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**'PRIVATISING' THE RADIO SPECTRUM:
A CASE-STUDY IN ITS HISTORICAL AND
CONCEPTUAL CONTEXT**

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This paper concerns Government's surrender, to the private sector, of control of telecommunications and (largely) of the radio spectrum. These changes are part of the large-scale public sector reforms over the last decade.

Instead of focussing on the theory of deregulation, corporatisation and privatisation, the paper considers its effect (upon telecommunications). It looks at how and why the State became involved in (this) public enterprise, in order for readers to appreciate the significance of its withdrawal. It acknowledges that the social - and international - importance of some enterprises and resources targets them for State intervention. In this regard, it raises the question of whether the peculiar nature of some resources does not require them to be regulated more than others, even after privatisation.

This paper, then, contributes a broad analysis of one case of privatisation to the debate over reforming the public sector.

The text of this paper (excluding contents page, footnotes, bibliography and annexures) comprises approximately 10, 200 words.

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The paper tries to develop the historical and conceptual context of the case. Until 1989, the New Zealand Government managed radio interference. In 1989, Parliament passed an Act providing for radical changes to management of the radio spectrum.¹ New Zealand's former government-administered licensing scheme was replaced by one where private enterprises can buy rights to manage and licence out the radio spectrum. This change was framed against the deregulation and privatisation of many former State enterprises;² in particular, of the broadcasting and telecommunications industries.³

The historical context, then, is the development of the telecommunications industry in New Zealand and its past ties to central government. This includes the former spectrum management regime. There is an umbrella of international obligations. The conceptual aspect follows from the governmental connection. From 1984 to 1990, the Fourth Labour Government⁴ reorganized the structure of the state, shifting the basis of much of its activities and the values underpinning them⁴ out of the public sector into private hands. Government used to

¹ The Radiocommunications Act 1989.

² Privatisation in particular, is analysed in depth by SK Chew *Legal Issues and Implications of Corporatisation and Sale of State-owned Enterprises in New Zealand: Sale of Air New Zealand* (Unpublished Research Paper, Laws 509, Victoria University of Wellington, 1990).

³ Competition was now possible in the (formerly monopolistic) telecommunications industry.

⁴ J Boston, J Martin, J Palfrey, P Walsh (eds) *Reshaping the State: New Zealand's Bureaucratic Revolution* (Oxford University Press, Auckland, 1991) ix.

INTRODUCTION

This paper is built around a case of interference between cellular telephones (which use radio waves). Telecom Cellular Ltd ("Telecom Cellular") runs the existing cellular telephone network in New Zealand. BellSouth New Zealand ("BellSouth") has bought the spectrum rights it needs to set up a competing network. The two companies will use bands of radio waves which are side by side in the spectrum: because of the adjacency, their signals are interfering with each other.

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⁴ J Boston, J Martin, J Pallot, P Walsh (eds) *Reshaping the State: New Zealand's Bureaucratic Revolution* (Oxford University Press, Auckland, 1991) ix.

be responsible for providing and controlling most of New Zealand's core industries and services. Now, that is mostly left to the 'market', with a measure of regulation.⁵ In public law terms, the regulation of relationships between private persons has replaced regulation of individuals' relationships with the State.

This Paper explores that shift - from public to private control - in relation to the telecommunications industry and radio spectrum policy. Its theme is that 'not all [resources] are created equal!' The peculiar nature of some former State assets requires that they be regulated more than others, even when 'privatised.'

Parts I and II of the paper provide the historical context of the case study. Part I notes the State's heavy past involvement in providing and regulating public services. It accepts that:⁶

[p]ublic enterprises [were] established because of concerns arising from public utility values, natural monopoly characteristics, or certain socio-political and economic considerations unique to New Zealand.

Part II surveys the growth of one such enterprise, the telecommunications industry. In Part III, the laws which reformed the telecommunications industry and management of the radio spectrum are discussed. The Telecom Cellular-BellSouth case study is an example of the difficulties in transferring control of the spectrum resource to private hands.

Those conceptual issues are pursued in Part IV. It first discusses the legal consequences of selling State assets⁷ - where responsibility lies once a resource is privatised (as compared to being State-owned). Government has largely substituted competition for regulation of telecommunications and radiocommunications; Part IV considers the implementation and limitations of a competitive regime. From there, the need for differing degrees of regulation over different industries and

⁵ This is true of both telecommunications and division of the radio spectrum.

⁶ Above n 4, 32.

⁷ Which is, apparently, a world-wide trend, see Part IV.

resources is developed. In particular, specialized intervention is required for effective competition between radio spectrum users.

I THE STATE AND PUBLIC ENTERPRISE

Public enterprise was built up in New Zealand in three stages.⁸ This Part of the Paper details the extent of the State's involvement. It concentrates on the provision by the State of services and facilities, mainly in the first stage of development.⁹ It does not attempt a full exposition nor does it analyse the underlying social and economic circumstances.

The Colonists fostered a European economic and political system in New Zealand. Colonial Government was set up in 1856, and in 1861 the Bank of New Zealand opened. The Government's account was quickly transferred to the Bank. Farming soon became the Colony's backbone. Because much of the population was scattered, the Colony was divided into provinces:¹⁰

No one regarded a unitary State as feasible, for the several settlements were so isolated that government from one centre was virtually impossible. Communications between settlements were often worse than those of individual settlements with Australia.

For these reasons, the provinces had much authority. The 1852 Constitution set up 6 Provincial Councils, linked by a General Assembly (consisting of a House of Representatives and a Legislative Council). Central Parliament's laws superseded repugnant provincial ordinances and it could reconstitute the provinces or revise their Councils' powers.¹¹ Nonetheless, for a period Provincial Councils operated under a 'quasi-federal framework of public finance':¹² from the mid 1850s to the mid 1860s, they undertook their own public works developments using

⁸ According to Mascarenhas, who divides them into: stage one, the beginnings of the colony until about the end of World War I; stage two, approximately 1920 to 1950; stage three, between 1950 and 1984 - Above n 4, 28-30.

⁹ From about 1840 until the end of World War I.

¹⁰ K Sinclair *A History of New Zealand* (4 ed, Penguin Books, Auckland, 1991) 89.

¹¹ Above n 10, 89.

¹² W H Oliver, B R Williams (eds) *The Oxford History of New Zealand* (Oxford University Press, Auckland, 1981) 64.

overseas loans.¹³ There was local and foreign investment in the Colony.

By the 1870s, however, depression hit as "...the increased investment in gold mining failed to check the fall in gold output; the expected returns on money sunk in the purchase of land and stock were largely wiped out by declining wool prices",¹⁴ British troops (of the Land Wars) no longer needed to be sustained and borrowing by both colonial and provincial governments had temporarily exhausted our credit on the London money market.

The settlers were forced to rely on State assistance. Julius Vogel was a particularly strong advocate of State financial support, and his policies were popular until the late 1870s. According to Sinclair:¹⁵

Vogel appreciated that the further advance of the colony was held up and settlement largely confined to coastal lands primarily because of inadequate transport. Roads were poor and few; there were under fifty miles of railway, in three different gauges, and only seven hundred miles of telegraph lines in the country. He proposed to borrow £10,000,000 in ten years to finance a rapid extension of transport facilities and a vigorous immigration scheme to provide the necessary labour.

Sinclair notes that the provincial representatives in Parliament hindered Vogel's schemes: "in retaliation, Vogel destroyed the Provinces."¹⁶ Central government borrowed nearly twice the proposed £10,000,000. It funded the construction of 1,100 miles of rails, 4,000 miles of telegraph lines, and many roads, public buildings and bridges.¹⁷ The boom was followed by

¹³ The provinces also controlled immigration, education, and some land policy: "[t]heir measures affected the lives of the settlers far more closely than most of the acts of the General Assembly"; see above n 10, 108.

¹⁴ Above n 12, 70.

¹⁵ Above n 10, 152.

¹⁶ Above n 10, 153. The provincial system was already floundering; the Colonial Government had passed an Act in 1867 terminating provincial powers to raise loans. Provincial governments were abolished in 1876. They were replaced by boards and local councils.

¹⁷ Above n 10, 155.

further depression, nearly until the turn of the century. Nonetheless, new institutions were set up, such as the Government Life and State Insurance Offices, and the Public Trust Office. Free, secular State education was introduced. As described in Part II, there was important growth in the postal and telecommunications industry (under State control).

Mascarenhas¹⁸ notes that in the second stage of development, primary producers were organised into statutory boards; and that after World War II, the Bank of New Zealand and the domestic and international airlines were taken into public (State) ownership. The third period appears to have been characterised by State involvement in resource exploitation and finance.¹⁹

This overview simply illustrates the breadth of State involvement in public enterprise. According to Mascarenhas:²⁰

Trading enterprises have in most countries come under public ownership because they have common traits such as: high capital needs relative to cash flow; 'lumpiness' in respect of their need for capital; natural monopoly characteristics; interdependence of demand for their products (e.g. the postal and telecommunication services); and, as a result of interdependence, the difficulty of measuring benefits from improved technology or investment to consumers. ... They are services for which prices are charged, but the prices charged are not always enough to cover the total cost of providing the service.

Government had a monopoly over most of New Zealand's core industries and resources and it regulated the conditions under which they were offered to the public. Since European settlement began, it had provided services and facilities to its citizens. The conditions of settlement in New Zealand - its topography, its scattered settlements and the lack of money in the colony for

¹⁸ Above n 4, 30

¹⁹ Mascarenhas lists, for example, Tasman Pulp and Paper, the Development Finance Corporation, the Petroleum Corporation of New Zealand and Synfuels Corporation; see above n 4, 30.

²⁰ Above n 4, 42.

taxes - had meant that the settlers depended on government to provide public services, in particular, communication links, which are examined in Part II.

II THE STATE AND COMMUNICATIONS

Until the 1980s, the State had always had a close hand in the provision and regulation of New Zealand's communications services. For over 100 years, it controlled postal and telecommunications services directly through a Government department, most recently called the Post Office.²¹ This Part of the paper traces the development and provision of communications services in New Zealand. Then it considers the workings of the Post Office as a Department of State and the changes made to it in the mid-1980s - the corporatisation of its functions.

