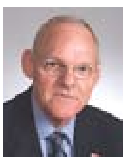
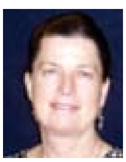
# Understanding land administration systems

**This paper introduces basic land administration theory and highlights four key concepts that are fundamental to understanding modern land administration systems. Readers may recall the first part of the paper in October issue of Coordinates. Here is the concluding part that focuses on the changing role of ownership and the role of land markets.**

**Ian P. Williamson**
Professor of Surveying and Land Information, Centre for SDI and Land Administration, University of Melbourne
*ianpw@unimelb.edu.au*



**Stig Enemark**
President of the International Federation of Surveyors, FIG.
*enemark@land.aau.dk*



**Jude Wallace**
Lawyer and a Senior Research Fellow, Centre for SDIs and Land Administration, University of Melbourne
*j.wallace@unimelb.edu.au*

**Abbas Rajabifard**
Director of the Centre for SDIs and Land Administration, Department of Geomatics, University of Melbourne
*abbas.r@unimelb.edu.au*

The rapid growth of restrictions on land in modern societies is paralleled by a change in the nature of land ownership. Nations are building genuine partnerships between communities and land owners, so that environmental and business controls are more mutual endeavors. Rather than approach controls as restrictions, the nature of ownership is redesigned to define opportunities of owners within a framework of responsible land uses for delivery of environmental and other gains. This stewardship concept is familiar to many Europeans long used to the historical, social and environmental importance of land. For these Europeans, the social responsibilities of land owners have a much longer heritage, with the exemplar provision in the German Constitution insisting on the land owner's social role. The nature of land use in The Netherlands, given much of the land mass is below sea level, presupposes high levels of community cooperation, and integrates land ownership responsibilities into the broader common good. The long history of rural villages in Denmark and public support for the Danes who live in rural areas also encourages collaboration.

The Australian mining industry provides typical examples of collaborative engagement of local people, aboriginal owners and the broader public. The Australian National Water Initiative and the National Land and Water Resources Audit reinforce the realisation that activities of one land owner affect others. The development of market based instruments (MBI), such as EcoTenders and BushTenders, is an Australian attempt to build environmental consequences into land management. Australia's initiatives in "unbundling" land to create separate, tradable commodities, including water titles, are now established and are built into existing land administration systems as far as possible. As yet a comprehensive analysis of the impact of unbundling land interests on

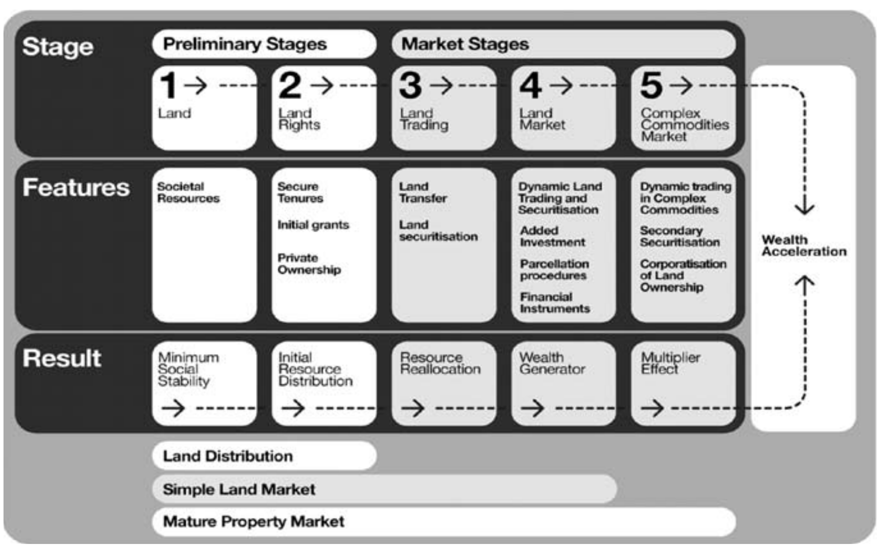



Figure 4: Evolution of Land Markets (Wallace and Williamson, 2006)

property theory and comprehensive land management is not available.

