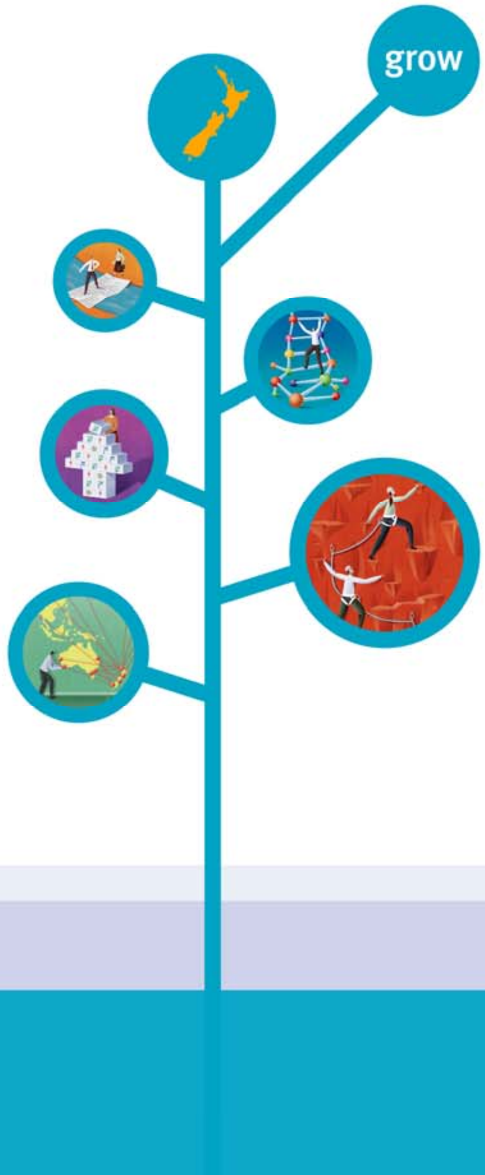

Spectrum Trading and Spectrum Usage Rights

A New Zealand Perspective

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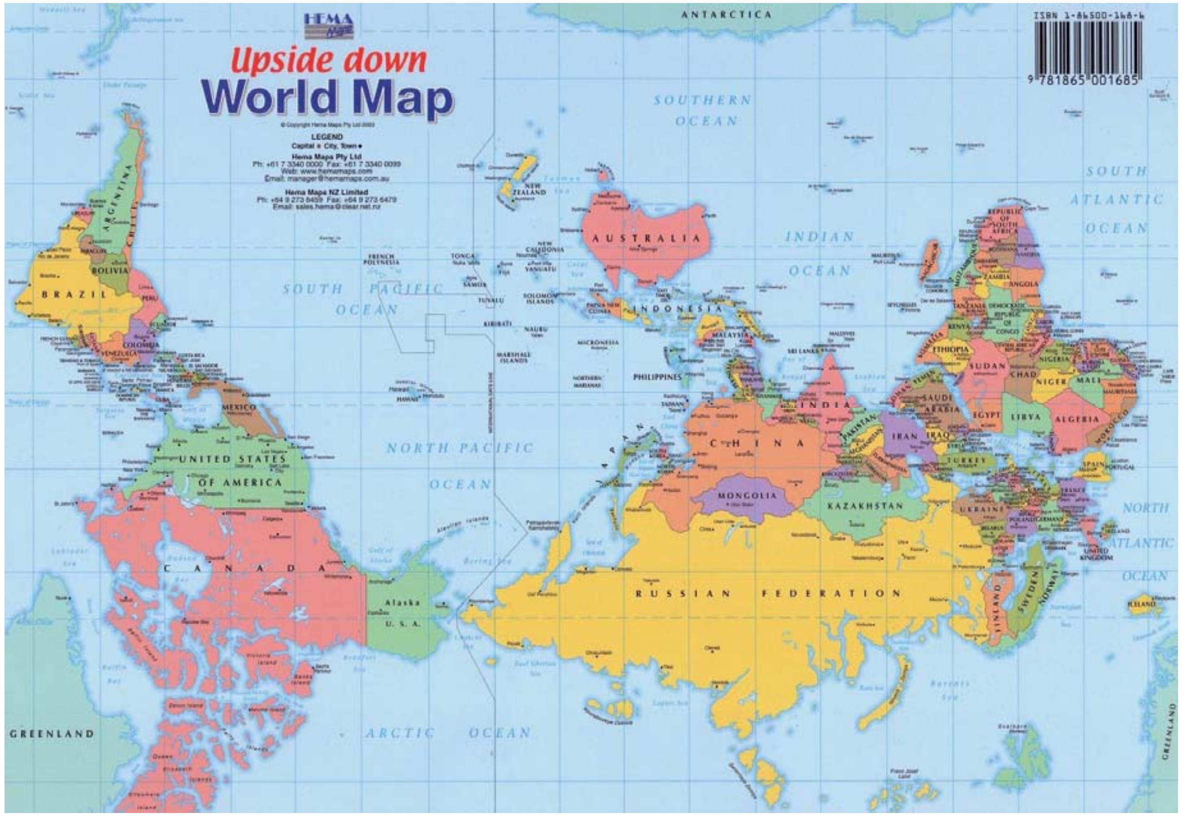
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Why Property Rights?

