

Country Report 2003

(Based on the PCGIAP-Cadastral Template 2003)

New Zealand

Country/state for which the indications are valid:	New Zealand
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I. Country Report

A. Country Context

Geographical Context

New Zealand is situated in the Southwest Pacific (Te Moana Nui a Kiwa) ocean, some 2000 km east of Australia in temperate latitudes, and lies close to the 180° meridian, extending from the 162nd degree of east longitude and 173rd degree of west longitude, and between the 33rd and 53rd parallels of south latitude.

New Zealand's people are principally derived from Maori (Polynesian) and European descent. English and Maori are the two official languages. English is most widely spoken, though the Maori language, is making a comeback due to the revival of Maori culture. New Zealand has a population of 4m, of whom about 15% are Maori or of Maori descent.

New Zealand lies across the obliquely convergent boundary of the Pacific and Australian tectonic plates. To the north east, the Pacific plate is subducted under the Australian Plate. To the south-west the Australian plate is subducted under the Pacific plate. Motion of about 40 to 55 mm per year occurs on the boundary through New Zealand. Its landscape is characterised by high and steep mountains, rugged landscapes and volcanic activity. It consists of two major islands; the North Island (115,000 sq. km) and the South Island (151,000 sq. km) and several smaller islands and has 15,134 km of coastline.

The North Island has a number of large volcanoes and highly active thermal areas. The South island is dominated by the Southern Alps/Ka Tiritiri o te Moana, with Aoraki/Mount Cook as the highest peak (3755m). These mountains form a spine of peaks running almost the length of the South Island, featuring also the Alpine fault.

New Zealand's natural resources are natural gas, iron ore, sand, coal, timber, hydropower, gold, limestone. Approximately 9% of land is used as arable land, 5% for permanent crops, 50% for permanent pastures, 28% for forests and woodland and 8% for other uses.

About 80% of the New Zealand population live in cities.

Historical Context

New Zealand is young in its history of human habitation, being discovered and then settled, about 950 AD, by Polynesian people from the islands of the Pacific. Polynesians were renowned for their ability to navigate the vast expanses of the Pacific Ocean.

In 1642, the Dutch explorer Abel Tasman briefly sailed along the West Coast of New Zealand. Captain James Cook circumnavigated the country in 1769 and was the first European to set foot in the country, claiming it for the British Crown, and opening the way for colonial settlement.

In 1840 the British government entered into a treaty, known as the Treaty of Waitangi, with the Maori chiefs of New Zealand.

The British colony of New Zealand became an independent dominion in 1907 and is a member of the Commonwealth supporting the UK militarily in both World Wars. New Zealand withdrew from a number of defence alliances during the 1970s and 1980s. In recent years the government has sought to address longstanding native Maori grievances.

Current Political and Administrative Structures

New Zealand is a Westminster style parliamentary democracy, with the Queen of England as the Head of State, represented by a Governor General, acting on the advice of the Government. The Government is an unicameral system, comprising 120 elected representatives who serve a 3 year term. There are 69 electorates, including 7 for Maori, the remaining 51 representatives are elected at large from the various political parties based on their percentage of the total vote.

New Zealand has no formal, written constitution, but consists of various documents, including certain acts of the UK and New Zealand Parliaments. The Constitution Act 1986 was to have come into force 1 January 1987, but has not been enacted. The legal system is based on English law, with special land legislation and land courts for Maoris.

Local Government consists of 83 Regions, Municipalities and Districts.

Historical Outline of Cadastre

The Maori people had a form of customary cadastre based on tribal ownership. This was generally demarcated by prominent geographical features, and there was no form of written record.

The Treaty of Waitangi guaranteed Maori rights of ownership, but with the influx of British settlers from the 1830s onwards there were a number of large land sales. Conflict between the Maori and settlers over land led to a series of wars, a consequence of which much land was confiscated from Maori for settlement.

Embryonic and local survey systems were set up from 1840 in the major settlement areas and a Maori Land court established to formalise and individualise title to Maori land.

In the mid 1870s a systematic system of survey, together with a Torrens Land Title system was introduced throughout the country, and most Crown and Maori land was progressively transferred into this system as settlement progressed. The need for a geodetic control system was also identified at the time, but progress with this was limited and severely constrained by resources and the generally rugged mountainous terrain and it wasn't until 1949 that a national geodetic control system and datum was introduced. A new GPS based datum was introduced in 2000. The survey and land titles systems were administered in 12 separate Land Districts, but operating under central direction and common legislation.

B. Institutional Framework

Government Organizations

The survey system is administered by a central Government agency (Land Information New Zealand) which also has responsibility for Land titles, Crown land, valuation, topographic mapping and hydrography. There is a Surveyor-General responsible for the national control system and regulation of cadastral surveying and associated databases.