A A History of State Involvement in Communications

In New Zealand before 1840, whalers and traders provided an (irregular) mail service. When in 1840 the Treaty of Waitangi was signed and the islands added to the British empire, the organisation of government included the birth of the New Zealand Post Office, the first official Post Office being set up at Kororareka.²² It was moved to Russell²³ later that year,²⁴ and to Auckland when the 'government' shifted to the new capital in 1841.²⁵ The man in charge of the Post Office was known as the Postmaster General.

²⁰ After a 5 month delay!

²⁷ It was passed in January 1942 and took effect on 1 March 1942.

²¹ The Post and Telegraph Department was formed in 1881. Under the Post Office Act 1959, the Post Office 'continued' the former department.

²² The chief settlement in the Bay of Islands.

²³ The temporary seat of government.

²⁴ With a branch remaining at Kororareka.

²⁵ "The seat of government was removed from Russell to Auckland early in February 1841, and the chief post office was transferred as well as the other departments of government" - H Robinson *A History of the Post Office in New Zealand* (Government Printer, Wellington, 1964) 24.

In 1841 news reached New Zealand²⁶ that it had become a separate colony, freed from dependency on New South Wales. The first postal ordinance was made in New Zealand in 1842,²⁷ allowing the Governor to appoint a Postmaster General and other officers, and to contract for the conveyance of mails within and from the Colony. Ships' masters were compelled (but paid) to carry mails.

Before the Ordinance was approved by the Colonial Office, however, the British Government passed legislation assuming control over the New Zealand Post Office. The New Zealand Collector of Customs was also to represent the British Postmaster General: one historian views the combining (of departments) as a British measure to curb the costs of government in New Zealand.²⁸ Britain re-transferred control over the New Zealand Post Office to New Zealand in 1848.

Government issued adhesive postage stamps from the 1850s.²⁹ In 1860, Government began printing its own stamps,³⁰ and it soon made prepayment of letters by stamps compulsory throughout New Zealand.

For about the first 15 years of the Post Office's operations, most internal mail was still being carried by sea because of the difficulties in travelling overland. The Local Posts Act 1856 gave the provinces, who were then very strong, power to set up (and fund) additional post offices and routes within their areas. Many new offices and land routes were established.³¹

²⁶ After a 6-month delay!

²⁷ It was passed in January 1842 and took effect on 1 March 1842.

²⁸ Above n 25, 40.

²⁹ The first stamps used in New Zealand were printed in Britain and issued by the Treasury in Auckland. Supplies were later delivered to the chief post office of each province.

³⁰ Postal prices fluctuated with the economy, eg during the World Wars. Also, in the twentieth century, Government issued stamps for special (social) causes, eg 'health stamps'.

³¹ Even so, the transport of mails (by foot or horseback) was slow: it still took two and a half weeks for a letter to be carried from Wellington to Auckland; see above n 25, 58.

The Local Posts Act also allowed provincial governments to fix local rates, ie to add charges to mails carried on local routes or through local post offices (with a view to paying for the extensions).³² Their charges were uneven. The divergency between provincial post offices' measures led the General Assembly to pass a (central) Post Office Act in 1858, repealing all previous Acts. Postal rates were to be standardised and would be Gazetted periodically.³³ Once again, a Postmaster General could be appointed.³⁴

'Central Government' established a framework for a unified postal service. For example, it provided for mail to be prepaid by stamps, and it enacted the Local Posts Act 1856. This Act facilitated the vast (and needed) growth of post offices and routes. At this stage, however, the Government's role remained facilitative. Over 20 years, the Colonial Administration, the Imperial Post Office in London and the provinces had in turn held - and lost or relinquished - some important power over the development of the 'Post'. The growth in population, post offices and routes all necessitated standardisation. Government addressed this need by centralising the system under the 1858 Act, and maintained its control for well over 100 years.

When (in 1865) Wellington became the capital, the General Post Office was moved to it. A full-time Secretary³⁵ was appointed. The location was convenient because the Panama Line (bringing overseas mails) had just chosen Wellington as its port of call in the Colony.³⁶

Paths of communication within the Colony still needed to be extended. The North Island's overland routes were closed during

³² Above n 25, 84.

³³ The Act also promoted efficient postal services by, for instance, its heavy penalties for the delay or destruction of letters.

³⁴ By the Governor representing the Cabinet.

³⁵ Who later became the Director-General.

³⁶ Robinson traces the interesting -but lengthy- history of New Zealand's external mails; see above n 25. Suffice for this paper to note that the early links were secured by the State, often with difficulty because of New Zealand's isolation, and usually in response to international developments.

the 1860s Land Wars and the King Country was impassable for a further decade. But the gold rush in the South Island helped its provinces to develop. Their populations swelled, staff were taken on at existing and new post offices, and new routes and faster mail services were introduced.³⁷ Banking functions assumed by the Post Office since 1867 were especially useful during the gold rush.

Moreover, the telegraph had been invented.³⁸ The Morse telegraph sends a 'code' of dots and dashes by breaking the flow of electricity along a wire into a series of short and long bursts.³⁹

At first, telegraphs could only be used on land; Canterbury Provincial Council erected the first public telegraph line (from Christchurch to Lyttleton) in 1862, and other South Island provinces quickly set up others. The North Island was not connected, and the isolation of the then-capital, Auckland, was a particular problem. Again, Government took a hand. The Electric Telegraph Act 1865 gave Central Government power to set up, maintain and regulate electric telegraph communication, and vested authority in a commissioner for building land lines and an inter-island connection. Central Government had an underwater telegraph cable laid across Cook Strait in 1866. The Telegraph Department was set up in this decade, and New Zealand joined the International Telegraph Union,⁴⁰ which regulated telegraphy between member States.

Vogel's expansionist policies⁴¹ during this period gave New Zealand increased physical capacity for communications: there was simply a larger infrastructure to link the country together. The Government purchased and built more telegraph lines across

³⁷ Auckland province also experienced a period of growth due to the discovery of gold there.

³⁸ In the 1830s and 1840s. Morse telegraphed his first message in 1844.

³⁹ At the receiving end, an electromagnetically-controlled instrument draws the coded message onto paper.

⁴⁰ In 1865.

⁴¹ See above Part I.

the country. By 1872, Auckland was connected telegraphically to Wellington and the South Island. Also, a telegraph cable was laid between Sydney and Nelson (in 1876),⁴² which let the colonists communicate with people in Australia and in Britain (because Australia had been linked with Britain by cable since 1872). A 'Pacific cable' was laid in 1901-1902. The Eastern Extension Telegraph Company had in 1890 laid a second cable leading to England but "this route to the mother country was the monopoly of a private company, and it went through regions likely to be obstructed if a European war came".⁴³ The Pacific cable was owned by Great Britain and participating colonies: it was to be paid off in 50 years with a deficit (shared between the parties) in some years.

B *The Seeds of the Post Office*

New Zealand's Telegraph Department had been combined with the Postal Department in 1881.⁴⁴ By then, telephones were used in New Zealand. Instead of using coded bursts of electricity (as does telegraphy), a telephone message is sent along a wire in an unbroken electric current which varies in intensity according to the pattern of sounds sent. Alexander Graham Bell and Thomas Watson first spoke by telephone in 1876. Society took to the telephone! At first they were rented out in pairs; only those 2 parties could communicate! This led to a maze of wires. From 1878, central exchanges were developed instead;⁴⁵ calls came to and were connected at the exchange - initially, by manual operators, then later, electronically.⁴⁶

⁴² A private company, the Eastern Extension Telegraph Company, laid the cable under guarantee by the Australian and New Zealand governments. The (New Zealand) Telegraph Department chose the New Zealand site; see above n 25, 156.

⁴³ Above n 25, 180.

⁴⁴ To become the Post and Telegraph Department. Robinson notes that the Telegraph Department's expenditure was then heavily exceeding its income; see above n 25, 157.

⁴⁵ In 1878, the first American telephone exchange was established. New Zealand's first telephone exchange was established in 1881.

⁴⁶ New Zealand's first automatic exchange was built in Wellington in 1913.

Government provided for itself to control "electric communications by telephone" in 1880.⁴⁷ Initially, the telephone was used here to supplement the telegraph, so it quite naturally fell under the control of the Post and Telegraph Department.

Radio was invented in the late 19th century. Wireless communication systems use radio waves (instead of wires) to carry the electrical signals. A signal in one wire (antenna) generates an electromagnetic field: a receiving wire placed in that field can pick up the signal. Early radio communications were in Morse code. The New Zealand Post and Telegraph Department set up its first 2 radio stations in about 1910, in the far north and the far south of New Zealand, with 3 smaller stations in between.

Although the spectrum is a universal, the number of usable frequencies is limited, so they need to be regulated.⁴⁸ European governments set up an International Broadcasting Union. This Union was combined with the International Telegraph Union in 1932, to become the International Telecommunication Union ("ITU"). Today, the ITU is a specialised UN agency with over 165 member countries.⁴⁹ It continues, amongst other functions, to regulate frequency usage of the radio spectrum internationally. Member States' representatives⁵⁰ discuss uses and divide the spectrum into numerous bands - for instance, fixed land-based systems versus mobile systems - which are then allocated regionally and globally. The divisions are printed in the ITU's "Radio Regulations" which bind Member States. Member States then allocate ("assign") frequencies to specific services nationally (along the lines of the broad international allocations).

⁴⁷ Telegraph Amendment Act 1880.

⁴⁸ For example, frequencies must be re-used, but if two radio broadcasters were to operate on the same frequencies in the same area at the same time, their listeners would receive a confusing mixture of signals.

⁴⁹ Including New Zealand.

⁵⁰ From 1959 until 1986, the Post Office represented New Zealand in the ITU: now, the Ministry of Commerce does so.

Radio telephony was introduced here in the 1920s, and in 1930 New Zealand began a regular radio telephone service with Australia. Radio communications were especially useful when, for example, earthquakes destroyed land-lines in 1929 and 1931.⁵¹ A further refinement of radio was the development of Radar,⁵² on which much secret war-time work was done by the Radio Section of the Post and Telegraph Department.⁵³

Radio broadcasting began in the 1920s. It was not handled by the Post Office, "since mass communication hardly came under the supervision of the Postmaster-General".⁵⁴ A Broadcasting Board reported annually. The Post Office, however, issued radio licences and collected the fees!

