulate land use and development for the best of the society. The answer to this is found in a country’s land policy which should set a reasonable balance between the ability of land owners to manage their land and the ability of the government to provide services and regulate growth for sustainable development.

3.2 Integrated Land-Use Management

Integrated land-use management is based on land policies laid down in the overall land policy laws including the cadastral and land registration legislation and planning and building legislation. These laws identify the institutional principles and procedures for the areas of land and property registration, land-use planning, and land development. More specific land policies are laid down in the sectoral land laws within areas such as agriculture, forestry, housing, natural resources, environmental protection, water supply, heritage, and so on.

These laws identify the objectives within the various areas and the institutional arrangements to achieve these objectives through permit procedures, information policies, dispute handling, and so on. The various areas produce sectoral programmes that include the collection of relevant information for decision making within each area. These programmes feed into the comprehensive spatial planning carried out at national, state/regional and local levels.

Importantly, a mature system of comprehensive planning control needs to be based on appropriate and updated land use data systems, especially the cadastral register, the land book, the property valuation register, the building and dwelling register, etc. These registers need to be organized to form a network of integrated subsystems connected to the cadastral and topographic maps to form a national spatial data infrastructure for the natural and built environment.
In the land-use management system (the planning control system) the various sectoral interests should be balanced against the overall development objectives for a given location and thereby form the basis for regulation of future land-use through planning permissions, building permits and sectoral land use permits according to the various land-use laws. These decisions are based on the relevant land use data and thereby reflect the spatial consequences for the land as well as society. In principle it can then be ensured that implementation will happen in support of sustainable development.

Figure 3. Integrated land-use management for sustainable development (Enemark, 2004).

In building such systems there are three key issues that must be addressed:

*Decentralisation:* There is a need to separate central policy/regulation making and local decision making. Decentralisation should aim to combine responsibility for decision making with accountability for financial, social, and environmental consequences. Decentralisation requires access to appropriate quality of land information.

*Comprehensive planning:* This should combine the overall land use policies and the more detailed land-use regulations into one planning document covering the total jurisdiction. Presentation of political aims and objectives as well as problems and preconditions, should then justify the detailed land-use planning and the more detailed land-use regulations.

*Participation:* This should serve as a means to create broader awareness and understanding of the need for planning regulations and enable a locally based dialogue between government and citizens around development opportunities and the need for development control. Eventually, such dialogue should legitimise the local political decision making.
3.3 Land development

In more general terms, the land development process relates to converting undeveloped land into developed land. Figure 4 showing the normal change in the value of land over the development process, where improvement of land value can be divided into four phases.

In most countries, land value or property prices are determined by the market. Figure 4 shows that when development opportunities for undeveloped land such as agricultural and forestry areas are expected (phase one) then the value of the land tends to be affected accordingly. Once the land is approved for development purposes e.g. through adoption of a detailed land use plan (phase two) the land value will reflect this new land-use opportunity. In some countries this increase in value is subject to taxation since the added value is created by societal development and not by the land owner. The next phase (three) appears once the individual parcel within the detailed plan are prepared to be built upon, service fees are paid for subdivisions and for the installation of roads, water, and sewerage systems. The final phase four appears once the land is fully developed with building constructions etc. The final value of the land and the individual properties will of course vary depending on the extent, usage and quality of the building activities. This final value is eventually determined by market forces (supply and demand) and may in some cases be lower than the actual costs of development.

![Figure 4. Changes of property values as a result of incremental land use and associated development](image-url)
The property development process may be organised in different ways depending on who is in the developer’s role; this may be the land owner, a professional developer, or a public authority such as the municipality. For a specific development project, the process may include a whole range of activities and procedures such as concept design, site appraisal and feasibility study including the land acquisition/development option, detailed design and evaluation, approval of the project from planning/building authorities, contracting and construction, and, finally, marketing, management, and disposal (Ratcliffe and Stubbs 1996).

For a developer to assess the possible development potential of a property, it may be necessary (i) to determine the best possible uses to which a piece of land or property can be put in the future having regard to the planning consent (with possible conditions) likely to be granted; (ii) to estimate the market value of the land when put into this use; (iii) to consider the time which will elapse before the land can be so used; and (iv) to estimate the costs of carrying out the works required to put the land to the proposed use together with such other items involved as legal costs and agent’s commission on sales and purchase and the cost of financing the project (Britton et al., 1980).