Whatever the mechanism, modern land ownership has taken on social and environmental consequences, at odds with the idea of an absolute property owner. Australia and European approaches to land management are inherently different. While Europe is generally approaching land management as a comprehensive and holistic challenge requiring strong government information and administration systems, Australia is creating layers of separate commodities out of land and adapting existing LAS as much as possible to accommodate this trading without a national approach. In these varying national contexts, the one commonality, the need for land information to drive land management in support of sustainable development, will remain the universal land administration driver of the future.

The land market of 1940 is unrecognisable in today's modern market (Figure 4). Modern land markets evolved from systems for simple land trading to trading complex commodities. New trading opportunities and new products were, and continue to be, invented. The controls and restrictions over land became multi-purpose with an increasing focus on achieving sustainable development objectives.

As with simple commodities such as land parcels, all commodities require quantification and precise definition (de Soto, 2000). While LAS have not yet incorporated the administration of complex commodities to a significant degree, these modern complex land markets offer many opportunities for LAS administrators and associated professionals, if they are prepared to think laterally and capitalise on their traditional measurement, legal, technical and land management skills

This complexity is compounded by the "unbundling of rights in land" (ie water, biota etc) thereby adding to the range of complex commodities available for trading. For example, the replication of land related systems in resource and water contexts is demanding new flexibilities in our approaches to land administration. These emerging demands will stimulate different approaches to using cadastral information.

Our understanding of the evolution of land markets is limited, but it must be developed if LAS administrators are going to maximise the potential of trading in complex commodities by developing appropriate land administration systems. Figure 4 shows the various stages in the evolution of land markets from simple land trading to markets in complex commodities. The growth of a complex commodities market showing examples of complex commodities is presented diagrammatically in Figure 5.

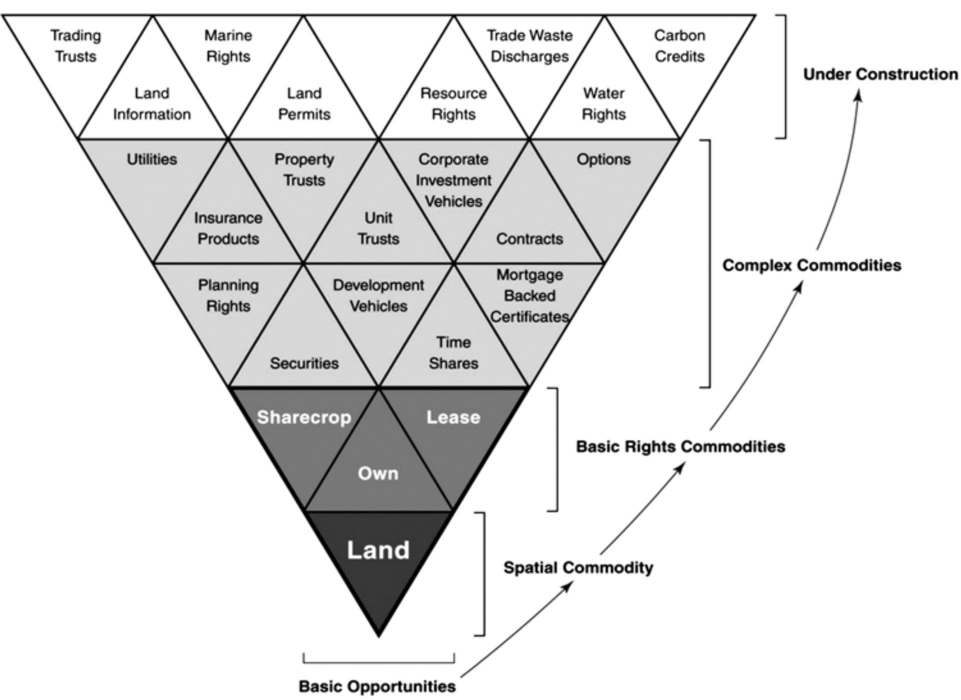



Figure 5 Complex commodities market (Wallace and Williamson, 2006).

