Land Administration and Cadastral Trends:
The Impact of the Changing Humankind-Land Relationship and Major Global Drivers

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ABSTRACT

This paper is the first part of a two-part series that overviews past trends in the dynamic humankind-land relationship and considers what current trends and global drivers could mean for future land administration and cadastral systems.

The aim of this paper is to discuss some of the current forces of change on the humankind/land relationship and why an increasingly integrated approach to land administration and management is imperative. An overview of the past forces of change on land administration is discussed to demonstrate the dynamic nature of the humankind/land relationship. Particular attention is given to major global drivers such as sustainable development, globalisation, micro-economic reform and the information technology revolution. The potential impact of these current forces (particularly sustainable development), on the institutional, legal, political and technological frameworks of a nation, is discussed. New Zealand, which has undergone considerable micro-economic and legislative reforms since the mid-1980s, is used as an illustration of trends and the imperative for a more integrated approach to land administration across those frameworks.

Keywords and phrases: humankind/land relationship; land administration; sustainable development; micro-economic reform; globalisation; information technology revolution; New Zealand.

1.   INTRODUCTION

This is the first of a two-part series that will examine past and current trends in the humankind-land relationship and how current forces of change are likely to influence land administration systems into the future. This paper will outline the dynamic nature of the humankind-land relationship and discuss the current major drivers of change with New Zealand as a case study. The second paper by Williamson and

Ting (1999) will proffer a vision for land administration into the future and look at the issues in re-engineering current land administration and cadastral systems to better meet the needs of the next millennium.

One of the most important influences on the development of land administration systems is the changing relationship of humankind to land (Figure 1), a relationship which has always been dynamic. In the feudal era, when land equaled wealth, the

Figure 1.Outline of evolution of western land administration systems
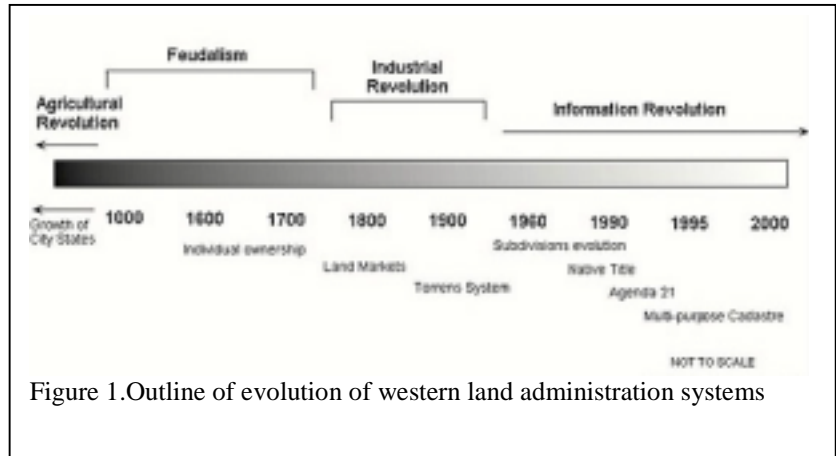
legal and institutional systems were geared to tying landowners and their future generations as closely and perpetually as possible to their land. Land sales were possible, but uncommon. The ultimate owner of the land and the people ("the subjects"), was the sovereign. It is just over 200 years ago that land markets, as we now know them, developed. The Industrial Revolution and growth of modern cities drove land market development. The rise of capital resulted in the need to reduce land to a tradeable commodity. This in turn saw the development of land administration systems such as the Torrens System to facilitate land markets. In simple terms the cadastre evolved in response to these demands from society (Ting and Williamson 1999).

Although individual Western countries have experienced change at different rates, some major phases of the relationship between humankind and land can be identified. These phases may be broadly attributed to the major phases in Western society's evolution: the agricultural, feudal, industrial and information revolutions. These phases are discussed in the following section.

The paper then focuses on some key international drivers for change in land administration systems, namely sustainable development, globalisation, micro-economic reform and information and technology influences.

Finally New Zealand is used as a case study to evaluate the impact of these global drivers on its land administration system.

2.   THE CHANGING HUMANKIND TO LAND RELATIONSHIP

The dynamic nature of the humankind-land relationship is well-illustrated by the evolution of Western land administration systems. The Western experience may be broadly categorised into four major phases (Figure 2). A key point to note is that these changes were cumulative in nature.

2.1   Land as Wealth and Cadastre as Basic Record and Fiscal Tool

In the early stages of human settlement, land was undisputedly the primary source of wealth and power. In that context, cadastre's primary function was as a record of ownership and as a fiscal tool. The earliest records of land ownership date back to the Royal Registry of Ancient Egypt that was created in about 3000BC (Larsson 1996).

Power in the feudal system vested in the institutional and legal structures that were put in place by the combined interests of the sovereign and landholders (Davies and Fouracre 1995). The king owned all land directly or indirectly and he granted use of these lands to his subjects (and their heirs) in return for the rendering of military or other services. (Ting, *et al.* 1999). The Normans extended the feudal system after the Conquest of England in 1066. The Domesday Book was created to develop a land register (there were no maps) for fiscal purposes (feudal dues) and as a record of the territory of the kingdom. The remnants are evident in modern-day England where "tenancy" on land continues to be classified freehold or leasehold. The philosophy behind the establishment of fiscal cadastres throughout continental Europe in the early eighteenth century was the Physiocrat movement which held that land was the basis of all wealth and therefore land tax would be the basis for raising funds to maintain society (Henssen 1975).

The foundations of modern European cadastre were laid in 1807 when Napoleon Bonaparte ordered the creation of maps and cadastral records across France, arranged by parcel numbers, area, land use and land values per owner.

Accurate cadastral records were important to prove ownership of land, which in turn earned substantial privileges such as citizenship. Aristotle and Plato in the thirteenth and fourteenth centuries (Manville 1990:94-96) maintained that "It is the ownership of property which confers full citizenship since it is property which meant that the citizen did not require manual labour to survive; the propertied citizen could thus devote himself to public service without the distraction of labour" (Turner 1986:14). The de-linking of property and citizenship did not fully develop until the twentieth century (Heater 1990:167-170).