4. PROPERTY RESPONSIBILITIES

Property responsibilities relate to a more social, ethical commitment or attitude to environmental sustainability and good husbandry. Individuals and other actors are supposed to treat land and property in a way that conforms to cultural traditions and ways of good ethical behaviour. This relates to what is accepted both legally and socially. Therefore, the systems for managing the use of land vary throughout the world according to historical development and cultural traditions. More generally, the human kind to relationship is to some extent determined by the cultural and administrative development of the country or jurisdiction.

This relates to cultural dimensions as described by the Dutch scientist Gert Hofstede, especially the dimensions of: Uncertainty avoidance, that is the preference of structured situations over unstructured or flexible ones; and Power distance, that is the degree of inequality among people accepted by the population (Gert Hofstede, 2001). These cultural dimensions determine the social and ethical behaviour of people also in relation to the way land can be held and used within a given culture. Systems of land tenure and land-use control therefore vary throughout the world according to such cultural differences.

Social responsibilities of land owners have a long heritage in Europe. In Germany, for example, the Constitution is insisting on the land owner’s social role. In general Europe is taking a comprehensive and holistic approach to land management by building integrated information and administration systems. Other regions in the world such as Australia creates separate commodities out of land, using the concept of “unbundling land rights”, and is then adapting the land administration systems to accommodate this trading of rights without any national approach (Williamson and Wallace, 2007).
5. THE LAND MANAGEMENT PARADIGM

Land management underpins distribution and management of a key asset of any society namely its land. For western democracies, with their highly geared economies, land management is a key activity of both government and the private sector. Land management, and especially the central land administration component, aim to deliver efficient land markets and effective management of the use of land in support of economic, social, and environmental sustainability.

The land management paradigm as illustration in figure 5 below allows everyone to understand the role of the land administration functions (land tenure, land value, land use, and land development) and how land administration institutions relate to the historical circumstances of a country and its policy decisions. Importantly, the paradigm provides a framework to facilitate the processes of integrating new needs into traditionally organised systems without disturbing the fundamental security these systems provide.

![Figure 5. The land management paradigm (Enemark, 2004)](image)

Sound land management requires operational processes to implement land policies in comprehensive and sustainable ways. Many countries, however, tend to separate land tenure rights from land use opportunities, undermining their capacity to link planning and land use controls with land values and the operation of the land market. These problems are often compounded by poor administrative and management procedures that fail to deliver required services. Investment in new technology will only go a small way towards solving a much deeper problem: the failure to treat land and its resources as a coherent whole.
7. THE ROLE OF FIG

FIG is an UN recognised NGO representing the surveying profession in about 100 countries throughout the world. FIG has adopted an overall theme for the next period of office (2007-2010) entitled “Building the Capacity”. This theme applies to the need for capacity building in developing countries to meet the challenges of fighting poverty and developing a basis for a sustainable future, and, at the same time, capacity is needed in developed countries to meet the challenges of the future in terms of institutional and organisational development in the areas of surveying and land administration.

In general, FIG will strive to enhance the global standing of the profession through both education and practice, increase political relations both at national and international level, help eradicating poverty, promote democratisation, and facilitate economic, social and environmental sustainability. FIG can facilitate support of capacity development in three ways:

- **Professional development**: FIG provides a global forum for discussion and exchange of experiences and new developments between member countries and between individual professionals in the broad areas of surveying and mapping, spatial information management, and land management. This relates to the FIG annual conferences, the FIG regional conferences, and the work of the ten technical commissions within their working groups and commission seminars. This global forum offers opportunities to take part in the development of many aspects of surveying practice and the various disciplines including ethics, standards, education and training, and a whole range of professional areas.

- **Institutional development**: FIG supports building the capacity of national mapping and cadastral agencies, national surveying associations and survey companies to meet the challenges of the future. FIG also provides institutional support to individual member countries or regions with regard to developing the basic capacity in terms of educational programs and professional organisations. The professional organisations must include the basic mechanisms for professional development including standards, ethics and professional code of conduct for serving the clients.