- Economics 101: Market forces are **usually** the best way of allocating **scarce** resources in society
- Robust property rights are required for markets to work effectively
- They provide owners with rights to
  - Develop and use the resource
  - Earn income from the resource
  - Transfer the resource to others

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Private Ownership

Private owners are **usually** in the best position to make choices about technologies and services that will extract the most value from the spectrum resource

Role of Government

Government involvement limited to addressing externalities that may not be adequately addressed by markets:

- Competition issues
- Cultural outcomes
- Public safety and health
- Science interests
- International Obligations

Expected Improvements

- Increased investment in wireless infrastructure
- More innovation through new wireless technologies
- More competition in wireless based services
- Reduced administrative (Govt) costs
- More CHOICE, better SERVICE and LOWER costs for consumers

NZ Property Rights Regime

- Spectrum property rights introduced in 1989 NZ Radiocommunications Act
- Based on Torrens land system
- A maximum of 20 years tenure
- Recorded in Radio Frequency Register
- Can be sub-divided and amalgamated
- Technology and service neutral
- Rights are treated as business assets

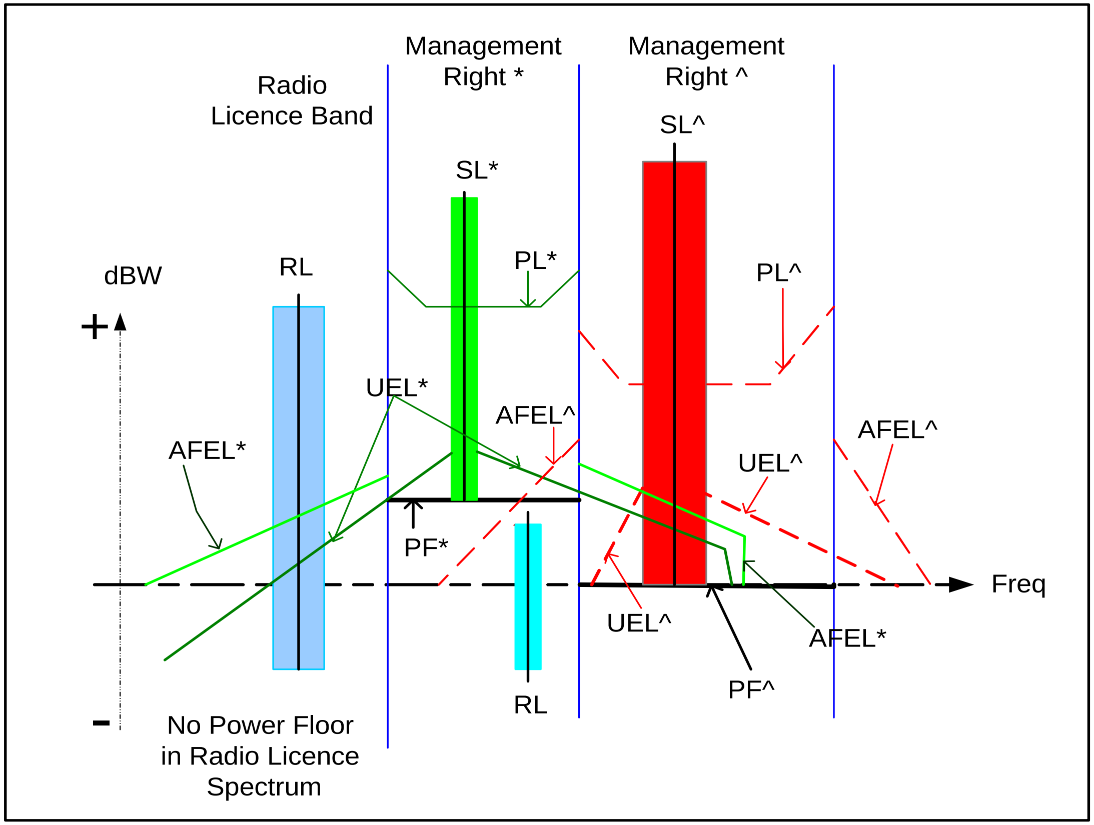
Band Managers

- Two tiers of tradable rights:
  - Management rights
  - Spectrum licences
- Management right owners are band managers - responsible for
  - Technical planning and assignment of spectrum licences
  - Interference investigation

Policy for Renewal of Rights

- Government conducts a review 5 years before expiry
- If there is significant investment the rights are offered for renewal at a calculated market price
- Incumbent can refuse offer and test price at auction
- Allows Government to review use over time

