

“Understanding the Evolution of Land Administration Systems in Some Common Law Countries”

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ABSTRACT

This paper will outline the evolution of western concepts of land and property, from the tribal period through feudalism, the industrial revolution, capitalism/socialism and the current Kenyesianism/Privatisation phase which leads into globalisation and other trends. Examples will be given of the interrelationship between socio-economic changes, the dynamics of the humankind to land relationship and the legal/administrative infrastructure. Such an understanding is considered essential as a basis for cadastral reform.

The paper identifies some lessons on the development of land administration systems:

- 1. The relationship between humankind and land will always be dynamic and changes at different rates across countries and regions as a result of varying economic, social and environmental pressures.*
- 2. The direction which that dynamism takes is dependent on the society's priorities. The current western trend towards tempering economic imperatives and planning decisions with more community-based concerns such as the environment and native title, is likely to lead to a new direction for land administration.*
- 3. Appropriate legal and administrative infrastructures are crucial to the process of delivering the changes demanded by society. These infrastructures include the social, legal, economic and political processes.*
- 4. The extent to which a society can successfully achieve its objectives depends in part on the tools available to achieve those aims. “We have the technology” does not mean anything until our society determines its preferred relationship with land into the future.*

INTRODUCTION

UNDERSTANDING THE EVOLUTION OF LAND ADMINISTRATION SYSTEMS
IN SOME COMMON LAW COUNTRIES

The relationship of humankind to land has always been dynamic (see Figure 1). After outlining the evolution of land administration systems in some common law countries, this paper will demonstrate that such nations are currently seeking to respond to community pressures to temper economic imperatives with environmental and social concerns such as native title.

This paper will focus on land because property in land has been the fundamental model from which other conceptions of property have grown. Land usage and land markets continue to be key considerations in economic and social planning.

The examples given in this paper will also demonstrate that policy-making needs to respond to this changing relationship by activating corresponding reforms of the legal and administrative infrastructures. Hernando de Soto [12] has commented that in the developing world, the basic ability to compete in the modern market economy is hindered by the absence or inadequacy of formal legal and administrative structures for land:

“Third-world leaders are basically facing the same challenge that politicians of western nations dealt with some 100-200 years ago: massive informality appears when governments cannot make the law coincide with the way people live and work. The difference is that today, thanks to dramatically larger populations and the communications revolution, there has been a much speedier consolidation of informal property law.” and

“In Peru, investment in property tends to increase ninefold when squatters obtain formalised title to their homes, and in Costa Rica farmers who are formally titled have much higher incomes than those who are not. Formalised titles open the door to credit. In the US, up to 70% of credit that new businesses receive comes from using formal titles as collateral for mortgages.”

If the ultimate goal of land titling is to bring more of the population into the market economy (as opposed to merely increasing the landholdings of banks) then it is worth emphasising that whilst land titling is one of the vital keys to opening up the market economy, legal and administrative infrastructures must be in place to both regulate banking practices and prepare the public for the newly-emerging credit economy. In the case of Thailand, the experience from its major land titling project (which won the World Bank Group’s 1997 Award for Excellence), was that the farmers had a traditional understanding of informal credit systems but:

“...titled and untitled farmers have almost equal access to informal credit, however, the interest rates in this sector are at least three times as high as those in the formal sector.” [14]

Legal frameworks are vital instruments in any process of change:

“Law in particular is one of the primary instruments through which the State acts to select particular institutions and types of economic organizations. The rise of the modern corporation in the US, for example, could not have occurred without active encouragement by courts and legislatures”[1]

Land administration systems and land registration in particular, are but means to an end. As Hernando de Soto stated, it is certainty of ownership that is the ultimate aim of an

effective land/titles registration system [12]. Land markets are reliant on a system of land registration that can deliver certainty. As Simpson [34] states:

“In England, and in many other countries which use English land law, land registration has nothing to do with land tax or a public inventory of ownership, but has been introduced solely to simplify conveyancing (as the business of creating and transferring interest in land is called)”.

The law plays a crucial role in manifesting policy changes. The following are some useful illustrations, presented within the relevant chronology of the major phases of humankind’s relationship with land.