These basic record-keeping and fiscal tool rationales continued to be the basis for cadastral records until the Industrial Revolution added other rationales.
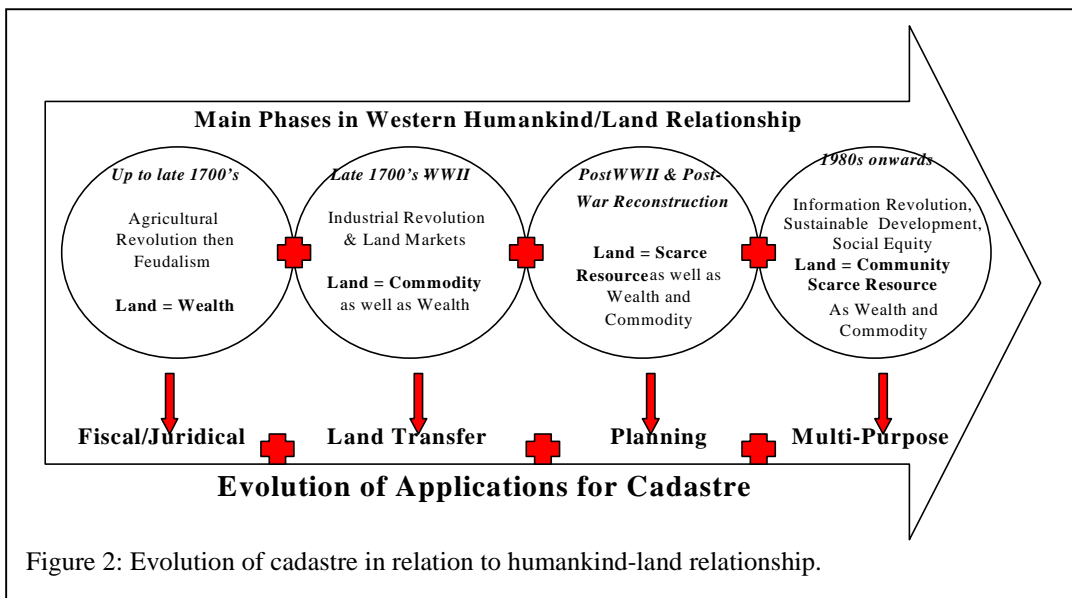

Figure 2: Evolution of cadastre in relation to humankind-land relationship.

2.2   Land as a Commodity and Cadastre as a Land Market Tool

The Industrial Revolution was signaled by agricultural change as well as industrial invention. The rise of capital usurped land's position as the primary source of wealth. This in turn created an additional function of the cadastre as a tool to support the growth of land markets and land transfer processes.

The emphasis moved away from the physical ownership of land to the conversion of land to capital for mobility of assets. The land administration and property law systems, which were designed to preserve attachment to land into perpetuity, became too cumbersome, necessitating the creative re-interpretation of existing instruments such as the Statute of Uses.

Deeds of ownership became the cornerstone of the land market. Cadastral records, including deeds, served as proof of ownership that in turn established the necessary trust to transact the sale of land.

In Australia, the Torrens System of registration of ownership suited 19th century paradigms of a young country such as Australia with large tracts of unsurveyed and untitled land. It is an example of legal change in response to society's needs, that propelled further changes in the land markets and land administration, including surveying methods (Ting, *et al.* 1999). The Torrens System was revolutionary for its ability to deliver certainty as well as cheaper and speedier land registration. Together with the government guarantee of accuracy, the Torrens system greatly assisted the development of the land market and fulfilled colonial society's desire to rapidly settle the vastness of Australia.

In short, cadastre then existed to facilitate land transfers (land markets) as well as serving the purposes of recording ownership and land taxation.

2.3   Land as Scarce Resource and Cadastre as Planning Tool

The post WWII reconstruction period and subsequent population boom saw the need for better spatial planning, particularly in urban areas. There was an increased need for land administration laws and systems to address broadacre subdivisions, alienation of Crown lands, land reform and re-distribution and ownership of space in three dimensions (strata title).

The growth of satellite cities with higher-density housing and the increasing pressure on infrastructure by the sheer numbers of the urban populations necessitated better urban planning. Regulation of land use in the community aimed to provide public amenities, minimizing spillover effects on contiguous land and increase efficiency by guiding development and redevelopment of land (Courtney 1983: 153).   The cadastre, as the record of land parcels and registry of ownership, became a useful tool (when teamed with large-scale maps) for city planning and the delivery of vital services like electricity, water, sewerage and so forth.

Planning was added to the pre-existing applications of cadastre.

2.4   Land as Scarce Community Resource and Cadastre as Land Management Tool

The 1970s saw the rise of concerns about the population boom exceeding food production. As today's society faces continuing resource scarcity, the imperative to better manage and plan land use in urban and rural (agricultural) areas, gains urgency. Concerns about the environment, sustainable development, social equity (indigenous and women's rights) are evident from international instruments as Agenda 21 and the Habitat II Global Plan of Action.

The information revolution has great potential to support the complex decision-making demands of sustainable development. The more difficult hurdles are the fundamental legal and institutional reforms necessary for data-sharing and also managing the usual access/privacy tensions in the community, private sector and government (Ting and Williamson 1998).

Multi-purpose cadastres must increase the complexity and inter-operability of data sources to fulfill its fiscal, land transfer and land management roles (NRC 1983).

The following section discusses the global drivers that are influencing the transition from the second-last to the last phases in Figure 2. New Zealand is then used as an illustration of the impact of these global drivers on the development of the legal, institutional and political/economic environment that in turn have impacted on the land administration and cadastral systems.