NZ ‘Boundary Peg’ Framework



SL = Spectrum Licence

PL = Protection Limit (management right parameter)

PF = Power Floor (management right parameter)

RL = Radio Licence (can exist below the PF of a management right)

AFEL = Adjacent Frequency Emission Limit (management right parameter)

UEL = Unwanted Emission Limit (spectrum licence parameter)

Managing Interference

- Approved Radio Engineers certify licences for technical compatibility
- Band managers are expected to coordinate with each other to manage boundary issues
- Band managers are responsible for initial investigation of interference
- Disputes resolved in court or by arbitration

Competition Issues

- Spectrum markets are not perfect
- Thin markets in NZ – low prices
- Only a handful of secondary market transactions each year
- Concern that larger players may be exercising market power to hoard spectrum and/or prevent new entrants from gaining access to spectrum at auction

Competition Safeguards

Commerce Act

- Powers to control mergers and acquisitions if they ‘substantially lessen competition’

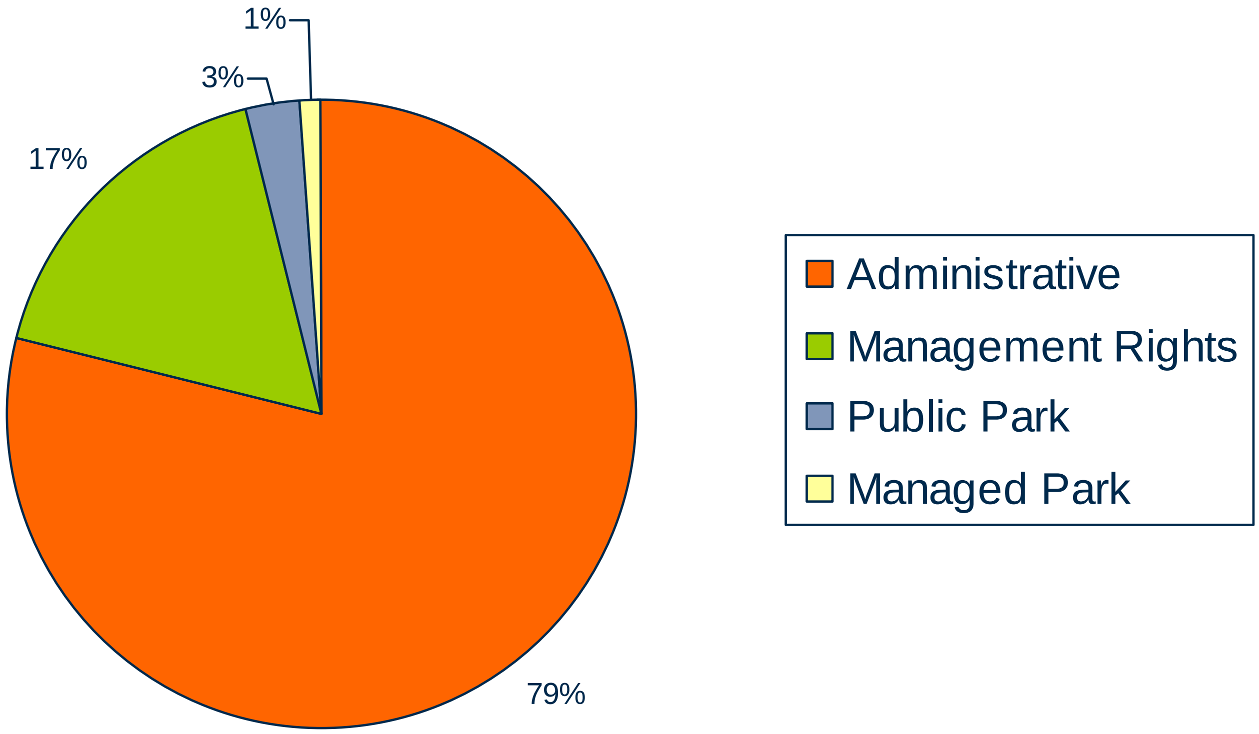
Additional Policy Safeguards

- Spectrum caps
- ‘Use it or lose it’ provisions
- Spectrum renewal policy

Idealism versus Reality

- Original vision in 1989 was for ALL spectrum to be transitioned to property rights and managed by market forces
- In practice property rights and markets are most useful for allocating and managing **scarce commercial** spectrum
- Cost of converting other spectrum to property rights outweighs benefits

NZ Allocations Below 30 GHz



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Future Enhancements?

Consider making provision for:

- Regional management rights
- Easements to facilitate secondary access to management rights

Closing Comments

- Despite the market limitations, property rights have been a useful tool for improving the management of commercial spectrum in NZ
- They should not be regarded as a 'magic bullet' for addressing all spectrum allocation and management issues
- NZ is still learning!

Thank You!