EVOLVING CONCEPTS OF LAND AND PROPERTY

As Grant [15] stated in his paper on territoriality:

“Territoriality is the primary expression of social power. Its changing function helps us to understand the historical relationship between society and space. ...“Perhaps, throughout history, one of the strongest drivers for territoriality and associated expansionist claims is the desire for commercial growth...”

It can be argued that from a Western perspective, the drive for international territoriality that characterized the colonial era has been reinterpreted in modern times to the expansion of capital in the form of multi-national corporations. This ascendance of capital has tended to reduce land to simply another trading commodity, albeit a useful investment alternative to:

“...money, bonds, debentures, shares, [land], houses, paintings or antiques. All except money yield either a flow of income or direct satisfaction”. [19]

This commodification of land has extracted its price on society, as is emphasised by worldwide trends of declining real estate markets through the 1980s:

“Declining real estate values have shaken financial markets, undermined consumer confidence, and slowed economic growth around the world.” [8] and “Although such economic fundamentals as employment and income growth, construction costs, and real interest rates all contribute, speculation also seems to have driven price movements and construction levels in both the residential and nonresidential real estate markets”[8].

An examination of the development of Western thinking about the human relationship with land/property holds some lessons for developing nations.

Tribal Communities

As Marx outlined: in the ancient world, tribal property tended to be landed property and the right of the individual tended to be that of possession. Real private property began with movable property e.g. slaves. Tribal property then evolved through various stages: feudal landed property; corporative movable property (feudal organisation of trades); and capital invested in manufacture. Marx stated:

“Through the emancipation of private property from the community, the State has become a separate entity, beside and outside civil society; ...The modern French, English and American writers all express the opinion that the State exists only for the sake of private property, so that this fact has penetrated into the consciousness of the normal man.” [2]

Feudalism

Ownership in the Crown: The Normans extended and developed the feudal system after the Conquest of England in 1066. Under the feudal system, all land was owned directly or indirectly by the king. He granted use of these lands to his subjects in return for the rendering of military or other services. The tenant and his heirs were bound in feudal service even if they had subinfeudated to another party. Karl Marx commented in “The German Ideology” that:

“The chief form of property during the feudal epoch consisted on the one hand of landed property with serf labour chained to it, and on the other of the labour of the individual with small capital commanding the labour of journeymen”[2].

Power in the feudal system vested in the institutional and legal structure that were put in place by the combined interests of landholders and the state:

“...the collective power vested in the institutions of royal authority or ‘state’ would in theory function as a medium through which those holding property could acquire wide ranging influence and achieve high status...that collective power would be able to shape the institutional structures of society...”[10].

Magna Carta: The Magna Carta of 1215 in England was revolutionary for the establishment of the right to not have one’s body or land taken by the king without due process. This early document is an example of the tension that exists between the rights of the individual and the crown/state with regard to property. The authors of this paper would add that there is a further dynamic – the community’s interests – which may not be represented in the individual nor the crown.

Private ownership: John Locke’s writings in the late 1600’s focus on the dichotomy between the concepts of owning property in common as well as on a private, individual basis. He considers how there can be private ownership even though:

“God gave the World to Adam and his Posterity in common...The Earth, and all that is therein, is given to Men for the Support and Comfort of their being. And...all the Fruits it naturally produces, and Beasts it feeds, belong to Mankind in common...[T]he Earth and all inferior Creatures be common to all Men”[22].

Locke found that one of the justifications for individual ownership was that labour expended to “value-add” was sufficient justification to claim individual (rather than communal) enjoyment of the fruits of the land. Locke also argues that unless money had been invented, there would have been no sense in accumulating more than could be used. The advent of money certainly contributed to the decline of the feudal system because land was no longer the key currency.

Pierre-Joseph Proudhon’s book “What is Property” was published in 1840, a crucial point in French history. The Orleanist monarchy, in seeking to fulfill the aims of the first French Revolution, had “degenerated to a tyranny of wealth and status barely better than the Old Regime”. Proudhon’s first proposition is that:

“Individual possession is the condition of social life; five thousand years of property demonstrate this. Property is the suicide of society”[30].

That distinction between possession and ownership is not dissimilar to the modern concept that the essence of property ownership is the control of access rather than the enjoyment of access [7].