In fact, the Post Office had a host of agency functions,⁵⁵ including collecting customs duties, acting as agent for the Government Insurance Department, receiving taxes, registering and licensing motor vehicles, paying pensions and, in some cases, registering births, deaths and marriages! This was, perhaps, because the numerous post offices throughout New Zealand were a convenient way to reach the whole population.⁵⁶ (The Department's agency function grew even further as more welfare measures were introduced).⁵⁷

C Consolidation of the Post Office

The Post Office Act 1959 changed the name of the Post and Telegraph Department to the Post Office, and consolidated its

⁵¹ Above n 25, 215-216.

⁵² Radio direction finding; used in World War II.

⁵³ Security required that public radiotelephone facilities be suspended during the War.

⁵⁴ Above n 25, 205.

⁵⁵ At the end of World War I; see above n 25, 204.

⁵⁶ Above n 25, 204.

⁵⁷ "The rapid increase in agency services, from £ 26,000,000 handled in 1929 to £ 50,000,000 in 1937, was stimulated by the determination of Labour to make New Zealand into a truly welfare state"; see above, n 25, 206.

functions. (It remained a government department). In 1964, one historian reported that:⁵⁸

The actual carriage of mails still remains a very important part of the duties of the present-day services. The Department, however, is concerned with communications of all kinds, by letter and postcard, telegraph and telephone, cable, and overseas radio. In addition, it handles millions of pounds worth of business for other departments, being an agency service for diverse purposes. It also operates a savings bank with branches throughout the country. The Post Office is a social service organisation, but at the same time is one of New Zealand's largest businesses.

At about that time, its staff numbered 25,000,⁵⁹ They were headed by the Postmaster-General and the Director-General.⁶⁰ The Postmaster-General, a minister in Cabinet, was responsible to Government for the direction and policy of the Department. The Director-General was responsible to the Postmaster-General for the control and general administration of the Post Office. 'The Administration' of the Post Office was divided into 2 sectors known as the Director-General's Office and the Engineer-in-Chief's Office.⁶¹

New Zealand was divided into 21 postal districts, each headed by a chief postmaster,⁶² and into 3 regional engineering areas.⁶³ The Post Office's operations divided into 2 streams:⁶⁴

- 1) business concerns (postal and agency, telecommunications, and banking); and
- 2) providing policy advice to Government, regulating telecommunications and the radio network, and representing New Zealand in matters of international post and telecommunications.

⁵⁸ Above n 25, 254.

⁵⁹ And there were over 1,600 Post Offices throughout New Zealand.

⁶⁰ Robinson notes that in the 19th century the Postmaster-General took a much larger part in the actual administration of the Post Office than more recently; see above n 25, 255.

⁶¹ The Engineer-in-Chief reported to the Director-General.

⁶² Who was responsible to the Director-General.

⁶³ Divided further into engineering districts.

⁶⁴ RN Mason, MS Morris *Post Office Review* (Report dated 21 February 1986) 18.

Government set the rates of return required from the Post Office's three principal business areas.⁶⁵ Under the Post Office Act 1959, pricing decisions were to be approved by the Postmaster-General, which caused delay in decision-making and strong tendencies for political considerations to influence pricing decisions.⁶⁶ Post and telecommunications were cross-subsidized.⁶⁷ But the Post Office failed to meet some of consumers' needs:⁶⁸

By June 1984 16,500 individuals were waiting for the connection of their telephones; over 56 percent of business lines were taking longer than 5 months to install; and the failure of peak hour calls, in metropolitan area [sic], was alarmingly high.

D *The Disbandment of the Post Office*

The Labour Government, which took office in 1984, was dissatisfied with the performance of many State agencies. In 1986, it commissioned a review of the Post Office.⁶⁹ The conclusions were dismal. The reviewers saw the Post Office's main problem as being its "inappropriate" organisational structure",⁷⁰ including unsuitable management accounting systems. The internal organisational problems were compounded by its status as a Government department: for instance, the reviewers stated that:⁷¹

[m]uch of the present inflexibility and constraints on operations stem from the need as a Department to obtain approvals through the Government approval process. ...[B]ecause of the layers of authority involved people remote from the business area can lack a full appreciation of the situation.

⁶⁵ Above n 64, 18.

⁶⁶ Above n 64, 54.

⁶⁷ For example, Mason and Morris found the cost of telephone rentals to be too low, and the cost of toll calls to be too high; see above n 64, 54.

⁶⁸ *The Environment for Mobile Communications in New Zealand* (Address by the Secretary of the Ministry of Commerce to 'Mobile Communications '91', 6 August 1991) 3.

⁶⁹ Above n 64.

⁷⁰ Above n 64, 56.

⁷¹ Above n 64, 56.

monopoly over the provision of telecommunications services. This Labour introduced large scale public sector reforms. These included the corporatisation of many State bodies into SOE's, and progressive deregulation of the public sector.⁷² The SOE system aims to separate commercial from non-commercial functions: ministers are accountable for controlling the policy of the enterprises, which are otherwise commercially competitive like normal businesses.⁷³

Labour created 3 SOE's from the Post Office's components: Post Office Bank Ltd, NZ Post Ltd, and Telecom Corporation of New Zealand Ltd. Telecom was officially 'in the business' of providing New Zealand's telecommunication services. Spectrum management (regulatory and advisory) functions - part of the fourth limb of the former Post Office - were hived off to the Department of Trade and Industry (which became in 1991 the Ministry of Commerce).

III COMPETITION IN THE TELECOMMUNICATIONS INDUSTRY AND 'MARKET ALLOCATION' OF THE RADIO SPECTRUM

This next Part of the paper examines the law governing the provision of telecommunications services in New Zealand. Part III is directed to the changes in that law over the past decade, because it aims to lay a framework for the examination (in Part IV) of the implications of shifting telecommunications from the realm of public to private law. The paper has broadly examined Government's role in providing New Zealand's public service infrastructure, and its long history (through the Post Office) of providing telecommunications services in New Zealand, as well as the disbandment of that Department. Now, it briefly follows the history of the telecommunications branch of the former Department, until privatisation and the removal by law of its

⁷² This is thoroughly discussed by Mascarenhas; see above n 4, and by Chew; see above n 2.

⁷³ State-Owned Enterprises Act 1986.

monopoly over the provision of telecommunications services. This change allowed competing cellular services to be established.

The Radiocommunications Act 1989 ("the Act") was pronounced to be the final major legislative measure in a series of telecommunications and broadcasting reforms.⁷⁴ That Act is the vehicle chosen for examining the shift, in relation to telecommunications, from public to private law. Cellular telephones use radio waves, and the Radiocommunications Act 1989 drastically altered New Zealand's system of (radio) spectrum management. Government (Departments) used to license the use of frequencies and bear responsibility for efficient spectrum-use between users; the Act lets Government sell spectrum rights to private interests, who bear responsibility for regulating their uses amongst themselves. The case study earlier referred to (Telecom Cellular Ltd and BellSouth New Zealand) illustrates some of the problems that can arise under the new system. Part III of the Paper concentrates, then, on the effect of the Radiocommunications Act 1989 on the provision of cellular services - the deregulation of telecommunications coupled with Government's withdrawal from management of the radio spectrum.

A The Deregulation of Telecommunications

As described above, the Government had sought, by corporatisation, to increase efficiency and commercial competitiveness in the performance of functions of the former Post Office. It now instituted a programme of laws to deregulate the telecommunications industry.

In 1987, the Government passed the Telecommunications Act 1987, which allowed for some competition in the provision of 'customer premises equipment' (telephone handsets etc), but gave Telecom a monopoly in providing telecommunications services. Only 'network operators' were allowed to run a system of

⁷⁴ NZ Parliamentary debates Vol 500,1989: 12027-12028.

telecommunications links:⁷⁵ the Act defined 'network operator' as Telecom Corporation of New Zealand Ltd. The definition of 'telecommunications link' included one using wires or using radio frequencies.⁷⁶ The Act did set up a system for licensing the supply and regulating the use of radio apparatus⁷⁷ but (subject to limited exceptions) no licence was available to use radio apparatus (ie to run a telecommunications system) in competition with Telecom's networks. (The Post Office had planned for cellular services and Telecom inherited and ran them under its monopoly (through its wholly owned subsidiary, Telecom Cellular Ltd).

Government wanted still more deregulation for competition. It commissioned the Touche Ross Report (1988)⁷⁸ which concluded that competition in the provision of telecommunications services was both feasible and desirable.

Government took its major steps towards deregulating the industry in 1989. It removed the barriers to entry into the telecommunications services market: this effectively ended Telecom's right to be the monopoly provider of network services. The Government believed that once barriers to entry were broken down, competition (or sometimes even the threat of competition) would encourage Telecom to be efficient and competitive (-re-aligning its prices with its costs).⁷⁹

The 1987 Act was amended⁸⁰ to break down the barriers to entry into the market for providing telecommunications services. This took effect from 1 April 1989. Section 3 - allowing only Telecom to operate a network - was repealed. 'Network operator' was re-defined. It no longer means Telecom: it now means Telecom and any person declared by the Governor General in

⁷⁵ Section 3.

⁷⁶ Or any other "medium used for telecommunication" - s 2.

⁷⁷ Part II.

⁷⁸ Touche Ross *Competition in Telecommunications Networks* (Department of Trade and Industry, Wellington, 1988).

⁷⁹ Above n 68, 4.

⁸⁰ Telecommunications Amendment Act 1988.

Council to be a network operator.⁸¹ The purpose of designation is to "facilitate entry into and competition in telecommunication markets".⁸²

Network operator status is no longer required to run a network.⁸³ That status simply facilitates competition - for instance, network operators have equal access to land for tree-cutting etc.

Ancillary legislation for breaking down barriers was passed, such as the Telecommunications (Disclosure) regulations 1990, making Telecom set out pricing information etc relevant to new entrants.