3. THE INTERNATIONAL DRIVERS OF CHANGE

The following is an overview of the main drivers for change at an international level that have been broadly identified as sustainable development, globalisation, micro-economic reform and technological reform. Although these drivers are focused on separately, the discussion of them shows that they impact on each other and so are not mutually exclusive and do not exist in isolation. The impact of humankind on land is the tension that lies at the heart of the struggle for sustainable development. Whilst this paper does focus on sustainable development as both a driver and an objective in the current humankind-land relationship, an understanding of the other global forces is important in order to develop a framework to facilitate consideration of the substantive components of the popular rhetoric for a "holistic" approach. This framework and the resulting substantive components are considered worthy of encapsulating in a new declaration on land administration infrastructures for sustainable development. This is to be developed in Bathurst by a group of experts organised by the United Nations (UN) and International Federation of Surveyors (FIG) in October 1999 and to be presented at an international conference in the following week.
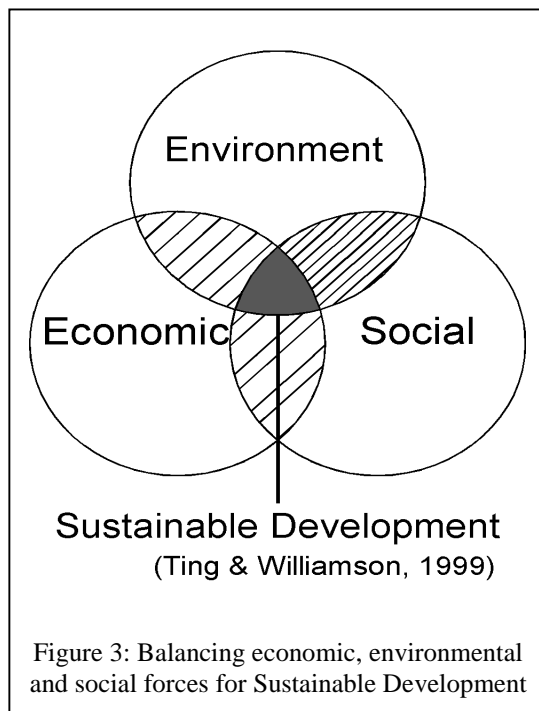
3.1 Sustainable development

Sustainable development will continue to be a driving force in land administration policies developed in the decades ahead. Even though sustainable development has been the catchcry across the globe since the mid-1980s, the implementation of seminal documents such as Agenda 21 from the United Nations (UN) Environment Summit and the Habitat II Global Plan of Action arising out of the UN Cities Summit, has fallen short of expectations.

Sustainable development means development that effectively incorporates economic, social, political, conservation and resource management factors in decision-making for development. The challenge of balancing these competing tensions in sophisticated decision making requires access to accurate and relevant information in a readily interactive form. In delivering this objective, information technology, spatial data infrastructures, multi-purpose cadastral systems and land information business systems will play a critically important role. Unfortunately modern societies still have some way to go before they will have the combination of legal, institutional, information technology and business system infrastructures required to support land administration for sustainable development.

Globally, trade and environmental issues have increasingly become inter-linked:

> "After more than a quarter of a century of activism, the environment is firmly ensconced as both a national and international priority. Economic systems will be judged by how they respond to the wide range of environmental concerns, and they will be compelled to find further improvements and new solutions." (Yergin and Stanislaw 1998)

Sustainable Development
(Ting & Williamson, 1999)

Figure 3: Balancing economic, environmental and social forces for Sustainable Development

For the purposes of this work, the definition of sustainable development is derived and extended from the Brundtland report's definition to mean: development that effectively incorporates economic, social and environment factors within a framework of institutional, political, legal and technological systems conducive to decision-making. These economic, social and environmental forces need to balance against each other to create an "intersection" condusive to sustainable development. These are shown schematically in Figure 3.

The tensions between these forces will always exist and it is well accepted that they do influence one another to varying degrees. For example, the environment force (particularly in some Western countries) has influenced people's lifestyles to make them more "green" which translates into behaviour such as the desire to recycle and to value forests and natural landscapes. These behaviours also have an economic dimension such as purchasing choices that drive manufacturing, packaging and advertising behaviours.

The fiercest tension is between the environment and economics. "Economics" is often treated as synonymous with "development". There are numerous examples around the world, particularly in developing countries, where the force of economics

dominates over the environment in what has been described as "converging crises" (Miller 1991).

There is a dynamic relationship between these forces and there are various frameworks that have the potential to give expression to as well as obstruct their impact. These frameworks may be described as:

- Institutional
- Legal
- Economic
- Political
- Technological

Since sustainable development is made up of a holistic balance between all these forces and the frameworks that have the potential to facilitate such balance, it is useful to examine the dynamics at work in each of these components. The case study of New Zealand is a useful illustration.

3.2   Globalisation

Globalisation means the process of increasing interconnectedness between societies and jurisdictions from a social, economic and political perspective, such that events in one part of the world have increasing potential to impact on peoples and societies in other parts of the world:

> "Globalisation, privatisation and liberalization have become dominant forces shaping societies and economies the world over. With the fall of communism and the decline of socialism in most parts of the world, these processes have accelerated in the 1990s." (Rao 1998)

It can be further confirmed that:

> "Globalisation is not occurring in a vacuum. It is part of a broader trend that we may call marketization. Receding government, deregulation, and the shrinking of social obligations are the domestic counterparts of the intertwining of national economies...the broader challenge for the 21st century is to engineer a new balance between market and society...the tensions between globalisation and social cohesion are real..." (Rodrik 1997).

The global village is becoming a reality. However, this is a process and it has been argued that:

> "Communications, travel, and trade are now less restricted by national borders than at any time in the past. However, closer examination of the flow of capital, trade relationships, and income levels reveals strong regional patterns of development....Beyond the Western Hemisphere, a realistic assessment of other regions provides little, if any, evidence of global development." (Johnson 1991)

It may also be argued that regionalization is only a stage in the continuing process towards globalisation. The big challenge is for individuals, societies and countries to fully participate in this global revolution. The achievement of globalisation is made possible by another global driver: information technology (and communication technologies). The WWW is the most graphic example of this trend, since it is improving interconnectedness between and within individuals in a way never believed or dreamed possible, even a decade ago. It is a pattern of events that has changed the nature of world order. The challenge is to deliver equity as well.

Within this era, there is an emerging global policy, with multinational social and political movements and the beginnings of a sharing of allegiance from local or state across to national, regional and international bodies. Globalisation is a new stage in world policy that will assist in improving the quality of lives of people by thinking, working and cooperating together on common concerns.