The Industrial Revolution

The Industrial Revolution came at a time of agricultural change as well as industrial invention. There were significant land management changes which led to improved productivity. The most well-known being the enclosure movement of the 1700s across Europe and the UK. This consolidated the tiny, inefficient parcels of feudal land into larger, more productive plots. In the UK, for example, about 7,000,000 acres of land were enclosed between 1760 and 1845; these were made more productive by mixed agriculture, which included crop rotation and alternating arable/pasture use [36]. This movement, when coupled with the move by landed aristocracy into industry and the demand for labour in the urban factories, again changed the relationship with land. The urban swell may be exemplified by statistics from Liverpool, whose population of 4000 in 1685 increased to 40,000 in 1760 and then 552,425 in 1881 [36]. This made it all the more important for the rural food bowl to increase productivity. Increased density in urban areas created new needs in land, land markets, land administration and property law.

These changes during the Industrial Revolution set in train a host of administrative and legal reforms vis-à-vis property and land [24]. The concepts of property began to expand considerably beyond land, particularly in the 20th Century, to include ideas such as intellectual property.

Statute of Uses: One example of legal evolution and ingenuity is the Statute of Uses. From the beginning of the 15th century, the system of uses was the means by which the Chancellor, on behalf of the King, could hear petitions for the creation of equitable interests in land. These equitable interests had the effect of depriving the Crown of feudal dues. The Crown responded in 1535 with the Statute of Uses which vested legal title in the recipient of the equitable benefit in land, and thus enabled the king to collect more feudal dues [7] & [3].

Thus the Statute of Uses proved unpopular in the beginning, but by the time of the Industrial Revolution, when the landed aristocracy wished to sell their land to raise capital, they realised that the pre-existing legal framework made it extremely difficult to convey land because of the lack of simple legal conveyancing methods and the inherent feudal tendency towards creating interests in land into perpetuity [27]. The lawyers discovered that by applying the Statute of Uses, they could transfer land and the legal obligations in a manner which traditional methods could not achieve. Later, between the late 17th and early 19th centuries, the rule against perpetuities was developed by the English courts as a compromise between the landowners' right to dispose of land at will (which arose after the decline of feudalism) and the need to prevent land being removed from the market indefinitely by way of will or grant. The Statute of Uses was eventually repealed by the 1922-1925 legislative reforms that codified and simplified property legislation – culminating in the Law of Property Act 1925 [34].

A notable consequence of the Industrial Revolution was the growing realisation of a need for some State regulation of land use by private owners. The lessons on treatment of labour, the impact on the local community and the wider environment are still issues today.

The Industrial Revolution led into the capitalism vs socialism debate which has continued to this day with varying degrees of passion.

Capitalism/Socialism

Land Markets: The existence of land markets is one of the crucial identifying features of private ownership and capitalist society. In a little over one lifetime, the Eastern Bloc has moved from private ownership to absolute State ownership and back again only to find that the Western nations have moved even further along the path into privatisation. Unified Germany is one example [32]. Each of these changes has obviously brought a need for matching development of legal and administrative infrastructures.

Torrens Systems: The Torrens System of title registration of land, as developed in Australia, is interesting because in a sense, it is an example of legal change responding to society's needs, then propelling further changes in the land markets and land administration, including surveying methods. The Torrens System was revolutionary for its ability to deliver certainty as well as a cheaper and speedier land registration. The pre-existing Deeds method required that lawyers trace the actual documents back as far as possible to determine whether there was good title to be passed on. Each transfer involved the preparation of yet another detailed legal document. Torrens had intended that the act of registration would grant title as though it had been granted directly by the Crown. However, the South Australian Real Property Acts of 1860 and 1861 used a combination of provisions that made the certificate, rather than registration only, irrefutable evidence of title in the person registered (unless of course there was evidence of fraud, error, etc) [18].

The Torrens System has been adopted throughout Australia and in other parts of the world with varying degrees of success. As Williamson discussed, the criteria for a reformed land registration are automation of the title registration system; the register should comprise all parcels of land; there should be common identifiers other than lot and plan number, such as street address; the system should be flexible enough to allow adverse possession to small strips of land [41].