In June 1990, the Government sold Telecom to two American telephone companies, Ameritech and Bell Atlantic, for US\$ 2.4 billion.

B *Revising New Zealand's System of Radio Spectrum Management*

The changes made in 1989 by the Government to the system of spectrum management in New Zealand were largely as a result of a review which it had commissioned, the NERA Report. In the background to its proposals, NERA noted that:⁸⁴

Concern that [the] centralised system of spectrum management and allocation would not perform well, in terms of its effect on economic efficiency, competition and social welfare, once barriers into the telecommunications and broadcasting industry [were] removed and as the demand for spectrum grows, motivated the Government to commission the investigation of alternative methods of spectrum management...

⁸¹ Telecommunications Act 1987, s 2A.

⁸² Telecommunications Act 1987, s 2A(1).

⁸³ The 1987 Act *does* limit the class of persons who can provide international telecommunications services - s 5B.

⁸⁴ NERA *Management of the Radio Frequency Spectrum in New Zealand* (A Report for the New Zealand Government, London, 1988) 1.

It is necessary to examine the former system of spectrum management, in order to understand how the government shifted responsibility for regulating use from itself to the private sector.

1 *The former licensing system*

Until 1987, the Post Office as manager had allocated out bands of spectrum under national and international regulations. According to the NERA Report, the main (State-owned) users - including the telecommunications division of the Post Office⁸⁵ - largely planned their own use within those bands where they were sole users: the Post Office planned and co-ordinated assignments made to other users. Disputes over use were either internalised or negotiated amongst the other users and the Post Office.⁸⁶

After 1987, the Radio Frequency Service (part of the Department of Trade and Industry) managed the spectrum, according to the Telecommunications Act 1987 and the Radio Regulations 1987 made under it. The 1987 Act empowered the Secretary of Trade and Industry to license the supply and use of radio apparatus:⁸⁷ the Regulations forbade the installation, operation or use of radio apparatus without a licence.⁸⁸ The Secretary could also license the use of frequencies.⁸⁹ The holder of such a licence could make agreements with persons wanting to communicate on the frequencies specified in the licence.⁹⁰ Licences could not be sold or transferred, however. They were issued for one year but with an expectation of renewal.⁹¹

The Regulations set out a framework of considerations for the Secretary's decision whether or not to grant a licence,

⁸⁵ The others were the Broadcasting Corporation and the Ministry of Defence.

⁸⁶ Above n 84, 24.

⁸⁷ That is, apparatus for transmitting and receiving radiocommunications.

⁸⁸ Clause 6.

⁸⁹ Clause 12(1).

⁹⁰ Clause 12(2).

⁹¹ Above n 84, 25, 71.

including any international agreements,⁹² the public interest,⁹³ and the technical compatibility of the apparatus or use sought to be licensed with already-licensed apparatus or uses.⁹⁴ Spectrum was generally licensed on a first-come, first-served basis, but within a framework of defined allocations and band plans.⁹⁵

The essence of the administrative system was that Government⁹⁶ *managed* the spectrum. Spectrum allocation was planned so as to maximise efficiency and minimise interference between users. It is impossible to transmit exactly on a single frequency or within a single band of frequencies. Some signals are always emitted beyond the boundaries of the transmitting frequency (or band).⁹⁷

When picked up by other users' equipment, these signals constitute 'interference'. "Interference reduces the ability of the party being interfered with to have his signal clearly received".⁹⁸ Spectrum management cannot eliminate interference. The NERA Report, referring to assignment under the administrative system, claimed that an assignment of spectrum embodied 2 rights, the right to transmit and the right to interfere, and that the second - the legal limit on interference caused by one user to others - lies "at the heart of spectrum management" because this ... "determines the actions a spectrum user is permitted to engage in, those that are proscribed and, from a global perspective, the value of the spectrum that results from the permitted mixture of utilisation between 'primary' transmissions and interference".⁹⁹ The Report noted that the RFS was responsible both for setting interference

⁹² Clause 13(1)(a).

⁹³ In achieving the maximum benefit from the radio spectrum, cl 13(1)(b).

⁹⁴ Clause 13(1)(c).

⁹⁵ Presumably, public interest considerations had helped to shape these plans - for example, in deciding whether new services were desirable or should be restricted.

⁹⁶ Through the Radio Frequency Service.

⁹⁷ See appendix I.

⁹⁸ Above n 84, 85.

⁹⁹ Above n 84, 85.

standards¹⁰⁰ and for resolving conflicts if the standards were breached, or proved to be inadequate.¹⁰¹

In summary:¹⁰²

By licensing apparatus, RFS by implication also determine[d] the use of each part of the spectrum and the level of interference judged to be acceptable. These decisions [were], by and large, based on engineering rather than economic criteria, although RFS [was] increasingly aware of the economic trade-offs involved in such judgements. RFS use[d] its expertise to assign compatible users to adjacent frequencies and areas, and ma[d]e use of guardbands (largely unused frequencies) where spectrum users require a high level of interference protection.

However, licensees could not enforce their rights. Sometimes there was a sort of compensation for 'loss' of existing rights, in that if the RFS decided that an existing user should make way¹⁰³ for a new user, "RFS's approach has been to oblige the new user to compensate the existing user for any dislocation involved in moving to another part of the spectrum".¹⁰⁴ Existing users could not refuse to move, though, nor could they demand a price for spectrum.¹⁰⁵

Where rights were diminished by interference, and where negotiation between the parties failed, they could only complain to the RFS, who would try to resolve the dispute by taking action against the source of interference.¹⁰⁶ NERA thought that interference might be controlled better within a regime of enforceable property rights in spectrum, because "[a]s long as a spectrum user is forced to pay the cost his interference imposes on other parties, the user has an incentive to refrain from all

¹⁰⁰ Clause 36 of the 1987 Regulations empowered the Secretary to set limits on the intensity of interfering signals.

¹⁰¹ Above n 84,74.

¹⁰² Above n 84, 25.

¹⁰³ That is, move to frequencies in another part of the spectrum.

¹⁰⁴ Above n 84, 70.

¹⁰⁵ Above n 84, 70.

¹⁰⁶ Above n 84, 74. The Report noted that parties could have further recourse to the courts if a licensee did not consider the RFS's response to a complaint to be objectively reasonable.

interference that is more costly than the cost of eliminating the interference."¹⁰⁷

2. NERA's 'market allocation' proposal

The NERA Report suggested that Government implement a system of tradeable property rights in the radio spectrum. Governmental regulation would largely be replaced by the operation of 'spectrum markets', decentralising decisions concerning the use of spectrum by letting individual users resolve it among themselves.¹⁰⁸ NERA calculated that the market-based approach would lead to more efficient spectrum allocation, because the users hold the information needed for these decisions. For example, NERA believed that users would reveal the best purpose to which a channel could be put, through the prices they would offer to pay for it.¹⁰⁹ And, "allowing spectrum users to decide among themselves the patterns of interference that will be mutually permitted is attractive because users are likely to have a much better notion of the cost of interference on the one hand and the cost of abating interference on the other".¹¹⁰

NERA acknowledged, however, that the advantages of a market-based approach could be off-set by the numerous bilateral negotiations which it might necessitate.¹¹¹ The problems of substituting the operation of 'the market' for regulation are discussed further in Part IV.

3 The Radiocommunications Act 1989

The Radiocommunications Act 1989 was drafted around NERA's 'market allocation' proposal. The reformers in government "realized that it was impossible to create a market regime in the telecommunications industry¹¹² as a whole if one critical factor

¹⁰⁷ Above n 84, 86.

¹⁰⁸ Above n 84, 2-3.

¹⁰⁹ Above n 84, 2.

¹¹⁰ Above n 84, 3.

¹¹¹ Above n 84, 3.

¹¹² And surely, the broadcasting industry.

of production - radio frequencies - was allocated by non-market mechanisms."¹¹³ The 1989 Act was designed to "facilitate competitive entry in telecommunication and broadcasting, as well as to promote efficiency in spectrum management."¹¹⁴ For completeness, this section of the paper sketches the body of that Act. It then concentrates on the provisions in the Act for regulating the 'boundaries' of rights created under it, because this highlights most dramatically the shift from public to private law. The case study in the next section illustrates this.

(a) General

The Act allows the Secretary of Commerce to apply for rights to manage radio frequencies to be recorded in the Register of Radio Frequencies.¹¹⁵ The Crown is to be named as manager of all original management rights;¹¹⁶ it can sell them. These rights, lasting up to 20 years, are not limited to any specific telecommunication or broadcasting application. Management rights have "certain attributes of property";¹¹⁷ they can be transferred, aggregated, divided, and used as financial security.¹¹⁸ Managers have the right to issue licences for the use of frequencies contained within the limits of their rights. Transactions involving spectrum rights are formally registered. The Registrar of Radio Frequencies has correction and enforcement powers; the Act also creates "private legal remedies for the protection of rights - including new actions in tort and for damages."¹¹⁹ In the transition to the management rights system, the Act preserved existing licences granted under the administrative system,¹²⁰ giving those licensees 'incumbency

¹¹³ M Mueller *Reform of Spectrum Management: Lessons From New Zealand* (Reason Foundation, USA, 1991) 3.

¹¹⁴ Ministry of Commerce *Telecommunications Information Leaflet No 1* (Wellington, 21 April 1992) 4.

¹¹⁵ Section 9. The Register of Radio Frequencies is set up under s 5 of the Act.

¹¹⁶ Section 11.

¹¹⁷ Above n 74, 12028.

¹¹⁸ Above n 74.

¹¹⁹ Above n 74, 12028.

¹²⁰ Section 140 ; Part XVI of the Act generally.

rights' for operating on frequencies over which management rights were to be granted.¹²¹

If Government¹²² does not create management rights over radio frequencies, they can continue to be licensed out under the administrative system. The Radio Regulations 1987 still apply. Once management rights are created, however, the administrative regime (including the Regulations) entirely ceases to apply.