There are many factors that encourage people to work together as part of globalisation. These factors include:
- synergy of information, technology and access, which effect each other;
- expanding global interdependence;
- increasing emphasis on sustainability; and
- increasing focus on the individual in areas such as health, personal rights, privacy, quality of life, recreation, etc.

Concerns with the trade globalisation process have also triggered documents such as the UN's *Global Compact* which acknowledges that multilateral engagement and open markets spurred growth and development in the decades since 1945. However, there are concerns about how the spread of market forces outpaces the ability of societies and their political systems to adjust effectively. It recommends action on two fronts:
- renewing a commitment to openness and inclusion; and
- finding new ways to embed global market forces in universally shared social values, thereby allowing all countries and cultures a sense of ownership in the global economy. (UN 1999)

Globalisation and the internationalization of issues have seen the establishment of a new world order through legal methods such as treaties and covenants, as well as institutional methods e.g. regional defence and trade organizations. A simple survey can be conducted via the UN home page that has links to the broad categories of: Peace and Security; Economic and Social Development; International Law, Human Rights; Humanitarian Affairs. The Economic and Social Development home page in turn has separate links to: Environment, Human Rights; Human Settlements; Narcotic Drugs; Population; Prevention of Crime; Social Development; Sustainable Development; Trade and Women. Each of these has further links and information on international agreements, declarations and even institutional structures for implementation.

Specific international instruments developed within and beyond the UN have gained broad acknowledgment if not wide-ranging influence in national agendas for change. Excellent examples would be Agenda 21 and the General Agreement on Tariffs and Trade (GATT).

By understanding globalisation and its social, economic and political impact on our society, we are in a much better position to develop appropriate land administration strategies that deal with global trends such as environmentalism and privatisation, without losing local involvement and social cohesion. With this in mind, many countries throughout the world believe that they can benefit from better management of land by taking a perspective that starts at a local level and proceeds through state, national and regional levels to a global level. In some cases this is being facilitated by the development of the Spatial Data Infrastructure concept with a hierarchical relationship between these different levels.

3.3   Micro-economic reform

As discussed above, globalisation has had significant impact on national political, economic and social spheres. Micro-economic reform motivated by the market and privatisation ideology has become one hallmark of globalisation. As Yergin and Stanislaw conclude in their study of the impact of privatisation across the world:

> "The move to the market is beyond doubt a global phenomenon. It draws on a stock of ideas and recent experience shared around the world. The processes of change – particularly privatisation, deregulation, and trade liberalization – are largely common ones, refined over time to a professional craft by their political champions and expert practitioners." (Yergin and Stanislaw 1998)

Micro economic reform based on privatisation/market ideologies has driven legal, institutional, political, economic and social change in many countries. This has undoubtedly had an effect on land administration systems.

In Australia, for example, these reforms have impacted on all levels of government and have resulted in the now common activities of downsizing, privatisation, cost recovery, performance contracts, quality assurance, and the list goes on. In the State of Victoria, Australia for example, an important element of the reform had been the restructuring of government departments (based on the funder-provider model) to sharpen their focus on core business or service delivery objectives and improve cost efficiency. This is to ensure that management decisions take account of the full costs of service delivery (Williamson *et al*.1998). Interestingly the funder-provider model is now being increasingly criticised.

Another important component of micro-economic reform in Australia has been the National Competition Policy introduced by the Federal Government in 1993. All State governments agreed to implement this policy in 1995. The Victorian State Government also committed itself to the introduction of competitive neutrality principles to both government-owned businesses and predominantly tax-funded government services. The principles of competitive neutrality aim to ensure that government businesses and services do not enjoy any net competitive advantage through immunity from taxes, regulations, debt charges, and in general, full cost attribution (Williamson *et al*. 1998).

The result of all these initiatives has been a dramatic change in the structure, mandate and operation of the government, private and academic sectors in Australian society.

These changes have had a very large impact on the land administration environment. For example, the amalgamation of the Surveyor-General's Office, the Titles Office and the Valuer-General into Land Victoria, was accelerated by the growing recognition at all levels of government that land administration and more specifically appropriate spatial business systems and associated spatial data infrastructures, are essential components of any modern economy.

It is also vital to acknowledge the dynamic tensions between the market, government and environmentalism and the challenges that these pose now and into the future. (Gray 1993).

3.4   Information Technology

Agenda 21 states as a goal at 35.12 (l): Support development of new user-friendly technologies and systems that facilitate the integration of multidisciplinary, physical, chemical, biological and social/human processes which, in turn, provide information and knowledge for decision makers and the general public.

While this is international recognition of the importance of new technologies for sustainable development, the reality is that new technologies and particularly those related to information and communication technologies, have certainly dictated major changes in the development of land administration systems over the last couple of decades. For data capture some examples of the new technologies include satellite positioning systems such as the USA's Global Positioning System (GPS), remote sensing technologies and especially the new high-resolution satellite imagery. As Ernst Braun concluded:

> "Technology is a many-faceted wayward creature. It is of society, yet much of its activity seems to be concerned but with itself." (Braun 1984)

The data base technologies that affect the storage of very large data sets have had a major impact on the development of land information systems and especially the impact on managing large spatial databases and data warehousing. The GIS technologies for data management, manipulation, analysis and integration arguably have had the greatest impact on the spatial information environment, although in the future the communication technologies such as the WWW are rapidly becoming the focus of attention for the management of land.

It is also important to note that there is no level playing field when it comes to access to technology which in turn means access to modern information sources and analysis techniques. Whilst there is general understanding of the existence of this divide between developing and developed countries, it is important to understand the divide at local and national levels. Information technology is a vital tool in the complex decision-making processes of the future, particularly for sustainable development. By the same token, informed participation at local levels, has also been identified as vital to sustainable development. So, this divide is worthy of attention. In the USA, which is one of the wealthiest countries in the world:

> "18% of African-American and Hispanic households and up to 80% of native American households, do not have a telephone...not to mention a personal

computer...Power is power, and information is particularly useful to those who are in power." (Bereano 1995)

The flip side of access issues is the problem of privacy. A submission to a federal parliamentary inquiry revealed that existing privacy laws failed to cover hundreds of government organisations, including those with access to personal information on a compulsory basis. Some councils had already sold ratepayer details to companies, providing an instant database of customers (Luff 1998). Whilst reform of legal mechanisms may be commendable, the speed and reach of information technology, particularly the Internet, and breaches of such laws or guidelines can have much further-reaching (and less traceable) effects than was the case with the print media (Ting and Williamson 1998).