It should be remembered that the Torrens System was developed primarily in response to 19th century paradigms that were driven by the imperatives of a newly-emerging nation-state with vast tracts of unidentified land. Its value in our current and future society is certainly a matter for further research and deliberation [4].

Subdivisions legislation: In addition to certainty, people increasingly seek flexibility. Post World War II has seen the development of legislation that grew to meet the people's expectations of their relationship to their land and buildings – in this case, higher density housing and subdivisions legislation.

In Victoria, prior to the Subdivisions Act 1989, subdivisions were regulated by a series of separate pieces of legislation. Each of those pieces of legislation reflected a fresh change in community attitudes to their land and property.

Initially, basic subdivisions could be carried out under the Local Government Act 1958 but these were limited to simple vertical boundaries. In response to the demand to own one's own flat, company share schemes developed based on share allocations. These were unwieldy and costly. Thus the Transfer of Land (Stratum Estates) Act 1960 was created to allow separate ownership of flats as stratum but did not overcome the problem of servicing the building as a whole. This latter issue was resolved by the Strata Titles Act 1967 which allowed the establishment of a single service company known as the "body corporate". However, the Strata Titles Act 1967 eventually proved too inflexible because people wished

to plan beyond the physical confines of the building. Thus the Cluster Titles Act 1974 came into force. The plethora of legislation was complex and clumsy. The Subdivision Act 1989 was designed to incorporate all the previous legislation into a more effective and flexible Act which regulated subdivision of land, buildings and airspace. It is expected that over time this too, will require updating to meet fresh community needs.

Similar issues have been faced in NSW, particularly in the high-density, high-value areas of Sydney where there is increasing demand among communities of residents to exert control over their surrounding environment in increasingly creative and varied ways whilst still maintaining individual ownership rights over their own dwelling. Thus the NSW Community Plans legislation arrived which allowed more flexibility to plan differing uses for various parts of common property to which different management strategies could apply.

Similar trends occurred in the US on a slightly earlier time scale, as demonstrated by the changes in the character of the real estate industry:

“A sophisticated web of institutional changes brought about a dramatic transformation in the decades after 1894: the suburbanisation of America. The transition from subdivider of raw lots to land developer to home builder to community builder was facilitated by the 1930s federal intervention that spawned a virtual revolution in housing finance...Zoning laws, subdivision regulations, deed restrictions, master highway and park plans, set-back lines, official maps, and an array of other tools became an essential component of the residential development process that was rapidly occurring at the periphery of America’s central cities”[39].

Whilst trends such as those shown by the evolution of the subdivisions legislation have been driven by an economic imperative, namely the high cost of land; the trends also reflect community concerns over the state of their surrounding environment, i.e. beyond the four walls of their own home. The growth in centralization of decision making at municipal council level has seen a complementary growth in mechanisms for citizen participation and objection [31].

It is these very pressures of space in Western urban societies that are starting to bring us full circle with increased community awareness of benefits and obligations that appear to be a reflection of the closer-knit communities in developing countries.

Keynesianism/Privatization/Environmentalism

As with many western nations, Australia’s recent shift away from Post-World War II Keynesian economic theory has been characterized by the privatization push that places state-owned utilities and services as well as key related decision-making into the hands of private owners. The fundamental belief is that laissez-faire will deliver. Yet this must be tempered by some regulation:

“States cannot abandon regulation. The task, rather, is to adopt approaches to regulation that fit not merely the shifting demands of the economy and society, but critically, the country’s existing institutional capability”[42].

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For example:

“Australia has, over the last few years, made considerable changes to the number of government services provided and to the way they are delivered. Measures have been taken to minimize government intervention and expenditure (capital and recurrent), and make more efficient use of public sector resources. Trade practices, competition policies and mutual recognition of trades, professions and occupations across jurisdictions, have all been reassessed”[23].

This shift in economic thinking also comes at a time of impassioned calls for more centralized and coordinated global action on the environment, as exemplified by Agenda 21, the seminal document that encapsulated the deliberations of the 1992 United Nations Conference at Rio de Janeiro and the 1997 United Nations Summit in Japan on Global Warming. As the World Bank stated:

“Economists have long recognised pollution to be a negative externality. Without some form of regulatory protection, the environment can become an innocent victim of bad business practices”[42].