The geodetic and cadastral survey and land transfer systems are now largely digitally managed, with a continuous digital cadastral map of the whole country. This is called the **Landonline** system, which was commenced in 1996 and completed at the end of 2002. Cadastral surveys have in the main always been well connected to and integrated with the triangulation system.

There is a Government appointed Cadastral Surveyors Licensing Board responsible for licensing surveyors. This succeeds the Survey Board first established in 1901.

Private Sector Involvement

Virtually all cadastral surveys are carried out by the private sector, usually in conjunction with the associated land development and subdivisional process.

Geodetic surveys are carried out by private contractors under contract to the Surveyor-General.

Professional Organisation or Association

There are two, the New Zealand Institute of Surveyors Inc. (NZIS) which was established in 1888, representing the great majority of surveyors and a much smaller very recent Institute of Cadastral Surveying (ICS). The NZIS is subdivided into 15 regional branches and parallel to these are two employment-related groups. There are six separate categories of membership to provide for all those who are involved in the broad field of surveying.

NZIS has an approximate membership of 1200 (which includes some associate and technician members) and ICS an estimated membership of 20.

Licensing

The Cadastral Survey Act 2002 introduced a form of renewable licence, to replace the previous system of registration. The requirements for licensing are similar to registration, being a four year bachelor's degree in surveying plus 2 years post graduate experience and a final professional examination. In addition licensing has to be renewed every 3 years and requires demonstration of ongoing competency.

Education

A 4-year survey degree is offered only at the University of Otago, covering land surveying, planning, subdivision engineering design and spatial information systems. Currently about 50 students graduate annually, with about 30 seeking and obtaining licensing.

C. Cadastral System

Purpose of Cadastral System

The principal and historical purpose is for issue and transfer of title to land, and the registration of interests relating to the land.

The cadastral system also supports land valuation and land rating systems and is used extensively for a range of government administration and local authority planning, utility management. It forms a fundamental layer in a number of GIS systems. Combined with street addressing it is used for definition of electoral boundaries and for emergency services.

Types of Cadastral System

A single cadastral survey system supports five different tenure systems:

- Land Transfer or private land
- Maori Land, usually multiply owned.
- Crown land encompassing:
 - unalienated Crown Land
 - Crown Leasehold
 - National Parks and Reserves

- Government purposes
- Roads
- Deeds – there is a very small residue of land in the Deeds Index.
- Mining Licences – generally overlaying any or all of the other tenures.

The cadastral survey system and the Land Transfer and Crown Land (unalienated and some leased) is administered by LINZ. The Maori Land Court administers Maori Land.

Cadastral Concept

The principal unit is a surveyed and monumented parcel, with description and area, with titles or other tenures recorded accordingly. There is also provision for strata titles, leases and easements. While title is guaranteed there are some provisions for adverse possession where there is longstanding and undisputed possession.

Content of Cadastral System

The principal components are:

Spatial

- Parcels are defined by survey and monuments, and documented on plans (cadastral survey datasets). Description is usually by Lot or Section number and plan number.
- Boundaries may either be surveyed and groundmarked or natural boundaries, fences or physical features fixed by survey. The system is therefore principally numeric with some general boundaries in a few instances, such as generally described natural features.

Textual

- Land transfer register of owners and interests in land parcels, mortgages, easements etc.
- Maori Land Court register of parcels and land owners and various interests, trustees etc.
- Crown Land – no specific registry system, although each landowning agency may have its own asset register. Some Crown land and leases are registered, but unalienated Crown Land is in effect a form of Deeds system.

The system of cadastral (and geodetic) survey and Land Transfer title is now fully computerised, all data being held digitally and with provision for lodgement and validation of fully structured digital survey data and for automated lodgement and registration of simpler titles transactions (the **Landonline** system).

Surveying and conveyancing practitioners have remote digital access to the data.

D. Cadastral Mapping

Cadastral Map

New Zealand has complete DCDB coverage. This was initially built by digitising existing hard-copy cadastral maps at scales from 1:1,000 to 1:50,000. The data base has full topology.

A project due to be completed at the end of 2003 will upgrade the spatial index (converted from DCDB) in larger urban and intensive rural areas with actual boundary dimensions and modern geodetic control to create a survey accurate digital cadastre. Bulk spatial data is available at the cost of dissemination.

New surveys are converted into digital format on receipt, and after validation are adjusted into the cadastral network, so ensuring continuing enhancement of accuracy.