(b) Regulation of boundaries

According to the Act, a record of management rights must specify (inter alia):¹²³

- (i) the range of frequencies to which the record relates; and
- (ii) the adjacent frequencies emission limit ("AFEL"). This is the maximum permitted power of emissions 'spilt-over' by the manager onto frequencies outside his or her (its) range; and
- (iii) the 'protection limit'. This is a 'cap' on emissions 'spilt-over' by other users onto frequencies within the manager's range.

Usually the AFEL of one management right (A) and the protection limit of the adjacent right (B) are the same. The user of frequencies under right (A) cannot emit signals outside that band¹²⁴ which are above a certain strength; frequencies under right (B) are free of signals above that strength¹²⁵ emitted by a user under (A) (or any other management right).¹²⁶

The relationship of AFEL's with protection limits, and the level at which they are set, both attempts to achieve reasonable

¹²¹ Providing the license was current on 1 July 1989.
¹²² Through the Secretary of Commerce.
¹²³ Section 34.
¹²⁴ That is, into right (B).
¹²⁵ That is, 'clear' for the user under management right (B).
¹²⁶ See appendix I.

use of the spectrum, and to be attractive to users.¹²⁷ Limits set vary from case to case. The Ministry has no policy of setting protection limits at the legal minimum,¹²⁸ although this could make the spectrum more attractive to users, apparently letting them maximise band-usage (by allowing them higher out-of-band emissions).¹²⁹ In setting the limits it pays some regard to the likely use of bands, which it ascertains from responses to notifications of bands to be offered for tender.¹³⁰

These limits can be adjusted: the Secretary and any manager can agree to modify the protection limit applying to that manager's record of rights,¹³¹ and managers can agree between themselves to modify AFEL's.¹³²

The Act gives every manager, subject to the limits of its management right, the right to grant licences over the frequencies it manages, with regard to any location in New Zealand.¹³³ No one can transmit on any managed frequency except in accordance with a licence.¹³⁴ Management and 'use' rights, then, are distinct; even managers must licence themselves to use the frequencies they control.

A manager can grant a licence (including to itself) to transmit radio waves¹³⁵ or unwanted emissions¹³⁶ on frequencies within its record of management rights, or to be free from

¹²⁷ According to Mr W Wedderspoon, Manager of National Radio Spectrum Policy, Ministry of Commerce (conversation with the writer, 30 September 1993).

¹²⁸ Which is tiny; s 38.

¹²⁹ At the same time, it would lessen a manager's protection against the impingement of other users' signals into its own band.

¹³⁰ Ministry of Commerce *The Radiocommunications Act 1989* (Information Leaflet, Wellington, 15 July 1993) 2. The Ministry may not, however, predict the result of sales - see below Part IV B.

¹³¹ Section 36.

¹³² Section 40, subject to a certification of compatibility; see below part III 3.

¹³³ Sections 48, 98.

¹³⁴ Section 103.

¹³⁵ Section 48(a)-(b).

¹³⁶ Section 48(c).

interference caused by any person transmitting on radio waves within the manager's record.¹³⁷

Licences are confined by the limits of the management right under which they are granted:¹³⁸ for instance, managers must apply the AFEL's and protection limits (which the Ministry sets between management rights) to the licences they create. A manager granting a licence to transmit radio waves specifies (inter alia):¹³⁹

- (i) the areas and frequencies for transmissions;
- (ii) the 'receive coverage area';¹⁴⁰
- (iii) maximum permitted interfering signals;¹⁴¹ and
- (iv) unwanted emission limits.

Unwanted emission limits ("UEL's") are the maximum power levels which a licensee can emit onto frequencies outside his or her range. UEL's are constrained by the AFEL's of the management right - that is, a licensee at the boundary of a band of frequencies must keep unwanted emissions below the protection limit of the adjacent management right.

The power of adjustment which the Act leaves to managers is important because the limits on out-of-band emissions affect the possible power of emissions on frequencies within the band (but near its boundaries). Subject to minimal statutory constraints, managers now adjust these limits between themselves; a role previously undertaken by government. Government's former regulatory role has largely been replaced by bilateral negotiation.

Even so, Government¹⁴² still has some supervisory involvement (by prohibiting registration in some circumstances). The AFEL's of a management right cannot be registered or

¹³⁷ Section 48(d).

¹³⁸ Sections 49(e)(ii), 101(1)(a).

¹³⁹ Section 49.

¹⁴⁰ Not defined by the Act.

¹⁴¹ Discussed within.

¹⁴² Through the Radio Frequency Service of the Ministry of Commerce.

modified,¹⁴³ nor can a licence to transmit radio waves or unwanted emissions be registered,¹⁴⁴ nor can its UEL's be registered or modified,¹⁴⁵ until the Registrar has received certification from an approved engineer¹⁴⁶ that the right/ change sought to be registered:

- (a) will not endanger the functioning of any radionavigation service; and
- (b) will not endanger the functioning of any radio service essential to the protection of life or property; and
- (c) is technically compatible with services operated pursuant to existing licences, having regard to -
 - (i) the International Radio Regulations; and
 - (ii) the CCIR Reports and Recommendations; and
 - (iii) annex 10 to the Convention on Civil Aviation; and
 - (iv) the International Convention for the Safety of Life at Sea; and
 - (v) any relevant safety standards issued by the Secretary.

4 Case study: radio interference between cellular telephones

The deregulation of the telecommunications industry meant that BellSouth could establish a network to provide cellular telephone services in competition with Telecom Cellular. Under the 'spectrum rights' regime, it has bought and controls the radio frequencies which it need to provide those services. The two companies propose to compete with different cellular systems:

Telecom Cellular uses 'AMPS' (the North American system); BellSouth will operate the European 'GSM' system. AMPS uses frequencies from 825 MHz to 890 MHz; GSM, from 890 MHz to 960

¹⁴³ Sections 39(2), 40(3).

¹⁴⁴ Section 25(2).

¹⁴⁵ Sections 53, 54.

¹⁴⁶ Approved under s 130.

MHz. The 2 systems were developed and operate in different parts of the world; interference between them has not been a problem in practice. Therefore it has not been taken into account in global allocations; the ITU allocation for cellular frequencies runs straight from 825 MHz to 960 MHz.

New Zealand, though, acknowledges both systems. Before the Radiocommunications Act 1989 was passed, Telecom Cellular was operating in the AMPS-B band, from 835 MHz to 845 MHz and from 880 MHz to 890 MHz. Under the Act, it acquired incumbency rights (to continue that operation).¹⁴⁷

In May 1990, the Government tendered and sold management rights for 3 more frequency blocks.¹⁴⁸ Each block has 2 parts because a cell phone transmits and receives on different frequencies. Normally a guard band (-a block of vacant frequencies-)¹⁴⁹ is left between transmission and reception frequencies.¹⁵⁰

The AMPS and GSM systems each have a guard band within their own systems, to stop interference between their own transmission and reception frequencies. But as a result of the sales of spectrum management rights, there was no guard band in New Zealand between the 2 systems: the rights were separated only by their AFEL's and protection limits. These are the only restraints that the Act requires the Ministry to set between management rights. The protection limit set at 890 MHz was the minimum allowed by the Act,¹⁵¹ ie giving adjacent users the maximum freedom allowed by the Act in the strength of signals they transmit outside their bands. This means that BellSouth, which owns management rights to the 890-897 MHz band, must keep emissions on frequencies less than 890 MHz below a certain strength: by registering BellSouth's management rights, the Ministry promised Telecom Cellular, which owns the 880-890

¹⁴⁷ Radiocommunications Act 1989, Part XVI.

¹⁴⁸ See appendix I.

¹⁴⁹ At least, frequencies unused by cellphones.

¹⁵⁰ See appendix I.

¹⁵¹ (50 dBW); see s 38.

MHz band, that within that band it will be protected from signals above a certain strength emitted by other users.

Both Telecom Cellular and BellSouth have granted themselves licences to transmit radio waves and to be free from interference on the frequencies they manage. The licences extend to frequencies at the very boundaries of their management rights, but comply with the AFEL's and protection limits set by the Ministry of Commerce. Each company has complied with the law but interference problems still arise.¹⁵²

The protection limits set are, in fact, too low. Both companies need reasonably high protection from interference, for the sake of their customers.¹⁵³ There is simply not room between their bands of frequencies for that protection.

Because a transmitted signal is stronger than a received one, the lack of protection causes 2 interference problems:

- (1) transmission from a Telecom Cellular (AMPS-B) cell-base could block out reception on a BellSouth (GSM-A) cell-base;
- (2) if a BellSouth (GSM-A) cell phone (mobile unit) and a Telecom Cellular (AMPS-B) cell phone were physically adjacent, transmission from the BellSouth cell phone at around 890 MHz would overload reception for a Telecom Cellular cell phone operating on nearby frequencies.

Last year, the Ministry of Commerce, Telecom Cellular and BellSouth held discussions about the lack of a guard band. This resulted in a 0.9 MHz guard band being set up.¹⁵⁴ The Ministry 'tacked' additional frequencies onto the upper end of the GSM-A

¹⁵² According to BellSouth's Public Relations Manager:

"The scope and nature of the interference only became a reality once we started operating our network. At this time it became apparent the 0.9MHz guard band may not be sufficient. We are unaware of similar problems being encountered overseas, probably because other countries have arranged their frequencies differently.";
(letter to the writer, dated 9 August 1993).

¹⁵³ Cellular telephone users.

¹⁵⁴ This is the guard band referred to in the letter from BellSouth, above n 152.

band, and resumed control over the 0.9 MHz of frequencies at the lower end, which form a guard band. (The 'swap' took place before ownership of the GSM-B band was settled).

But interference problems remain. The Act provides for licensees (rightholders) to enforce their rights against each other. Together, the receive coverage location and the 'maximum permitted interfering signals' which a manager sets in a transmission licence, form a guarantee of protected reception by the manager to the licensee :¹⁵⁵ the manager undertakes not to expose the licensee to interference caused by its re-licensing of that frequency in that area. But the 'maximum permitted interfering signals' dictate the level of interference in that area that no other user can exceed, so they also protect the licensee from other licensees under adjacent management rights. The Act does not limit the maximum permitted interfering signals which the manager sets for the licensee.