Increasingly, the trend is to define environmental concerns more widely and to inject them earlier into the planning process. Concern for the environment was expressed in The Habitat Agenda 1996 where the section on shelter delivery programs states (at Article 77):

“To promote efficient land markets and the environmentally sustainable use of land, governments at the appropriate level should develop a legal framework of land use aimed at balancing the need for construction with the protection of the environment, minimizing risk and diversifying uses.”

How these seemingly contradictory forces will be balanced in land administration into the future remains to be seen. The following examples illustrate the progression of Western thinking towards land use options which are driven by factors which temper the short-term economic imperatives that have tended to dominate policy-making. These factors are the environmental and social equity factors.

The environmental imperative exists, whether or not there are economic rationales for facing the issue:

“Whether or not environmental limits will operate a fundamental constraint over the potential for economic development, environmental issues will demand increasing attention... Even if the developed countries were able to reform their activities in such a way as to prevent any growth in environmental impact, which is itself unlikely, it would be unrealistic to expect we could deny the less-developed countries the opportunities for raising their standards of living towards those in the richer countries... Environmental issues take up well beyond economics. But economics has a critical role to play”[20].

Low-value lands for sustainable use - A call to institutional reforms and a GIS for multi-purpose cadastres in NSW's Western Division.

The Western Division of New South Wales in Australia is an interesting example of the dynamism of land use and administration, even in consistently low-value, agricultural areas. The Western Division of NSW covers 42% of the state and is semi-arid, with low population

density and restricted production potential. In research to develop a cadastral model for these low-value NSW Western Lands, Harcombe & Williamson [17] traced the historical and legal developments that may be summarized as follows:

- Early settlement of NSW from 1788 followed the English feudal system of grants and registration by deeds.
- 1830-1884: The “Squatting Era” of unregulated occupation, accelerated by the discovery of gold deposits.
- 1860’s: the Torrens system of title registration to land.
- 1901: the Western Lands Act was introduced after a Royal Commission inquiry which was triggered by the need for financial and environmental rehabilitation following a period of severe drought and depression;

The resulting heritage may be summarized as being:

- From a survey point of view: an inappropriate cadastral survey system resulting in high survey costs compared to land value, and an emphasis on artificial boundaries established to create neat parcels rather than to be sympathetic to agricultural criteria like topography and natural boundaries.
- From an environmental point of view: issues of land degradation (erosion, woody weed infestation, salinity); declining water quality; rising production costs against low commodity prices (gross income for the Western region has declined by \$200 million in the last 5 years).

[17] suggest that these issues set the imperative for policies that consider: sustainable land-use; comprehensive integrated datasets to allow for better decisionmaking; simplified cost-effective operation of the cadastre; and clearly defined, easily relocatable parcel boundaries supported by an appropriate low cost cadastral survey system.

Resource management and indigenous rights: A call to institutional reforms and a GIS for multi-purpose cadastral systems in New Zealand

Bill Robertson, the former Director-General/Surveyor-General for New Zealand and the current President of the Commonwealth Association of Planners, stated that:

“Multiple use of land has had a history of conflicting activities and negative side-effects where strong commercial factors have dominated. This is not inevitable and indeed our massive global population now demands an integrated and environmental approach to land use...A major instrument in effective sustainable resource development management is an efficient and relevant cadastral system”[33].

The legal framework by which New Zealand sought to promote sustainable management was the *Resource Management Act 1991 (RMA)*. The RMA came into effect in October 1991, resulting in the repeal of 14 statutes, the revocation of 19 regulations and orders, and the amendment of 55 statutes. Section 5(2) of the RMA states the purpose as being sustainable management:

“... managing the use, development, and protection of natural and physical resources in a way or at a rate, which enables people and communities to

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provide for their social, economic, and cultural wellbeing and for their health and safety...”