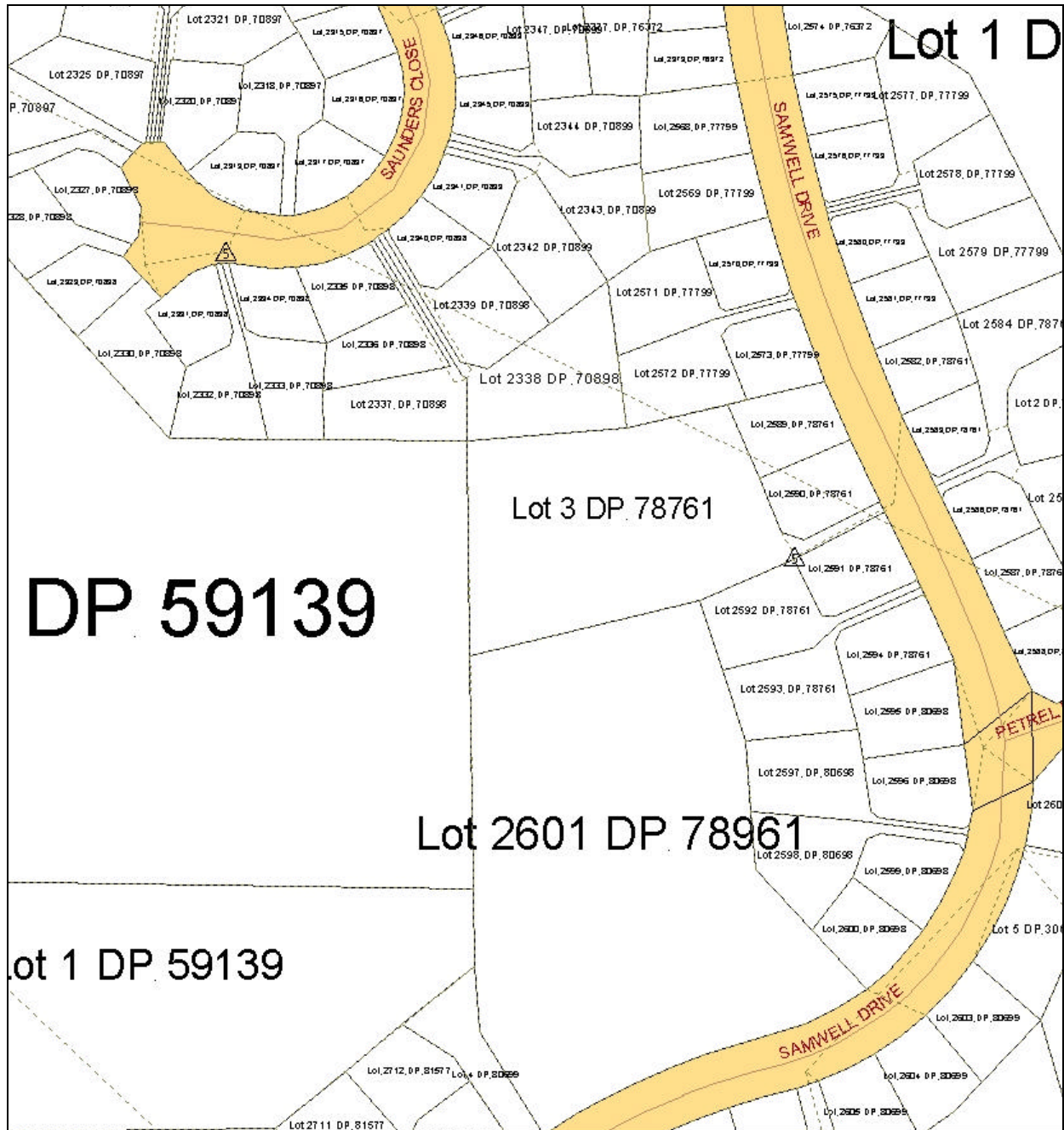
The cadastral map is made of layer of information held in the **Landonline** system and contains:

- Parcels, Identifiers and Areas
- Boundary dimensions, survey accurate if captured from surveys, or pseudo if derived from DCDB.

- Boundary nodes and identifiers
- Boundary co-ordinates and indicator (error ellipse) of accuracy.
- Survey traverses, where captured
- Survey nodes, where captured and indicators of coordinate accuracy and order
- Geodetic control and order
- Street address and road name
- Link to title references

Example of a Cadastral Map

Example from **Landonline** with several of the 120 possible layers turned on.



Role of Cadastral Layer in SDI

The cadastral data base, supported by the geodetic data base, is used extensively as a fundamental data set for a number of government, resource management, local authority, utility and commercial applications. This recognises that a large number of applications and information

systems relate to parcel address or interest or tenure of land. Statistical areas are defined by cadastral boundaries allowing the accurate spatial representation and correlation of socio-economic with geographic data.

E. Reform Issues

Cadastral Issues

1. Automation

New Zealand has recently completed a major redesign and automation of its cadastral survey and Land Transfer title systems (**Landonline**). Future issues or opportunities are:

- issue of title to all Crown Land
- linking of Maori Land Information System and **Landonline**
- Local authority interface for certifying planning approvals and managing street address in **Landonline**
- extension of e-lodgement to include more complex transactions
- full uptake and mandatory use of digital survey lodgement

2. Development of a Marine Cadastre

The **Landonline** system has been designed with this capability in mind, but a comprehensive legislative and administrative framework has yet to be developed.