Simply put, in this information revolution era, effective decision-making is the manifestation of information power (Ting and Williamson 1998) and this clearly applies at local, national and global levels.

4. A CASE STUDY OF NEW ZEALAND

The purpose of this case study of New Zealand is to illustrate the dynamic human-kind-land relationship and the impact of the global drivers. By taking sustainable development as a focal point, the tension between the forces of environment, economy and society is explored in the context of an overview of the legal, political/economic, institutional, and technological frameworks.

4.1 Background

New Zealand is a cluster of three islands in the South Pacific. It is geologically young and has diverse vegetation and terrain. The country is blessed with amazing natural beauty. New Zealand is sparsely populated with a population of about 3.8 million people. The first human inhabitants (Maori) only arrived in New Zealand in the13th Century. Europeans arrived in the eighteenth century. The top exports are agricultural products, particularly meat and dairy products.

In its status report to the UN Department for Policy Coordination and Sustainable Development in 1997, the New Zealand Government stated that "With the passing of the Resource Management Act (RMA) in 1991 and the adoption of Agenda 21 at Rio in 1992, New Zealand is formally committed to promoting the sustainable management of natural and physical resources as a guiding policy principle. The RMA, supported by a variety of other laws and policies, is the basis on which sustainable development can be achieved." (NZGovernment 1997)

This is one manifestation of the dramatic impact that globalisation has had on New Zealand. Although Agenda 21 post-dates the RMA, New Zealand has made a conscious commitment to implement it.
On the trade front, GATT has had very significant impact. New Zealand was one of the first countries to dismantle its tariffs and subsidies systems, with dramatic effect on farmers and therefore the socio-economic-political fabric of New Zealand. When it comes to issues of land administration and land use in particular, this can have significant implications. For example, thinking at the international level has moved to consider non-tariff barriers such as poor environmental standards, as a cost to be

factored into the trade balance formula between countries. As a country reliant on agricultural exports, New Zealand is a useful example to study.

4.2 Sustainable Management vs Sustainable Development in New Zealand

The RMA's purpose is "sustainable management" which means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety while –
a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the foreseeable needs of future generations; and
b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and
c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Although one of the chief architects of the RMA, Sir Geoffrey Palmer, stated that "the key concept is sustainable development" (Palmer 1999), the government adopted the recommendation of the Review Group on the Resource Management Bill: that it is inappropriate for (the RMA) to include such goals as social inequities and global redistribution of wealth (Environment 1998).

Since this paper is primarily interested in sustainable development, it will explore whether and how the RMA and the other frameworks interact to ultimately deal with sustainable development.

4.3 Legal Framework

The RMA is the jewel in the crown of New Zealand's legislative commitment to sustainability, albeit focused on sustainable management of resources, which deliberately limits the development/economic dimensions. The Environment Court has ultimate jurisdiction to hear cases arising from the RMA but the focus is on local government processes.

The RMA, which pre-dated Agenda 21, sought to give effect to the fundamental principles expressed in international instruments such as the Stockholm Declaration 1972 and the Brundtland Report 1987 i.e. sustainable resource use and integrated resource management. The RMA is an example of how the global sustainable development objective could influence the legal, economic, institutional and social fabric of a nation.

The RMA's role in the legal framework for change is notable from several perspectives:
- From a resource management perspective, it is notable for its integration philosophy exemplified by the integration of air, water and soil policies.
- From a statutory perspective, it consolidated over 50 statutes into one act. The other complementary statutes are the Reserves Act 1977, Biosecurity Act 1993 and the Hazardous Substances and New Organisms Act 1996.
- From an institutional perspective, it capitalized significantly on the local government reforms of 1989, which consolidated over 700 local authorities and bodies into 12 regional councils and 74 territorial authorities and devolved

power to them. This was part of the radical micro-economic and public sector reforms of the late 1980s as explained in the following section.

- From a socio-political perspective, community consultation (especially Maori) was a strong feature of the RMA and the Local Government Act 1989. Also, the RMA was passed by a parliament that had strong elements of the New Right as well as the environmentalists.
- From a socio-economic perspective, it influenced the procedure for and extent to which resources could be exploited and encouraged the debate about private and public "goods".

4.4   Economic (and political) Framework

As any basic textbook in economics would teach, the political framework is a strong determinant of the economic framework. Whilst many Western countries have seen the environment gain prominence on political agendas, the impact on the economic frameworks has taken more time. A good recent example of the political prominence of the environmentalists (the "greens") in Western countries is the fact that 2 out of the 7 political parties in the European Union have staked their existence on a "green" platform. They are the Greens/European Free Alliance and European United Left-Nordic Green Left (EuropeanParliament 1999).

(i)   The New Right and Micro-Economic Reform in NZ

New Zealand faced an economic crisis in the mid-1980s that precipitated the rise of the New Right. Economic growth between 1976 and 1984 totalled only 1.15% per annum and annual inflation was 12%, with government net debt rising from 9% in 1976 to 41% by 1985. The government that preceded the radical reforms of the mid-1980s had used increasingly interventionist methods that failed to arrest the crisis (Scott 1996).   Needless to say, the New Right is anti-interventionist and revolutionized government with output appropriation philosophies. In a phenomenon experienced by other Western nations, the New Right gained prominence almost in parallel with the rise of the "greens":

> "Today, many Western societies face a new socio-political antagonism between economic growth, often championed by a resurgent form of liberalism in many Anglophonic countries (the "New Right"), and ecological protection, advocated by environmentalists. In the sphere of planning at least, New Zealand claims to have resolved the apparent paradox between environmentalism and economic growth through the formulation of a new resource management statute." (Memon and Gleeson 1995)

(ii)   Consultation: Cornerstone of Civil Society

Agenda 21 states at 8.3 that "the overall objective is to improve or restructure the decision-making process so that consideration of socio-economic and environmental issues is fully integrated and a broader range of public participation assured". The challenge though, is to create a level playing field of access to information and resources to analyze and lobby.