The early sections of the Act set the scene with strong emphases on conservation, ecology, sustainable development and Maori culture. The legislation includes Maori concepts such as *waahi tapui* (sacred places), *taonga* (treasures of special value) and *kaitiakitanga* (the exercise of guardianship). The scope of enforcement orders is particularly interesting. The Planning Tribunal has a wide range of options to: prohibit or require an action; order mitigation of an adverse effect on the environment; require reimbursement of an injured party; grant dispensations; as well as change or cancel a resource consent. In the 1996 amendments to the RMA, the Planning Tribunal was renamed the Environment Court.

Robertson explained that the RMA was the product of 5 years of “participatory legislative development”. The RMA was the result of a number of factors [16]:

- the environmental attitude that developed since the 1970s;
- the confusing and sometimes conflicting plethora of statutes;
- a desire to balance economic and conservation objectives.

The RMA came in to effect in an era of institutional change and the need for GIS was confirmed with the establishment of a government agency called Land Information New Zealand.

Environmental imperatives: A call to institutional reforms and a GIS for multi-purpose cadastres in Denmark

The Danish example lends further support to the evolution of Western thinking about land. Enemark (1997) has outlined the history of Danish cadastral reform. The Danish cadastre was established 150 years ago, coming into force in 1844 as a cadastral register and a cadastral map:

“The main purpose of establishing that old cadastre was to levy land taxes, based on a valuation of the yielding capacity of the soil... Simultaneously, in 1845, the Land Registry System was established at the district courts for recording and securing the legal property rights of ownership, mortgage, etc... This way the Danish cadastre is basically a legal cadastre, maintained by the state agency, while the cadastral work is carried out by private licensed surveyors” [13].

Enemark finds that the cadastral system in Denmark today has extended beyond taxation and legal identification to play an essential role in appropriate land management which includes economic, environmental and development interests in land [13]. These new demands on the cadastral system have created the need for reform of technology (e.g. computerization) as well as reform of the legal infrastructure to allow more flexibility as well as to simplify and modernize cadastral legislation whilst harmonizing with building trends and regulations [13].

These trends towards cadastral land information systems ties in well with Denmark’s position as one of the leaders in Europe on environmental issues. Danish legislative reform such as strict liability for public and private activities that pollute or damage the environment, complements existing legislation on chemical and oil waste deposits which dates back to the 1970s. [37].

Sustainability and Environmental Democracy: A call to institutional reforms and a GIS for multi-purpose cadastral systems in Canada

Canada is another good example of a Western nation that has seen that the future of cadastral reform must be in the direction of land management:

“One of the more ambitious institutional efforts has been in the development of multi-purpose cadastral systems. These may be described as large-scale community-oriented land information systems designed to serve public and private agencies and individual citizens by: (1) employing the proprietary land unit or cadastral parcel as the fundamental unit of spatial organisation and (2) employing a local records office as the fundamental unit for information dissemination.”[9].

Environmental sustainability as well as environmental democracy, are viewed by leading Canadian commentators as the current concerns as well as the trends for the future in technological support will play a strong role, as exemplified by the land information system called the New Brunswick Land Gazette:

“The development of environmental registries over the past decade has been impressive, by any standard. A major revolution of information technology now permits wider access and more user-friendly packages. The future prospects appear to be unlimited, in terms of subject matters amenable to electronic networking, and in terms of the geographic reach of the networks”[25].

TECHNOLOGY & CIVIL SOCIETY

Land administration and cadastral systems have the potential to be changed greatly by advances in technology. As the UN Interregional Meeting of Experts on the Cadastre stated [6]:

- A National Spatial Data Infrastructure should be established to ensure a uniform approach for maximum integration and security of data, effective resource use and the development of comprehensive land information system.
- Topographic and cadastral databases should be homogenous and uniformly based on the national geodetic network to ensure future data set integration.
- Early consideration should be given to the appropriate methodology for the updating and upgrading of all cadastral systems.

Fully automated land title systems and digital cadastral or property maps are a reality. These automated systems are increasingly being seen as an integral part of a state's or nation's spatial data infrastructure. In turn, the Internet can revolutionize methods of maintaining, disseminating and accessing such data. To fully utilize these technologies there must be a clear understanding of how they will impact on and assist in implementation of the vision for the humankind-land relationship into the 21st century. The internet is one of these powerful technological tools but, as was commented in relation to dissemination of GIS data:

“The world was not ready for the Internet...The problem is that the technology was well established before the most compelling applications had been envisioned.. [5]”

Custodians of digital cadastral maps are moving away from the paradigm of data capture towards maintenance, packaging and dissemination using the Internet [12].