Section 107 allows a rightholder (A) to require a subsequent one (B) to modify emissions impinging on A's 'receive coverage area' where the emissions are above the maximum permitted interfering signals permitted by A's licence. This right belongs to the first-registered licensee.

Telecom Cellular registered its licences from 3 November 1992 to 30 November 1992; BellSouth's first licence was registered on 24 February 1993. The setting by each company of adequate levels of protection from interference forces section 107 to apply. *prima facie*, Bell South must give way. This seems unfair because the Act deems the incumbent's licence to have been granted before others, automatically giving priority to the incumbent's licence.¹⁵⁶

Section 107 provides, in the alternative, for the parties to negotiate a solution. They are doing so. If BellSouth exceeded interference limits which Telecom Cellular set in licensing itself

¹⁵⁵ Avoidance of 'co-channel interference.'

¹⁵⁶ Section 181.

first, then (given section 107), Telecom Cellular could rely heavily in negotiations on its legal precedence. This gives it less incentive to agree with BellSouth to a mutual widening of the 0.9 MHz guard band, whereby each company would lose some cellular frequencies. One alternative proposed by the Ministry has been to swap BellSouth with incumbent (non-cellular) users in the third GSM band, GSM-C. This would require further bilateral agreements, and assumes that equipment would be compatible.

5 Responsibility for regulating interference

As noted above,¹⁵⁷ the Ministry must test certain limits of management rights and licences for compatibility with 'existing licences'. It does so by reference only to the five sub-paragraphs listed, instead of 'having regard' to these factors as part of a wider assessment of compatibility between the limit sought to be changed or registered and 'services operated pursuant to existing licences'.

The Ministry held the technical compatibility test to be satisfied for Telecom Cellular's and BellSouth's licences. Had it considered the technical compatibility *in fact* of the limits of BellSouth's with Telecom's 'services operated pursuant to existing licences', it could have held that the interference levels made them unsuitable for registration, and required the levels to be adjusted before registration the services began to compete.

The 'narrow' application of the test circumscribes the Ministry's supervisory role:¹⁵⁸ it is responsible only for protecting the listed (generally international) concerns. After all:¹⁵⁹

The object [of privatising spectrum rights] is to allow the marketplace to take over fundamental spectrum management functions, such as planning, channelization, clearance and reallocation of bands, introduction of new services, etc.

¹⁵⁷ Above Part III 3.

¹⁵⁸ Absolves it from responsibility for interference levels between spectrum users.

¹⁵⁹ M Mueller, above 113,15.

IV THE SHIFT FROM PUBLIC TO PRIVATE LAW

Government cannot entirely escape the rigours of public law, however. The judgement in *Mirelle Pty Ltd v The Attorney General and The Ministry of Commerce and Ors*¹⁶⁰ implied additional duties onto the Ministry in the sale process, given that the Ministry was selling public assets on behalf of the Government. Heron J decided that although the tendering process was purely contractual, the Ministry was acting under statutory powers, so its actions were reviewable. He held it unreasonable for the Ministry to reject a tender bid on the basis of a "plain mistake, one which could be easily rectified and which raised no ambiguity in fact."¹⁶¹

By making this decision, Heron J was subjecting the Ministry to public law duties even when it acted in a private (contractual) capacity.¹⁶² He prevented the Ministry from relying on the conditions which it had specified¹⁶³ for the validity of tenders, and required it to involve itself in the sale process, to actively ensure as much competition as possible in the sales.

Even so, His Honour stressed the need for impartiality and even-handedness in the sale process.¹⁶⁴ These comments apply equally to the outcome of the sale. Even if the Ministry anticipated - on the ITU allocations and responses to its surveys - that cellular users would buy these bands, it could not direct the result by, say, testing for interference and adjusting the bands' boundaries. The tender philosophy is competitive.

¹⁶⁰ Unreported, 27 November 1991, High Court Wellington Registry CP 969/91.

¹⁶¹ Above n 160, 19.

¹⁶² Compare this with the *Stock Exchange* case, below Part IV A. Could even the public nature of the Ministry and of the assets require it to alter the contractual basis of the tender? The decision is being taken on appeal.

¹⁶³ In the call for tenders.

¹⁶⁴ Above n 160, 20.

IV THE SHIFT FROM PUBLIC TO PRIVATE LAW

'Privatisation' has become "economic orthodoxy worldwide. Last year alone, governments sold \$69 billion-worth of state-owned enterprises. The amount raised since the mid-1980s is more than \$300 billion."¹⁶⁵ New Zealand itself has sold billions of dollars worth of assets.¹⁶⁶

According to Taggart, Labour Ministers have preferred the label 'asset sales' over 'privatisation'. But to him, the 'privatisation' label accurately describes the transfer of power involved in the process.¹⁶⁷

The root of the word is private, and its original meaning was 'not holding public office or official position.' So the derivation, privatisation, well captures the significance of the process: the shift from the public to the private sphere.

It is difficult to 'label' the nature of the transfer of power over the radio spectrum. But 'The Economist' notes that there are at least 57 types of privatisation!¹⁶⁸ And the impetus behind the private spectrum rights system is (broadly) the same as that underlying the sale of other State assets - to free the State from its role as provider and reduce its regulatory role, letting the 'market' and 'private law take over. But are these mechanisms of control substitutable for each other, especially where resources important for the public's well-being are concerned?

Part II of the paper presented a set of traits common to public enterprises, ie factors 'qualifying' the State to provide and control them. Some of these resources can be divorced more easily from the State - ie, are more suited to competition - than others. This Part of the paper argues that the need for regulation is particularly acute where the resource is - like the radio spectrum - limited and highly specialised: private law does not

¹⁶⁵ *The Economist* (vol 328, 21-27 August 1993) 9.

¹⁶⁶ See appendix II.

¹⁶⁷ M Taggart *Corporatisation, Privatisation and Public Law* (Legal Research Foundation, Auckland, 1990)18.

¹⁶⁸ Above n 165, 16.

contain the mechanisms to maximise its use and fully enable competition using the resource. First, however, it is necessary to distinguish public from private law, to draw out the implications of shifting an asset from public to private ownership.

A Public Versus Private Control

'Public bodies' are subject to special controls under public law. But the difference between public and private bodies is very hard to draw. Whether a body is a 'public' body depends on the nature of the body and its activities.¹⁶⁹ Traditionally, the label 'public' refers to the workings of the State. A 'public' body, then should somehow be empowered by the State. The theory of separation of powers suggests that a 'public body' should, for the purposes of (judicial) control, be one empowered by Parliament or by the Executive - that is, by statute, subordinate legislation or the prerogative. This somewhat broad (and traditional) characterisation is adopted so as to classify corporatized enterprises¹⁷⁰ as 'public bodies' and to distinguish the remedies available against them from those against the owners of privatised enterprises.¹⁷¹

Labelling bodies as 'public' or 'private' is not particularly significant for the purposes of judicial review,¹⁷² because public bodies do not act solely under public law. Historically, the (public-private) law distinction was important because the remedies available in public law (judicial review) - namely certiorari, prohibition and mandamus - were distinct from those available in private law - damages, injunction or declaration. (Since the Judicature Amendment Act 1977, all these remedies are available in a judicial review action. Moreover review under that Act does not hinge on a public-private law distinction.¹⁷³ It

¹⁶⁹ Harlow disputes the validity of the distinction; see C Harlow "Public and Private Law" (1980) 43 MLR 241.

¹⁷⁰ State-owned enterprises.

¹⁷¹ Privatized Telecom and the purchasers of spectrum rights.

¹⁷² On the assumption that 'public' and 'private' law are also distinguishable; compare Harlow, above n 169.

¹⁷³ That is, on whether the body challenged acted in a public or a private capacity.

depends on from where the decision-maker got the authority to make the challenged-decision: applicants can seek review of the exercise, by persons,¹⁷⁴ of statutory powers. Statutory powers are rights or powers conferred by legislation or by the governing instruments of any body corporate).¹⁷⁵

Decided cases have already made clear that a 'public' body can act in a 'private' capacity and vice versa. The New Zealand Court of Appeal has effectively confirmed that even a 'public' body can exercise contractual rights in the same way as a private citizen: the New Zealand Stock Exchange has a statutory foundation¹⁷⁶ but it lists companies under contract only; the Court refused to review the exercise of the Exchange's (contractual) right to suspend listing.¹⁷⁷ By comparison, the English Court of Appeal reviewed the actions of the (English) Panel on Takeovers and Mergers, which had immense de facto powers although it had "no statutory, prerogative or common law powers and it is not in a contractual relationship with the financial market or those who deal in that market".¹⁷⁸ In the *Mirelle* case,¹⁷⁹ a 'public' body (the Ministry of Commerce) was exercising private (contractual) powers but since it was selling State assets on behalf of the community its actions were held to be reviewable!

A body's 'public' or 'private' nature is still important for the application of other (non-judicial) checks against it, though. Taggart argues that accountability for the exercise of a body's powers is diminished on corporatisation and further on privatisation.¹⁸⁰ Theoretically, a government department or enterprise is more accountable than a private company:

¹⁷⁴ Judicature Amendment Act 1977, s 3. That Act defines 'person' widely.

¹⁷⁵ Judicial review of acts or decisions for which the Act does not provide still falls to the common law.

¹⁷⁶ The Sharebrokers Amendment Act 1981.

¹⁷⁷ *NZ Stock Exchange v Listed Companies Association Incorporated* [1984] 1 NZLR 699.

¹⁷⁸ *Regina v Panel on Takeovers and Mergers, Ex Parte Datafin* [1987] 1 QB 815, 825.

¹⁷⁹ Above n 160.

¹⁸⁰ Above n 167, 19.

Government ought to be less motivated by commercial concerns and more by political/social justice ones; Government is accountable politically (at elections) and its organs are subject to specific accountability mechanisms such as judicial review by the courts, scrutiny by the Auditor-General and the Ombudsman, and the Official Information Act 1984.