## A land management vision

Developed countries use LAS to support their land markets and accelerate wealth creation by systematically converting land into an open-ended range of commodities, as described above. Internationally, market advancement will remain the driver for LAS change. But it should not be. Sustainable development is more urgent – economic wealth is only one part of the game. Unless countries adopt the land management paradigm informed LAS, they cannot mange their future effectively. Our argument is that planned responses to land and resources will help manage the social, economic and environmental consequences of human behaviour. Only then will nations be able to deal with the water, salinity, global warming and cooling, and land and resource access issues facing the globe.

Thus this theory of land administration assumes that resources applied to building a cadastre can pervasively improve an entire LAS, and eventually public and private administration in general, while simultaneously improving land based services to government, business and the public. Whether the question is how to set up a LAS, or how to adapt an existing system, designers need to take into account the dynamism in land, people's attitudes, institutions, technologies used, and its potential. A capacity to predict aspects of the future is helpful for managing this dynamism.

Figure 6: A land management vision that incorporates a spatially enabled land administration system and builds on the land management paradigm. This vision presents another major challenge for LAS designers - that is, for a jurisdiction to understand and accept the vision and the operation and interaction of the key components

being the cadastre, the SDI, the spatially enabled LAS. Sustainable development objectives will then be easier to achieve and evaluate. Adaptability and usability of modern spatial systems will encourage more information to be collected and made available. For governments, improved information chains will assist development and implementation of a suitable land policy framework. The services available to private and public sectors, and to community organizations, should commensurably improve.
Ideally these processes are interactive: modern information and communication technology, the engagement of users in design of suitable services, and the adaptability of new applications should increase and mutually influence each other.

The spectacular growth in spatial technologies is the basis for predicting a future for land administration in which spatially enabled governments have much more useful information on which to base their decisions about sustainable development. This future land management vision is offered to challenge those engaged in land administration and related activities, and to provide a clear direction for excellence in LAS.

## Good governance and land administration

Lastly, good governance is at the heart of good land administration.
Governance is the process of governing. Land administration is therefore essentially about good governance. The UNECE land administration principles (2005) are built on the assumption that "sustainable development is dependent on the State having overall responsibility for managing information about the ownership, value and use of land". The land management paradigm extends this connection by demanding an even wider approach to governance in land administration, in which the government builds infrastructures for management of land in addition to management of information. Thus the paradigm builds governance directly into land administration. Governance refers to the manner in which power is exercised by governments in managing a country's social, economic, and spatial recourses. It simply means: the process of decision-making and the process by which decisions are implemented. This indicates that government is just one of the actors in governance. The concept of governance includes formal as well as informal actors involved in decision-making and implementation of decisions made, and the formal and informal

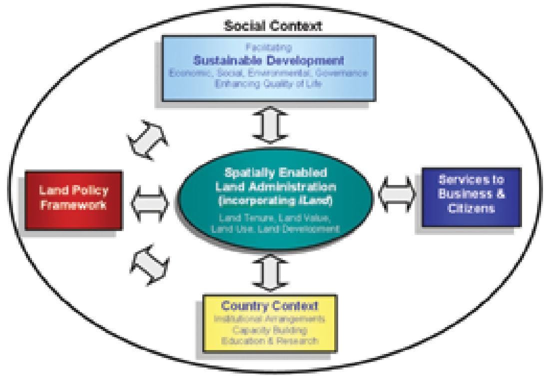


Figure 6: A land management vision

structures that have been set in place to arrive at and implement the decision.

These general considerations link land administration with governance so that land governance is seen as essential to successful nationhood and civic capacity. In its study on Good Governance in Land Tenure and Administration, FAO remarks:

"The message to land administrators is that they cannot pursue technical excellence in isolation. Their skills and techniques should serve the interests of society as a whole... Land administrators act as guardians of the rights to land and the people who hold those rights. In doing so, they act to stabilize public order and provide the preconditions of a thriving economy." (FAO, 2007).