The advent of the Internet as a medium for cadastral data transactions has led to a great deal of conjecture about the solutions that could be produced to improve data transfers, but there needs to be a clear vision of society's needs into the 21st century. In New Zealand, there is interest in the technology but caution in practice due to uncertainty about future needs [28].

While there is great optimism about the potential of information and communications technologies in revolutionizing land administration, there is still great uncertainty as to how the technology can best be used in supporting the spatial data infrastructures which will underpin the humankind/land relationship in the 21st century.

Technological innovations such as digital cadastral databases and the World Wide Web (WWW) will be vital tools for land administration and planning both now and into the future. But technology, however impressive, is but a tool. The data which our society chooses to prioritize and maintain in those computers will be the factors which drive complex planning decisions into the 21st century. Information is power. As Wallace [38] concluded in her paper "Barriers to Cadastral Reform":

"The biggest reform is the capacity of the computer, when combined with coordinated surveying, to produce coordinated maps... Can we truly reform the cadastre and not be merely reactive sponges who must absorb new technologies but do not form their own destinies?"

If we extend Wallace's comment about forming destinies to the wider context of land administration, it is obvious that the challenge that governments and societies continue to face is to harness the vastness of society into a system of participatory decisionmaking. As the World Bank Report stated:

"People are the means and the end of development. But they have different amounts of power and resources, and different interests, all of which the state must try to respect and respond to if it is to act effectively" [42].

The general trend in the West (and now the world) towards downscaling government creates certain unique challenges for the future structure of decisionmaking. The current privatisation trend has seen government departments either replaced by private bodies or restructured to prove their worth through quality assurance schemes and improved efficiency because "the relationship between quality, productivity and international competitiveness is becoming more evident and imperative" [35]. A balance between public and private is crucial and there must be feedback loops with the community. As [42] stated in various sections:

"...the state is central to economic and social development, not as a direct provider of growth but as a partner, catalyst and facilitator" and

"States cannot abandon regulation. The task, rather, is to adopt approaches to regulation that fit not merely the shifting demands of the economy and society, but critically, the country's existing institutional capability" and
"Where appropriate, states should work to ensure broad-based public discussion and evaluation of key policy directions and priorities".

A review of New Zealand's experience under the Resource Management Act found that the private market does desire definitive regulation so that instigators of potential development projects can have sufficient confidence and clarity as to whether they have fulfilled environmental and land use planning requirements [26].

The cadastral vision as expressed by [6] was to:
develop modern cadastral infrastructures that facilitate efficient land and property markets, protect the land rights of all, and support long term sustainable development and land management.

facilitate the planning and development of national cadastral infrastructures so that they may fully service the escalating needs of greatly increased urban populations. These will result from the rapid expansion of cities that is already taking place and which is projected to continue into the 21st century.

As the above country case studies illustrate (particularly the Canadian and Danish examples), technology can be a useful tool in broadening access to information and, with the right administrative infrastructure, facilitate wider participation in decisionmaking. [40] found that in:

“Recognizing the importance of SDIs in promoting economic development and environmental management, governments in Australia are committed to establishing and maintaining SDIs at both state and national levels...The traditional state land titles activities (textual databases), through their close relation with the DCDB in the land administration process, have also become key components of SDIs.”

Current efforts to achieve a seamless cadastre have been deemed essential for implementing effective strategies for land (and sea) administration [21].