The specific accountability mechanisms are carried over to SOE's¹⁸¹ and supplemented by others such as scrutiny by Parliamentary select committees, their subjection to the Companies' Act 1955 and (statutorily required) Statements of Corporate Intent.¹⁸² Only exercises of power by SOE's which are sufficiently directly traceable to the SOE Act 1986, or to the Memorandum or Articles of Association would be judicially reviewable under the Judicature Amendment Act 1977. Upon privatisation there is a further shift from 'public' accountability mechanisms to the realm of private law, ie the law governing relationships between private persons. Some exercises of power by a private company could still be judicially reviewable under the 1977 Act,¹⁸³ but potential plaintiffs would mostly have to draw their causes of action against the company from the law of contracts, commercial or competition law.

B. *Private Control and Competition*

Taggart claims that on privatisation, Government has sought efficiency through free market competition rather than regulation, even in core industries.¹⁸⁴ It relies mainly on the Commerce Act 1986, the general competition law of New Zealand, for creating conditions of effective competition in telecommunications.¹⁸⁵ When he introduced the

¹⁸¹ Taggart describes the Ombudsman's 1989 investigation into the reasonableness of Telecom's standard telephone subscriber contract, above n 167, 14-16.

¹⁸² Section 9.

¹⁸³ If sufficiently related to its Memorandum or Articles of Association.

¹⁸⁴ Above n 167, 20-21.

¹⁸⁵ Commerce Commission *Telecommunications Industry Inquiry Report* (Commerce Commission, Wellington, 1992) 10-11.

Telecommunications Amendment Bill 1988¹⁸⁶ to Parliament, the then-Minister for State-owned Enterprises stated that:¹⁸⁷

[f]rom 1 April 1989, competing businesses will be able to establish and operate telephone and other networks either by setting up facilities of their own or by interconnecting with the Telecom Corporation network. In doing so they will be subject to the Commerce Act and other relevant legislation in common with other industries. Telecom Corporation itself, including the terms and conditions it offers for interconnections with its facilities, will also be constrained by the Commerce Act, which specifically prohibits a dominant firm from acting uncompetitively.

One aspect of competition is the physical means of providing alternative services. The construction of a new, country-wide system of telephone wires and cables would be hindered by New Zealand's topography, the scattered nature of our population, and sheer cost. Accordingly, the existing networks must somehow be made available to competitors.

America has developed an 'essential facilities' doctrine:¹⁸⁸ someone who has an essential facility must make it available to others on reasonable terms and conditions.¹⁸⁹ (This is derived from old common law rules relating to innkeepers, ferrymen etc - providers of essential services).¹⁹⁰ New Zealand has not fully adopted an 'essential services' doctrine. Parts of it, though, have been incorporated in our law - see, for instance, the Commerce Act 1986, section 36(1):

36 Use of a dominant position in a market -

(1) No person who has a dominant position in a market shall use that position for the purpose of -

(a) Restricting the entry of any person into that or any other market; or

¹⁸⁶ For deregulating the telecommunications industry.

¹⁸⁷ Above 185, 11.

¹⁸⁸ Or 'bottle-neck principle'.

¹⁸⁹ Barker J in *Auckland Regional Authority v Mutual Rental Cars (Auckland Airport) Ltd* [1987] 2 NZLR 647 discussed and adopted the principle from *Hecht v Pro-Football Inc* 570 F 2d 982 (1977).

¹⁹⁰ Above n 167, 29-30.

- (b) Preventing the entry of any person into that or any other market; or
- (c) Eliminating any person from that or any other market.

The writer assumes that in 1987 Telecom had a dominant position in the 'market' for providing telecommunications services. The 'local loop', the system of wires connecting telephone units to the closest of the several exchanges through which a call might pass, was critical to its dominance. Competitors can replicate the facilities for long distance transmission of calls, but it is simply not economically feasible to replicate the local loop. However section 36(1)(a) and (b) forbids Telecom to use that position as a means of preventing competition with itself. To avoid anti-competitive behaviour, Telecom must somehow allow its competitors access to its local loop (essential facility) if they meet reasonable criteria. It does so by 'interconnection' - by letting competitors use¹⁹¹ the local loop which they cannot afford to duplicate.¹⁹² Government does not regulate interconnection:¹⁹³

This Government's policy is to set the framework for interconnection but not to involve the Government or its Departments in direct negotiations. Leave that to the interconnecting parties ... And if they can't reach agreement on particular points, they can take their differences to Court, where the Commerce Act and general competition law will be their adjudicator.

By interconnection with Telecom's local loops, and by use of its own transmission lines, another service provider can compete with Telecom in the toll market; consumers can choose whose services they use. Cellular telephony can create even more competition, either by linking in to existing networks or as an alternative to them. Cellular networks must be able to link into the PSTN (wired networks) so that calls can be made between a cellular and a 'normal' telephone. By the Commerce Act and its own undertakings, Telecom is required to interconnect cellular

¹⁹¹ For a fee.

¹⁹² See appendix I

¹⁹³ Above n 185, 11.

users to the PSTN. This lets cellular service providers (eg Telecom Cellular and BellSouth) compete with 'normal' telephone services as well as with each other. Ultimately, cellular communications may become a technological substitute for the whole (wired) PSTN. Cellular services could be substituted entirely (without interconnection) for the wired network.¹⁹⁴

C Meeting a Need for Regulation

Interconnection resolves one aspect of the dominance problem, which itself is one of a host of issues about competition in a deregulated telecommunications industry.¹⁹⁵ But that issue has been 'solved' under the Commerce Act *in conjunction with* Telecom's own undertakings and government's threat of regulation in default of resolution. The industry has been even less 'freed up' in other countries. Taggart points out that in the United States, 'core industry' companies are in private ownership but are subject to extensive regulation intended to prevent monopoly profits and ensure uniform prices and service provision to customers. He notes that although the American telecommunications industry has been deregulated considerably, the American owners of the privatised Telecom (NZ) are regulated much more in the United States than here. And when British Telecom was privatised in 1984, a regulatory agency called the Office of Telecommunications was set up to prevent the company from abusing its near-monopoly position.¹⁹⁶

Regulation of the radio spectrum is even more important, because of its technical complexity. Competition for bands of frequencies is feasible, and the Commerce Act 1986 overcomes some of the barriers to providing competing cellular services - for instance, link-ins to Telecom's PSTN, and purchases of spectrum space that would cause dominance in the cellular

¹⁹⁴ Providers of cellular services would then be subject to their own dominance test.

¹⁹⁵ Note that even the threat of competition may suffice; see above n 68, 4.

¹⁹⁶ Above n 167, 21.

market.¹⁹⁷ But for the providers of cellular services, freedom to enter the market and to acquire spectrum space is arguably not enough to create conditions of effective competition. The nature of the spectrum resource, and the inevitable spill-over of transmitted signals onto other frequencies, means that it is difficult to maximise spectrum use without specialized intervention.¹⁹⁸ The Commerce Act 1986 is a 'general' competition statute, not a tool for resolving hard questions about interference. And the first-in-time rule of section 107 is too badly stated, if competing users are free to set their own limits of freedom from interference within their bands.

The distribution of spectrum rights between users needs to be regulated, at least in part. Perhaps one could, for example, induce the Ministry of Commerce to apply the 'technical compatibility' test more widely. AFEL's are set in the creation of a management right, ie before it is tendered. It would be impossible to know if the eventual use would be compatible in fact with services already operated. But in the adjustment of limits and the setting of licence limits, the intended use *would* generally be known, so that the level of interference which it would cause to existing uses could be scrutinized. However, like section 107, this gives priority to the first-user-in-time. Also, to extend the government's supervisory role is to slash at the roots of the spectrum-property-rights tree. Perhaps an arbitral body could be established, to which parties could refer interference disputes at any time after Government disposed of the management right.¹⁹⁹ This could avoid resort to the harsh rule²⁰⁰ of section 107. The Act can be improved over time but for users who have themselves assumed the risks and costs of spectrum management, 'time is money'...

¹⁹⁷ *Telecom Corporation of New Zealand Ltd v Commerce Commission* (1991) 3 NZBLC 102,340.

¹⁹⁸ "This is the fallacy of reifying the spectrum - assuming that it is a thing which can be divided up into discrete parcels"; see above n 113, 31.

¹⁹⁹ Note that Government is still responsible for regulating licences created under the administrative system as continued (ie where no management right has been created).

²⁰⁰ First-in-time.

CONCLUSIONS

The communications services which government provided since the colony's birth were essential to New Zealand's bonding as a nation.²⁰¹ They also joined New Zealand to the world community - for the price of standardisation. The internationalisation of telecommunications requires common standards - for the benefit of users,²⁰² operators,²⁰³ manufacturers,²⁰⁴ and States²⁰⁵ alike.

Tension emerges, however, between the need for standardisation and the benefits of competition - States face this tension in international relations²⁰⁶ and 'at home.' New Zealand has provided for recognition of its international commitments²⁰⁷ even while pursuing a competitive domestic telecommunications policy. It has shed its traditional role of providing telecommunications services and allocations of radio spectrum, and reduced its regulatory role.

Telecommunications and the radio spectrum may have been shifted too far out of public control. The radio spectrum, for example, is such a specialized resource that regulation may be needed for maximum efficiency in its use. (The degree of regulation, and the stage at which it should be imposed, are topics for further study).

²⁰¹ Rather than our being a collection of scattered settlements.

²⁰² Who, for example, want the power to call as many locations as possible, quickly and cheaply. They want their calls protected from other users and the States from or to which calls are made. They want to use their phones for special purposes (such as emergency calls) and to benefit from developing technology.

²⁰³ Whose ability to operate competitively (and universally) is aided by uniformity of conditions and compatibility of equipment throughout the States in which they operate.

²⁰⁴ Manufacturers want their equipment used as widely as possible (for competition). This requires recognition of those systems by states.

²⁰⁵ States need to satisfy domestic interests (individuals', operators', and manufacturers) and the international community.

²⁰⁶ By their desires to pursue domestic economic policy.

²⁰⁷ For example, by the 'compatibility' tests of the Radiocommunications Act 1989.

BIS Public needs are not directly protected under a privatised system of telecommunications. But the threat of regulation, at least, seems to have encouraged Telecom to behave competitively. Interconnection agreements, for example, equip new service providers for the competition which Government envisaged as promoting and serving customers' needs.