In order to encourage full public participation, the RMA took the revolutionary step of doing away with the issue of "standing". The RMA provides that "any person

having any interest in the proceedings greater than the public generally" may appear and give evidence at the proceedings. Thus, non-New Zealanders could (and did) initiate objections and appeals even at local council level and take part in consultation processes for production of district/regional plans and so on. This highlights an interesting tension even within Agenda 21, of advocating the global nature of the environment, whilst still seeking to strongly encourage local action and ownership of the process.

Maori: Maori Customary Land may be described as all land in New Zealand that has not been transferred into freehold titles by the Maori Land Court, or ceded to the Crown (Asher and Naulls 1987) .

The RMA was the first piece of legislation to statutorily require consultation with the Maori. Essentially, Maori decision-making is strongly decentralized. For example, the Ngai Tahu who are recognised as having jurisdiction over two thirds of the South Island, have a central body of statutory force called Te Runanga o Ngai Tahu (TRONT). However, the individual *runanga* or clans, consider that TRONT shall only have what powers they decide to give them on a case-by-case basis.

In interviews with local authorities, there was a growing realization that there must be structures in place to better connect with Maori on their terms and therefore with their culture. The methods employed included:
- appointment of a Maori liaison officer
- payment to Maori groups to cover time spent on research and consultation
- leaving it to consent applicants to contact and negotiate with Maori groups
- any combination of the above

The key challenge is that although there has been much talk about biculturalism there has been no definitive government statement on it (Boston*, et al.* 1998), and when coupled with an ongoing Treaty of Waitangi process, the degree of acceptance of *kaitiakitanga* (Maori guardianship of land and resources) is diverse.

Farmers: A key background point to understand is that until recent times, farmers held strong political influence by virtue of the fact that New Zealand's wealth was so agriculturally dependant. Prior to the local government restructuring in 1989, they had strong representation at the local authority level as well as with central government. The lifting of subsidies since the late 1980s was in direct response to the globalisation of trade.

In some districts, farmers felt alienated from local authorities and uninvolved in the district plan processes. The most dramatic reaction was in the Far North District Council where farmers demonstrated in the streets. That District Plan had to be withdrawn. Unlike the Maori, there is no specific statutory requirement for consultation with farmers or other particular interest groups.

Business: Apart from agribusiness, the prominent players in the RMA field are the forestry industry. To date, there is insufficient research available to substantiate the claims that the RMA is driving away business. Interviews with some forestry representatives confirmed the existence of frustration but it was in regard to local

council handling of district plan or resource consent processes rather than the RMA itself.

Environmentalists: The rise of the "green" vote in the mid-late 1980s in New Zealand resulted in the establishment of the Department for Conservation ("DOC") and later, the RMA. It was interesting that when asked which local authorities had the best consultation processes, the environmentalists and the farmers had diametrically different choices. Even more revealing is that the only government agency that had a formal advocacy role on matters to do with conservation, DOC, for a period was extremely active at district plan development and resource consent processes. The irony in this institutional and fiscal structure was that although central government advocated a "hands-off" approach, it inadvertently gave DOC a better standing to lobby at local government level than other ordinary community groups. The possible exception tended to be the environmentalists, who found parallel priorities in DOC.

In spite of having access to a NZD 6 million fund for advocacy, DOC revealed in interview that it was difficult to keep up with the ongoing processes of district plans and resource consent applications, which are one part of their advocacy responsibilities. This highlights the difficulties being experienced by other less well-resourced government and non-government bodies. Surely a level playing field is integral to effective consultation.

4.5   Institutional Framework

The UN Conference on Environment and Development (UNCED) concluded at Rio de Janeiro that local authorities would play a vital role in the implementation of Agenda 21 because "local authorities construct, operate and maintain economic, social and environmental infrastructure...establish local environmental policies and regulations, and assist in implementing...national environmental policies. As the level of governance closest to the people, they play a vital role in educating, mobilizing and responding to the public to promote sustainable development."

New Zealand's local government underwent considerable change in 1989, when about 700 diverse local authorities and bodies were amalgamated into 12 regional and 74 territorial councils. Territorial councils included 15 city and 59 district councils. These two types of local authorities were designed to be complementary parts of the same tier rather than separate tiers. Each is a body corporate rather than an agent of the Crown. The purposes of local government pursuant to the Local Government Act 1974 include:
- recognition of the existence of different communities in New Zealand
- recognition of the identities and values of those communities
- definition and enforcement of appropriate rights within those communities
- scope to make choices between different kinds of local facilities and services
- delivery of appropriate facilities and services on behalf of central government
- recognition of communities of interest
- efficient and effective exercise of the functions, duties and powers of the components of local government
- effective participation of local persons in local government.

In 1994, central government put out a document to specifically "assist those in local government attempting to come to grips with Agenda 21 and its application" (Environment 1994).

The changes to local government in the late 1980s essentially aimed to reduce the number of local authorities and similar bodies and introduce new management and accountability mechanisms (Horner 1990). Apart from the delegation of central government powers and the requirement for separation of regulatory functions from other functions within local authorities and emphasis on greater transparency, there were no radical reforms of the division of existing functions between territorial and regional authorities. For example, although water-catchment areas were one of the considerations in determining the boundaries of regional authorities, the pre-existing artificial division of rivers into riverbeds (under the jurisdiction of regional authorities) and surface water (the jurisdiction of territorial authorities) remained. The RMA required that territorial authorities' plans should not be in conflict with regional authorities' plans, but it was not uncommon for the regional plans to appear after the territorial plans. For example, one wet-lands area was divided between two territorial authorities (Waitakere City Council and Rodney District Council) which had different approaches to managing it.

The Environment Court has jurisdiction to hear cases arising from the RMA. There is currently a back-log of cases which amount to a delay of an average of one year, but the falling number of new cases indicates that teething stages may be ending.

4.6   Government Structures

(i) Central/Local Relationship on Policy
The reduction of central government's role has been the catchcry of the New Right. The rule of thumb was that policy and service functions should be distinguished and wherever appropriate, the service functions were to be delegated or devolved elsewhere to local government or private sector.