- **Global development**: FIG also provides a global forum for institutional development through cooperation with international NGO’s such as the United Nations Agencies (UNDP, UNEP, FAO, HABITAT), the World Bank, and sister organisations (GSDI, IAG, ICA, IHO, and ISPRS). The cooperation includes a whole range of activities such as joint projects (e.g. The Bathurst Declaration, The Aguascalientes Statement), and joint policy making e.g. through round tables. This should lead to joint efforts of addressing topical issues on the international political agenda, such as reduction of poverty and enforcement of sustainable development.

FIG, this way, plays a strong role in improving the capacity to design, build and manage surveying and land administration systems that incorporate sustainable land policies and efficient spatial data infrastructures.
7.1 The Global Agenda

FIG is strongly committed to the global agenda as presented in the Millennium Development Goals (MDGs) (UN, 2000). The surveyors throughout the world play a key role in attaining the MDGs through their professional functions in support of an efficient land market and effective land-use management. These functions underpin development and innovation for social justice, economic growth, and environmental sustainability. FIG is also committed to the UN-Habitat agenda around the Global Land Tool Network (GLTN) that aims to facilitate the attainment of the MDGs through improved land management and tenure tools for poverty alleviation and the improvement of the livelihoods for the poor (UN-Habitat, 2006).

The eight Millennium Development Goals (MDGs) form a blueprint agreed to by all the world’s countries and the world’s leading development institutions. The first seven goals are mutually reinforcing and are directed at reducing poverty in all its forms. The last goal - global partnership for development - is about the means to achieve the first seven. The MDGs represent a wider concept or a vision for the future, where the contribution of the global surveying community is central and vital. This relates to the areas of providing the relevant geographic information in terms of mapping and databases of the built and natural environment, and also providing secure tenure systems, systems for land valuation, land use management and land development. The work of the surveyors forms a kind of “backbone” in society that supports social justice, economic growth, and environmental sustainability. These aspects are all key components within the MDGs.

The global challenge can be displayed through a map of the world (figure 6) using the Gross Domestic Product as the scale of showing the territory size, In surveying terms, the real challenge of the global agenda is about bringing this map back to scale.
In a global perspective the areas of surveying and land administration are basically about *people*, *politics*, and *places*. It is about *people* in terms human rights, engagement and dignity; it is about *politics* in terms of land policies and good government; and it is about *places* in terms of shelter, land and natural resources.

In facing the global agenda the role of FIG – the global surveying community - is threefold: (i) to explain the role of the surveying profession and the surveying disciplines in terms of their contribution to the MDGs. Such statements should also make the importance of the surveying profession disciplines better understood in a wider political context; (ii) to develop and disseminate knowledge, policies and methods towards achieving and implementing the MDGs - a number of FIG publications have already made significant contributions in this regard; and (iii) to work closely with the UN agencies and the World Bank in contributing to the implementation of the MDGs. An outcome of these efforts relates to cooperation with UN-Habitat in developing a model for providing secure social tenure for the poorest.

FIG already shares this global responsibility and has now established a focused partnership with both the World Bank and UN-Habitat to deal with these challenges. An outcome in support of the UN-Habitat Global Land Tools Network should be ready by October 2008. This will include a special focus on
developing a model for providing secure social tenure for the poorest. Another outcome will be in the areas of capacity building and good governance in land administration in support of the MDGs to be presented at a joint FIG/WB high profile conference in Washington DC in March 2009.

8. FINAL REMARKS

No nation can build land management institutions without thinking about integration of activities, policies, and approaches. Technology opportunities provide additional motivation. Careful management of land related activities on the ground are crucial for delivery of sustainability.

Land administration systems, in principle, reflect the social relationship between people and land recognized by any particular jurisdiction or state. Such a system is not just a GIS. On the other hand, Land Administration Systems are not an end in itself but facilitate the implementation of the land policies within the context of a wider national land management framework.

Land administration activities are, not just about technical or administrative processes. The activities are basically political and reflect the accepted social concepts concerning people, rights, and land objects with regard to land tenure, land markets, land taxation, land-use control, land development, and environmental management.

Land administration systems therefore need high-level political support and recognition.

REFERENCES

BIOGRAPHICAL NOTES

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