SK Consumers will be able to assess the success of deregulation and privatisation measures in terms of, for example, increased efficiency in the provision of telecommunications services and changes to pricing policy. In a wider context, the effects of privatisation will be revealed through citizens' views of their changed relationship with the State.

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RN Mason, MS Morris *Post Office Review* (Report dated 21 February 1986).

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THE USE OF INTERNAL EXTERNALS (ARMS-LENGTH)

HOW INTERCONNECTION WORKS

Toll call on Telecom's PSTN

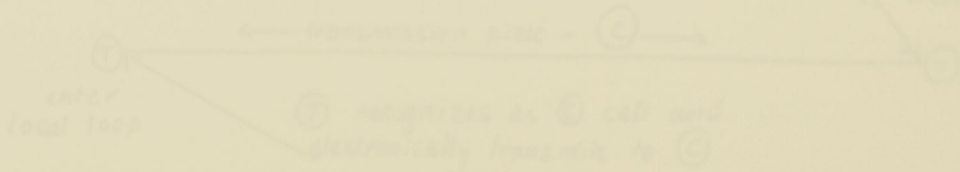
⊙ = Clear Communications Ltd

⊙ = Telecom



Toll call on Clear's PSTN

⊙ = Clear Communications Ltd

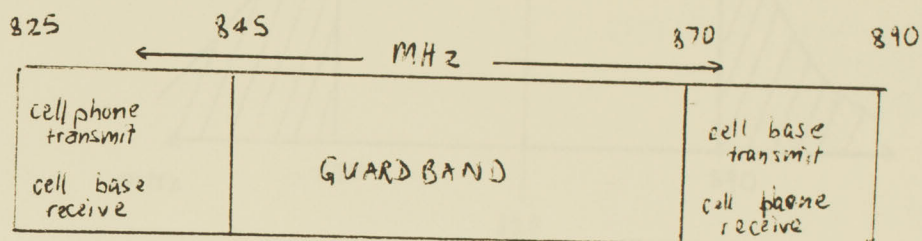


* An agreement between Telecom and Clear for toll-free access

interconnection is in force

Ownership of 'Cellular' Bands

Band	MHz	MHz	Owner
AMPS-A	825-835	& 870-880	Telecom Cellular Ltd
TACS-A/GSM-A	890.9-897.5	& 935-942.5	BellSouth NZ
TACS-B/GSM-B	897.5-905.0	& 942.5-950	Telstra



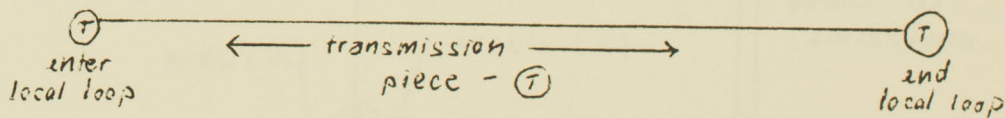
THE USE OF INTERNAL GUARDBANDS (AMPS-EXAMPLE)

HOW INTERCONNECTION WORKS

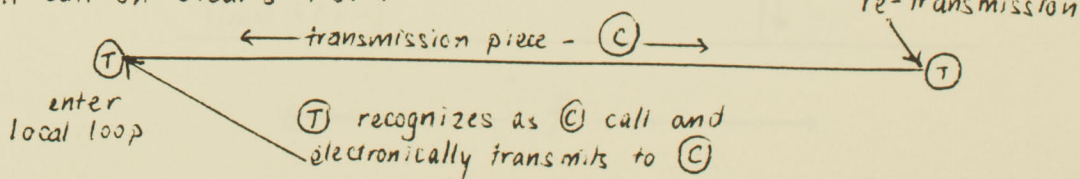
Toll call on Telecom's PSTN

Ⓢ = Clear Communications Ltd

Ⓣ = Telecom



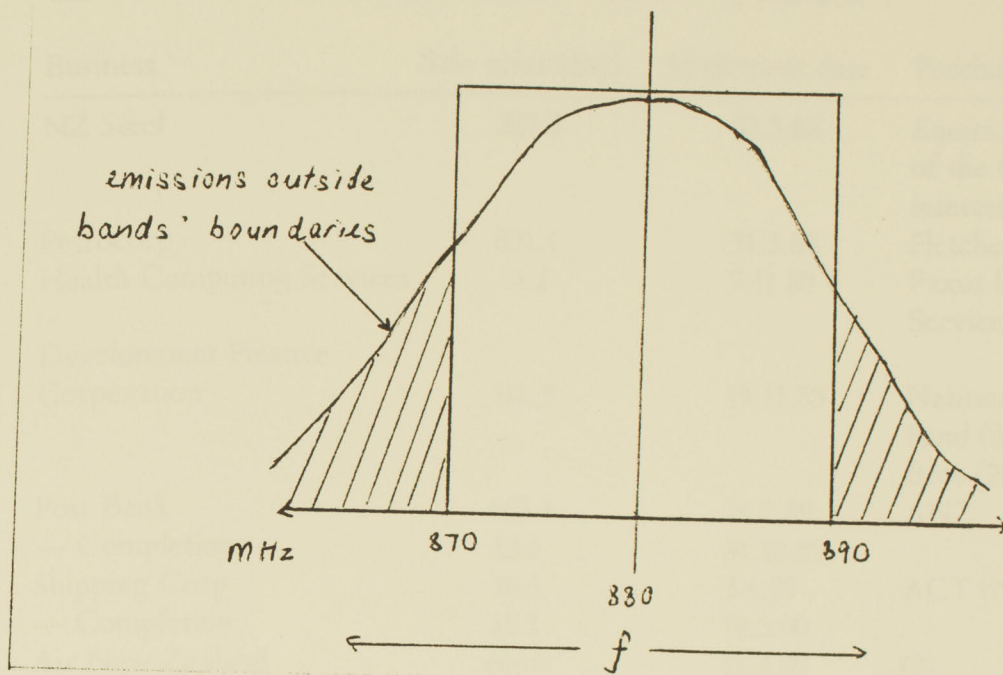
Toll call on Clear's PSTN *



* An agreement between Telecom and Clear for toll-bypass interconnection is in force.

APPENDIX I

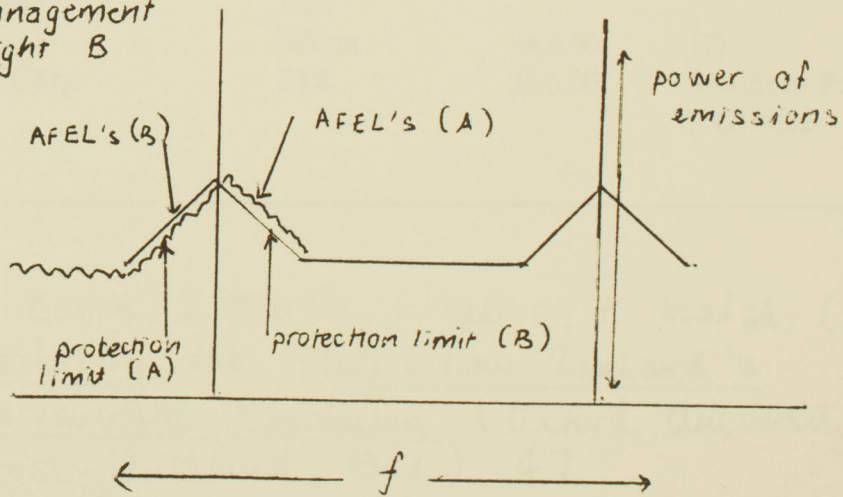
THE CAUSE OF INTERFERENCE



THE RELATIONSHIP OF AFEL'S AND PROTECTION LIMITS

~~~~~ = management right A

———— = management right B



## APPENDIX II

Table 2: Asset Sales to 30 June 1990 (New Zealand)

| Business                        | Sale price (\$m) | Settlement date | Purchaser                                        |
|---------------------------------|------------------|-----------------|--------------------------------------------------|
| NZ Steel                        | 327.2            | 22.3.88         | Equiticorp bought 90% of the Crown's interest(1) |
| Petrocorp                       | 801.1            | 31.3.88         | Fletcher Challenge Ltd                           |
| Health Computing Services       | 4.2              | 7.11.88         | Paxus Information Services                       |
| Development Finance Corporation | 111.3            | 18.11.88        | National Provident Fund (80%) Salomon Bros (20%) |
| Post Bank                       | 665.4            | 28.2.89         | ANZ                                              |
| — Completion                    | 13.1             | 31.10.89        |                                                  |
| Shipping Corp                   | 18.5             | 3.4.89          | ACT (NZ) Ltd                                     |
| — Completion                    | 15.1             | 19.3.90         |                                                  |
| Air New Zealand                 | 660.0            | 17.4.89         | (2)                                              |
| Landcorp Financial Instruments  | 15.7             | 7.3.89          | Mortgagees                                       |
| Landcorp Financial Instruments  | 32.3             | 5.10.89         |                                                  |
| Landcorp Financial Instruments  | 27.0             | 5.2.90          |                                                  |
| Rural Bank                      | 550.0            | 31.10.89        | Fletcher Challenge Ltd                           |
| Government Print                | 20.0             | 1989/90         | Various(3)                                       |
| Government Print (Deposit)      | 2.3              | 2.90            | Rank Group(4)                                    |
| Government Print                | 12.7             | 30.6.90         | Rank Group                                       |
| National Film Unit              | 1.5              | 23.3.90         | TVNZ(5)                                          |
| Communicate NZ                  | 0.1              | 8.12.89         | DAC Group Ltd(6)                                 |
| State Insurance                 | 735.0            | 28.6.90         | Northwich Insurance                              |
| Telecom NZ Ltd                  | 4.25             |                 |                                                  |
|                                 | billion          | 14.6.90         | (7)                                              |
| Tourist Hotel Corp              | 73.8             | 15.6.90         | Southern Pacific Hotels (NZ) Ltd                 |

Source: J Boston, J Martin, J Pallot, P Walsh (eds) Reshaping the State: New Zealand's Bureaucratic Revolution (Oxford University Press, Auckland, 1991) 47.

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