All bodies and individuals interviewed believed that there should have been more funds directed to the Ministry for the Environment (MfE) to provide some leadership in the implementation of the RMA. Almost all non-MfE bodies and individuals interviewed felt that the MfE should have developed more national guidelines on new concepts such as "significant natural areas". In a survey by Rodney District Council of the treatment of significant natural areas by other councils, 49 district councils and 10 regional councils replied. It was found that many used non-regulatory instruments while others were still using the regulatory approach (e.g. zoning). The details of the methods used varied considerably (RodneyDistrictCouncil 1999).

A survey was conducted by Ting in July 1999 of randomly selected government bodies (local and central) and non-government organizations (Maori, farmers, environmental groups, business). 45 responses were collected during the interview process or were returned by post. Two sections in the survey dealt with whether and which government and non-government bodies were considered to have a role to play in sustainable development. The following is an extract of the results:

Bodies/organizations with a role in sustainable development

Government body*	Number (%)	Comments
Local government only	2 (4.5%)	
Ministry for Environment only	0 (0%)	
Ministry for Environment + other central government bodies	42 (95.5%)	Of these 42: All included local government; most included Department of Conservation, Ministry for Agriculture & Forestry, Land Information New Zealand and Te Puni Kokiri (Maori Affairs).
Non-Government bodies (Maori, farmers, environmentalists)	45 (100%)	

*one of the surveys had this section incorrectly filled in and was therefore disregarded.

(ii) Central/Local: Fiscal Structures

Local Government NZ, a representative body for local governments, has acknowledged there is a need for changes to rating powers to allow more flexible rating powers over all land (i.e. including Crown and Maori land), to streamline procedures and to allow charging of actual and reasonable costs (LocalGovernmentNZ 1997).

However, the proposed changes by the Department of Internal Affairs do not address the two issues at the heart of the RMA's fiscal challenge: the central/local government partnership and the public/private property relationship (in particular public goods at private cost). It is for each society to decide where the balance lies. The issues in New Zealand, for example, are in relation to heritage sites and the classification of some private lands as significant natural vegetation or significant natural landscape. Who should pay for the loss of use and the maintenance of these "assets"? At the moment, these expenses are borne by the private owner. The famous eighteenth century English jurist, Sir William Blackstone, described property as:

> "...the sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe".

It is obvious that legal and institutional structures should keep pace with society's changing definitions of the bundle of rights and restrictions that apply to a parcel of land.

The local government reforms of 1989 did not channel significant funds to local government. An extreme example is along the West Coast of New Zealand - where there are large tracts of Department of Conservation lands, the local councils have no rights to charge rates because central government is exempt. The current proposed reforms to the Ratings Act are aimed at delivering user-pays systems and better accountability. There is no serious consideration at the moment of what reforms to the fiscal structures could be needed to enhance resource management and sustainable development. Yet, as expressed in a publication of the Institute for Sustainable Development, fiscal measures are relevant to behavioural change:

> "Providing a subsidy or tax allowance for environmentally positive activities creates an incentive for behavioural change. Public expenditure instruments represent an important class of economic instrument." (Gale, *et al.* 1995)

In other words, there needs to be further open debate about this issue and consideration of whether there should be fiscal measures involving public (central) funds to support public goods. "Ecotaxation" is not a new concept (O'Riordan 1997) and is probably worthy of exploration to assist in spreading the financial burden of maintaining public goods.

The challenge for New Zealand is that central government reforms wiped out the previous complex tax structures with the result that the new very simple flat tax regime and GST do not leave much flexibility for application or development of incentives or penalties.

(iii) Central Structures
Quite apart from the important issue of a partnership between central and local governments, is the call for a more integrated style of decision making across central government departments. Frieder's work (Frieder 1997) concluded that there was a need for better leadership from the Ministry for the Environment (MfE) for local government. But the problem of integrated management also requires some integration of fiscal structures and opportunities.

- Although New Zealand does not have a formal Roundtable on Sustainable Development in the style of some other western countries, innovative individuals have formed informal networks across central government bodies to access funding. The "Green Package" for example, was an MfE-led joint effort with Ministry for Agriculture and Forestry (MAF) and DOC. Although it did not proceed according to traditional Treasury procedures, it was able to secure the support of the Prime Minister and thereafter the funding for some inter-departmental work.

- On a less optimistic note, there was a period in the 1990s when the Ministers for the Environment and Treasury had the power to scrutinize all pieces of legislation. The key difference between the two, however, was that Treasury had more resources than MfE to capitalize on those powers. Now, all departments and ministries are required to circulate proposed statutes that may have relevance to others. This is obviously a leap forward, but does not overcome the concerns for more integration at the earlier policy development level.

- There are some ministries who should work together but do not due to lack of resources and/or commitment. For example, the Ministry for Fisheries is not subject to the RMA but has made a commitment to sustainable development. It does not actively coordinate policies with say, MAF and MfE at policy level and does not have the resources to be involved significantly in the development of district or regional plans at local authority level.

In spite of the strong commitments at international forums and at local government level, New Zealand has yet to demonstrate a strong commitment to integrated management at central government level. When one considers that central government has largely chosen to concentrate on policy formulation without direct

responsibility for implementation, there are grounds for concern about the need for greater cooperation and integration.

4.7   Technological Framework

The lack of a level playing field for access to technology (and information) is one of the issues facing the New Zealand people. Whilst a reasonable number of New Zealanders can access computers, the challenge is to make available relevant information and in a user-friendly form. This is a relevant concern because the sustainable development demands complex decision-making based on sophisticated use and analysis of information.

One of the hallmarks of the RMA was the reform (some would say eradication) of planning to re-focus decision-making on the "effects" of activities rather than detailed control of the activities themselves. Thus, anyone making a decision about use of a resource will need to consider the effects it will have on all aspects of the environment rather than whether its activity falls within a detailed list prepared by the local authority's planners (CCLC 1998).