The major international agencies demonstrate that successful land administration requires accountable government. Sustainable systems require the institutions that interact with the citizens who are its intended beneficiaries do so in ways that build their confidence, particularly by negating disputes and managing points of tension relating to land ownership, use and availability.

The major engagement should involve policy formation and implementation to ensure that the system reflects the cognitive capacity of the beneficiaries and their beliefs about land. A national capacity to create laws through legislation and subordinate legislation is also necessary for sustainable LAS. For nations on the development track, rule by law, rather than rule by elites or ad hoc responses to circumstances, is essential. These conditions apply even if the nation's administration horizon includes land held in social tenures that rely on informal systems of land management.

For successful governance, institutions need to be stable, transparent and free of corruption. Weak governance in land administration leads to massive over-regulation, production of conflicting and gap-ridden bodies of laws, standards and documents, but with little cohesion and mutual reinforcement of legal and economic norms. Sadly, LAS more often exhibit corruption in collection of fees; multiple rent seeking and unnecessary processes; delivery of multiple and ineffective titles to parcels; arbitrary allocation of land and negligible capacity for planning or controlling building quality. Repeated problems in developing countries include legitimation of mass land theft; failure to police uncontrolled evictions; inability to manage interaction between competing tenure holders especially between land owners and users and resource takers; and inability to manage state assets. Weak governance will never be able to manage the transition of the world's populations from rural areas to urban slums. Simply good governance is central to delivery of appropriate, effective and efficient land administration in both developing and developed countries.

## Conclusion

This paper argues that it is difficult if not impossible to design, build and manage land administration systems that will support sustainable development unless a there is a good understanding of the underlying theories and concepts, particularly as applied to an integrated land administration framework. The paper discusses the basic ingredients of the framework being the land management paradigm, land administration processes, the use of the tool box approach and the role of land administration in delivering sustainable development.

The key concepts that are explored in more detail to improve understanding include the land management paradigm, the role of the cadastre in land administration, the changing nature of ownership and the role of land markets, and the need for and components of a land management vision. The paper concludes by emphasizing the need for good governance as an over-arching principle otherwise all the other components will not be achievable.

## Acknowledgement

This paper draws on the collective experience and research of the authors over many years and particularly in recent years as they have worked together on a new book to be titled "Land administration and sustainable development" to be published by ESRI Press in the USA in 2009. The article also draws on the research of colleagues and graduate students in the Centre for Spatial Data Infrastructures and Land Administration, Department of Geomatics, University of Melbourne. This paper has been presented at the International Seminar on Land Administration Trends and Issues in Asia and The Pacific Region, 19-20 August 2008, Kuala Lumpur, Malaysia as part of the 14th meeting of the UN sponsored Permanent Committee on GIS infrastructure for Asia and the Pacific (PCGIAP).

## References

De Soto, Hernando, 2000, The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else, Bantam Press, London, 235 pp

Enemark, S., Williamson, I., and Wallace, J. 2005, Building Modern Land Administration Systems in Developed Economies. Journal of Spatial Science. 50:51-68.

FAO 2007, Good Governance and land tenure and administration, FAO Land Tenure Series No 9. Rome. http://www.fao.org/NR/lten/abst/lten_071101_en.htm (Accessed 5 August, 2008)

UNECE 2005, Land Administration in the UNECE Region Development Trends and Main Principles. Geneva. http://www.unece.org/env/documents/2005/wpla/ECE-HBP-140-e.pdf (Accessed 5 August, 2008)

Wallace, J. and I.P. Williamson, 2006a. "Building Land Markets", Journal of Land Use Policy, Vol 23/2 pp 123-135

Williamson, I., Enemark, S., and Wallace, J. (eds.). 2006, Sustainability and Land Administration Systems. Department of Geomatics, University of Melbourne, Australia. http://www.geom.unimelb.edu.au/research/SDI_research/EGM%20BOOK.pdf (Accessed 5 August, 2008).