CONCLUSION

The above discussion on the evolution of the Western land administration systems reveal:

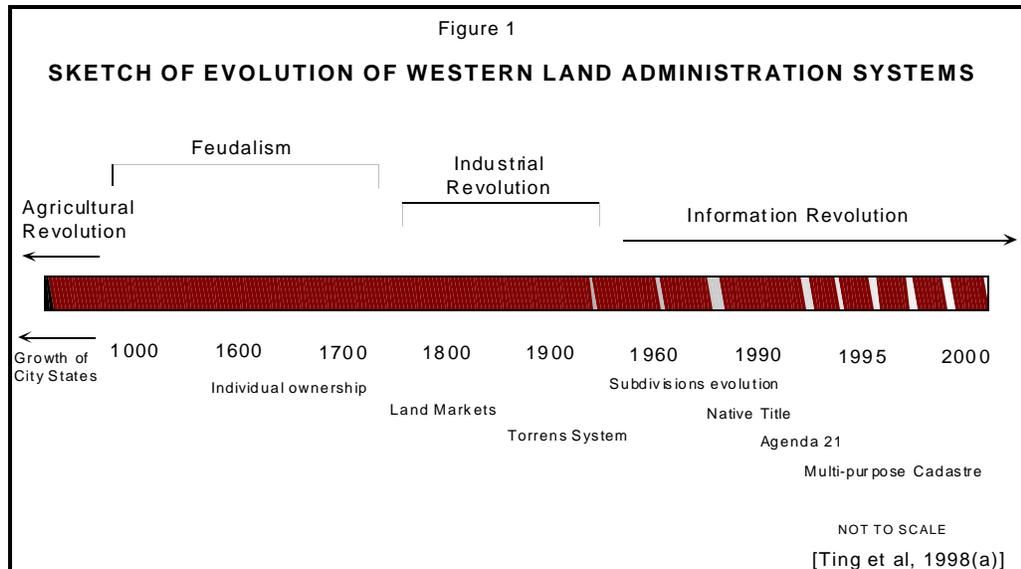
1. The relationship between humankind and land is and always will be dynamic. Such dynamism will differ in the same era across regions due to varying economic, social and environmental pressures. The current trend is towards tempering short-term economic imperatives with environmental and social imperatives. In some respects, it appears that in coming to terms with layers of rights/obligations in higher density living arrangements, western society is coming full circle as the approaches of indigenous communities to land rights and obligations begin to find their way back in community plans of subdivision and of course native title.
2. The direction which that dynamism takes is dependant on the priorities set by the society. The Industrial Revolution brought profound social, economic, legal and administrative changes which had a lasting impact on land administration. Currently, the world is experiencing an Information Revolution as well as a privatisation process which has seen government roles privatised in entirety or outsourced, whilst remaining government departments' decisionmaking is increasingly driven by principles of quality assurance, competitiveness and a growing liability. It will be interesting to follow the tension between these and the environmental and social imperatives as well as the desire to attain higher levels of civil society.
3. Effective and appropriate legal and administrative infrastructures are crucial to the success of land administration policies. There is no magic formula. The relevant legal and administrative frameworks extend well beyond land laws to the full and varied contexts of social, economic, and political processes.
4. The extent to which a society can successfully achieve its objectives in land administration depends in part on a complex interrelationship between institutional management issues

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and the available tools and technology. The Industrial Revolution saw the invention of electricity, machinery and a mobile workforce. Today's computer technology has the capacity to store, process and deliver vast amounts of data. What types of data, how data is managed and accessed, and privacy are issues yet to be fully explored and resolved. Ideally, the types of data maintained will reflect community imperatives. It is interesting that the determination of community imperatives requires processes to facilitate greater community participation. The achievement of increased participation is facilitated, at least in part, by the technology, particularly the Internet.

In summary, the humankind/land relationship has always been dynamic. Whilst the economic imperative will continue to be a significant driver of change, Western society has started to see an increased concern with what have traditionally been termed "social" concerns that have found grounding in the political agenda e.g. the environment and native title. The environmental concerns have recently found economic validity in the sustainable development movement. Much of the vision on land administration is made attainable by a vital synergy that has already started to form between land data and information systems technology. It should also be flagged that the mainstreaming of all the above as well as the public/private decision making process, will be influenced if not propelled by the globalization process.

For any jurisdiction considering cadastral reform, an understanding of these trends and issues in land administration is essential.



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ACKNOWLEDGEMENTS

The authors wish to gratefully acknowledge Land Victoria and the Land Information Centre of NSW for assisting in supporting the preparation of this paper and the associated research. However, the views expressed in the paper are those of the authors and do not necessarily reflect the views of Land Victoria or the Land Information Centre of NSW.