The RMA's effects-based planning philosophy has revolutionized land-use management and administration. Prescriptive regulation is replaced by parameters of "adverse effects" within which creativity may flourish. However, this effects-based approach is very "science-hungry". It has created the necessity to employ a wider range of experts on issues such as air quality, noise, light effect and landscape. For example, where plans may once have specified that no petrol stations or factories could be established in residential areas, now the decision would be based on consideration of a range of effects such as glare, traffic volume, odor, noise etc – obviously much harder to picture. Application for leave to carry out some form of development is called a resource consent. Quite apart from the burden on local authorities and resource consent applicants, is the question of the community's ability to effectively respond and participate in the consultative process for district/regional plans.

In other words, the introductory phase of effects-based planning has created challenges at every stage, from the development of district plans to community consultation to resource consent processes to performance indicators.

The Organization for Economic Cooperation and Development (OECD) 1996 Environmental Performance Review of New Zealand placed inadequate data at the top of the list of barriers to RMA implementation (OECD 1996). As at the time of Ting's field research in July 1999, performance indicators were being developed at different rates (and standards) by local authorities and the Ministry for the Environment's work in the area was still in progress.

The OECD's 1996 report also found that "local authorities cannot yet fully implement the effects-based regulation called for by the RMA. This is in part due to a lack of data and understanding of the ambient environment by both local officials and the private sector" (OECD 1996).

Knowledge and use of spatial technologies such as geographic information systems (GIS) vary considerably. There is a need for a central index of all available GIS data that will also be publicly accessible – perhaps through the WWW. For example, costly battles since 1991 between environmentalists, farmers and local councils regarding the existence and preservation of indigenous vegetation could have been avoided had there been reliable data on New Zealand's vegetation. That information was made available in 1999 by a joint project of MAF and DOC. There is obviously a strong argument for a spatial data infrastructure in New Zealand that is more accessible.

One relevant good news item has been the decision to develop a much larger scale digital cadastral database that will be available at centimeter accuracy. Accessibility would still be an important consideration.

Attention needs to be paid not only to the data, but the education of council staff and ultimately the community, about how to find and use the data. Integral to the vision for community participation must be the issues of access to information for decision-making.

Access means not only that data be made available, but that users understand the limitations and applicability of the data. Examples include the unresolved matter of layering data accurately, and also understanding that the accuracy required really depends on the use intended. Also, there are the unresolved legal implications of access and privacy that exist internationally.

5. CONCLUSION

This paper sets the scene for the next paper in this two-part series which will look at the need for a vision based on a more integrated approach and the issues in re-engineering current land administration and cadastral systems to better meet the needs of the next millennium.

The humankind-land relationship is a dynamic one. Forces that drive the dynamism vary from era to era. In essence, the dynamism redefines the bundle of rights, restrictions and responsibilities in relation to land. Major evolutionary changes in turn demand reforms to the land administration infrastructure, whether legal, institutional, political/economic or (in modern times) technological.

The current era of change boasts some global drivers that may be summarized as sustainable development, globalisation, micro-economic reform and information technology revolution. They are not necessarily mutually exclusive. They all exist within a framework of legal, political, economic and technological frameworks, whether at the local, national or international levels.

Whilst it may be possible for attention to be focused on one of the frameworks, the others must also eventually be addressed for genuine changes to take place.

The New Zealand case study offers some useful lessons. Firstly, legislative change through an instrument like the RMA is a useful focal point and usually demonstrates political change but must be accompanied by wider institutional, fiscal and

information technology infrastructure to give adequate expression to society's evolving needs and desires for sustainable development.

Secondly, increased local government responsibility for the environment is in line with Agenda 21 recommendations but must be accompanied by appropriate fiscal and human resource structures. Thirdly, central government still has a weighty responsibility to coordinate and monitor. Fourthly, the changing bundle of rights, restrictions and responsibilities in land need to be articulated clearly and early enough to facilitate wide debate about the key issues of re-defining "public" and "private" rights and especially the maintenance of public "goods" at private expense.

The RMA had the mixed fortune of being introduced soon after institutional reforms of government driven by a new political/economic philosophy, but the process of reform and/or integration the other frameworks is clearly still underway and cannot be ignored if effective change is to take place. Furthermore, the delegation and/or devolution of powers from central to local government (or private sector) were driven by a fiscal crisis, resulting in a lack of support from central government, even on policy lines, which was supposed to be central government's core business. There was also lack of support to facilitate greater participation from the public – the responsibility fell squarely on local government shoulders, and local governments varied in their ability and resources to manage the processes.

The prevailing political ideology leaves little room for flexibility in the fiscal structures, whether it is a matter of channeling funds to local government, or allocating central funds for "public goods" or even applying for funds across central government bodies. In spite of the radical amalgamations of 1989, New Zealand is a nation of 3.8 million people with 84 district/regional plans based on the RMA. Each plan took three to five years to prepare and at considerable cost, ranging from fifty thousand to several million dollars to produce. This "patchwork quilt" may well be the necessary first step to initiate further debate to determine:
- what common vision may be gleaned at a national level as to how "green" New Zealand should be – and this is meant in a physical sense (e.g. should it look as it did pre-Maori, pre-European etc?) as well as in the sense of the focus of the other implementing infrastructures;
- what level and style of central guidance may be necessary i.e. central/local partnership;
- what coordination is necessary across New Zealand's community, private sector and government, to achieve the concrete details of that common vision.

Fifthly, until science and technology catch up sufficiently to support performance monitoring, complex decision-making and community participation, sustainable development may remain a distant utopia. An important final point from the overview of New Zealand is that the objections raised were very rarely against the RMA itself, but rather in the context of the local authorities' implementation processes.

While New Zealand may have some way to go before it has resolved all the tensions and conflicting demands created by the institutional, legal, political, economic and technological frameworks, it is an excellent example of a country with commitment to develop a land administration system which will support sustainable development.

This paper has endeavored to show that the humankind-land relationship is dynamic, and then illustrated how current global drivers, particularly sustainable development, are changing the way land is managed and administered, with reference to a case study country. Together with the second paper on "Land Administration and Cadastral Trends: A Framework for Re-Engineering", it has endeavoured to contribute some useful substance and practical meaning to the popular rhetoric about a "holistic approach" to sustainable development.

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