Current Initiatives

Most of the above are on a 2-5 year development plan.

References

Bevin, A.J. 2002: E-Survey and Title in New Zealand - Landonline, presented at the 2002 Trans-Tasman Survey Conference, Adelaide, Australia. (300KB).

Bevin, A.J. 1999: Cadastre 2014 Reforms in New Zealand, presented at the 1999 FIG Commission 7 meeting and NZIS Conference, Bay of Islands, New Zealand, 9-15 October 1999. (48KB).

Bevin, A.J. and A. Haanen 2002: Reforms in the Regulation of Surveying in New Zealand, presented at the FIG 2002 Conference, Washington USA. (50KB).

Blick, G. and D. Grant, 1997. Possibility of a dynamic cadastre for a dynamic nation. Proceedings of the International Association of Geodesy Symposia, IAG Scientific Assembly Rio de Janeiro. Advances in positioning and reference frames: international symposium no. 118. Published by Springer. pp. 107-113. (23KB).

Haanen, A., A.J. Bevin and N. Sutherland 2002: E-Cadastre - Automation of the New Zealand Survey System, presented at the FIG 2002 Conference, Washington USA. (98KB).

Haanen, A. and Sutherland, N. 2002: e-Cadastre - Automation of the New Zealand Survey System, presented at the Joint AURISA and Institution of Surveyors Conference, Adelaide, South Australia (93KB).

For other related publications see the LINZ web page at:

<http://www.linz.govt.nz/rcs/linz/pub/web/root/core/SurveySystem/surveypublications>

II. Questionnaire

1. Cadastral Principles

Deed or title registration

1.1 Is your cadastral system based on deeds registration or on title registration ?

- deeds registration
- title registration
- other:

Registration of land ownership

1.2 By law, is registration of land ownership compulsory or optional ?

- compulsory
- optional
- other:

1.3 If felt necessary, please, comment on the actual practice and the legal consequences.

Approach for the establishment of the cadastral records

1.4 Are landowners required to register their properties systematically during the initial establishment of the cadastre or is registration sporadic, i.e. triggered only by specific actions (such as for example sale) ?

- systematic
- sporadic
- both
- all properties are already registered
- other:

2. Cadastral Statistics

Population

2.1 What is the **population** of your country ?

4 million

2.2 Please, estimate the **population distribution** between urban and rural areas.

urban:	80 %
rural:	20 %
<hr/>	
total:	...100... %

Number and distribution of land parcels

2.3 Please, estimate the approximate **total number of the smallest uniquely identified land units**, often called "land parcels" in your country, including urban and rural areas ?

2.3 million

The total number would include all freehold and state owned land, regardless of registered, non-registered or informal holding.

2.4 What is the approximate **total number of registered strata or condominium units** ? This number would be in addition to the number of land parcels indicated in 2.3 ?

120,000

2.5 For **URBAN areas**, please, estimate the **distribution between the smallest uniquely identified land units, often called "land parcels"** (i) that are legally registered and surveyed, (ii) that are legally occupied but not registered or surveyed, and (iii) that are informally occupied without any legal title (this may include illegal occupation or squatting).

legally registered and surveyed:	100 %
legally occupied, but not registered or surveyed:	0 %
informally occupied without legal title:	0 %
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total:	...100... %

If the estimation is too difficult or complex using land parcels, you may base your estimation alternatively on the number of people occupying these forms of land parcels.

2.6 For **RURAL areas**, please, estimate the **distribution between the smallest uniquely identified land units, often called "land parcels"** (i) that are legally registered and surveyed, (ii) that are legally occupied but not registered or surveyed, and (iii) that are informally occupied without any legal title (this may include illegal occupation or squatting).

legally registered and surveyed:	95 %
legally occupied, but not registered or surveyed:	5 %
informally occupied without legal title: %
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total:	...100... %

If the estimation is too difficult or complex using land parcels, you may base your estimation alternatively on the number of people occupying these forms of land parcels.

Number of professionals

Please estimate the total number of *academic professionals* that are active within the cadastral system and the proportion of the time that they actually commit for cadastral matters (as opposed to work outside of the cadastral system) ?

2.7	Total number of professional land surveyors , such as licensed surveyors active within the cadastral system:	600
2.8	Proportion of the time that these land surveyors commit for cadastral matters:	30%
2.9	Total number of lawyers/solicitors or equivalent active within the cadastral system or land market:	Approx 3,000
2.10	Proportion of time that these lawyers/solicitors commit for cadastral matters or land market:	?? %

Remarks and Comments

Please, identify the best aspect of this questionnaire ?

Please, suggest the area in the questionnaire that could be improved ?