GEOTHERMAL RESOURCES IN NEW ZEALAND: A LEGAL HISTORY

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I. Defining the Resource

The geothermal resource is difficult to define. There are two sources of difficulty. The first is that geothermal systems are very complex, as explained by the Waitangi Tribunal[1] in its *Ngawha Geothermal Resource Report* (1993):[2]

> It appears to the Tribunal that there are difficulties in isolating the hot water which emerges at the surface or which might be extracted below ground by drilling, from other essential components in the system; for instance, the rain water which feeds the system, the heat source, possibly a hot magma body, which provides the heat for the geothermal system, the rising molten material (magma), the chemical and other interaction of hot waters with rocks and the variety of chemicals and gases sometimes present, sometimes in solution. All would appear to be essential components of the geothermal resource within the Ngawha system.

The second problem, the focus of this article, is that the nature of this "resource" has changed over time. If the geothermal resource is thought of as an energy resource of national significance, for example, then it has only existed as such in New Zealand since World War II, as before then the technology necessary to generate electricity from New Zealand's geothermal fields did not exist.

Exploitation of geothermal resources falls into quite distinct historical phases. In New Zealand pre-European Maori applied the resource in a number of ways, including central heating and food preparation, and used surface pools for recreational bathing and medicinal purposes. Nineteenth and early twentieth-century governments thought of the resource essentially in terms of surface geothermal features, valuable principally as a lure for tourists. Some geothermal areas were also exploited for mining: sulphur at White Island, cinnabar at Ngawha.

After World War II the government began to construct New Zealand's first geothermal power station, and today electricity generation is undoubtedly the most important form of exploitation of the resource. The total

1 The Waitangi Tribunal was set up by the Treaty of Waitangi Act 1975 as a permanent commission of enquiry entrusted with the task of enquiring into claims brought by any Maori that acts or omissions of the Crown were contrary to the "principles" of the Treaty of Waitangi (1840). There is now a large literature on the Tribunal. For general commentary see P Temm, *The Waitangi Tribunal: the conscience of the nation*, Random Century, Auckland, 1990; M P K Sorrenson, "Towards a radical reinterpretation of New Zealand History: the role of the Waitangi Tribunal" in I H Kawharu (ed), *Waitangi: Maori & Pakeha perspectives of the Treaty of Waitangi*, Oxford University Press, Auckland, 1989; Andrew Sharp, *Justice and the Maori: Maori claims in New Zealand political argument in the 1980s*, Oxford University Press, Auckland, 1990; W H Oliver, *Claims to the Waitangi Tribunal*, Department of Justice, Wellington, 1991; R P Boast, "The Waitangi Tribunal: 'conscience of the nation' or just another court?", (1993) 16 *University of New South Wales Law Journal* 223.

2 *Ngawha Geothermal Resource Report*, Wai 304, Brooker & Friend, Wellington, 1993, p 82. This is one of two Waitangi Tribunal reports dealing with geothermal resources. The other is the *Preliminary Report on the Te Arawa Representative Geothermal Claims*, Wai 153, Brooker & Friend, Wellington, 1993.

generating capacity of private and publicly owned geothermal power stations is 265 MW, about 7% of the national generating capacity, and this could theoretically be expanded by a further 400 MW.[3] New Zealand is one of the few countries in the world where a significant amount of the national power supply is generated at geothermal power stations. Recent steps towards deregulation of the electricity generation and supply industries have increased the importance of the geothermal resource as an energy resource. Already there is a privately-owned geothermal power station in operation near Taupo feeding power directly into the national grid. Various industrial applications are now being experimented with. Rotorua remains a centre of the tourism industry and thus the long-standing connection between geothermal resources and tourism, which may be said to pre-date the arrival of Europeans in this country, continues to be important. Mining, while not as important as formerly, still continues in some places. There are thus a number of overlapping phases, which this article will explicate and link to the associated legal developments. The principal dates are 1881, 1953 and 1991, each marked by a major statute.

The geothermal resource, lastly, has unique connections with certain Maori tribes, especially with the Tuwharetoa and Arawa peoples of the central North Island (although these are certainly not the only iwi who value their links with geothermal resources and surface features). Maori use of the resource is well-documented from both written and oral sources. Maori applications of the resource were wide-ranging and often sophisticated. There have been a number of claims to the resource laid before the Waitangi Tribunal, one of which, relating to the geothermal stations at Ngawha, near Kaikohe, has been reported on fully. Most claims state that the geothermal resource is regarded as a taonga, a treasured property, protected by Article II of the Treaty of Waitangi.[4] However at the present time a number of Maori landowning groups, rather than investing their energies in pursuing claims to the resource in venues such as the Waitangi Tribunal have instead taken advantage of the recent deregulation of the electricity generation and supply industries after 1987 to develop joint venture projects for the construction of private geothermal power stations, intending to sell the power to bulk purchasers through the national grid.

II. The Thermal Springs Acts 1881 and 1883

Background: Maori use of the resource

Maori of the central North Island and other geothermal areas made extensive use of geothermal resources. Early European visitors often remarked on Maori use of particular pools famous for their healing qualities. Dieffenbach noted in 1843 how children suffering from "cutaneous and scrofulous diseases, especially ringworm and swollen lymphatic glands" were brought to the springs at Ngawha to bathe in the warm water, "the beneficial effects of which were already very visible".[5] Ferdinand von Hochstetter, an Austrian geologist, toured New Zealand as part of an

3 Electricity Corporation of NZ Ltd, *Electricity Supply and Demand in New Zealand*, May 1994, 13.

4 For example the Tauhara North block claim by Karanga Metekingi and others of Ngati Tahu (Waitangi Tribunal Claim 57(b)) states specifically that "the areas of geothermal activity were and still are regarded as taonga as described in Article the Second of the Treaty of Waitangi".

5 Ernest Dieffenbach, *Travels in New Zealand*, John Murray, London, 1843, 246.

Austrian government expedition in 1858-9. He too visited Ngawha, and observed that "the natives have made use of these springs with good results for many kinds of illness".[6] Hochstetter noted also the "medicinal powers" of the famous and beautiful springs at Orakeikorako in the central North Island[7] and at Rotomahana near Rotorua.[8] Taupo, too, had its famous medicinal springs. In a trip to Taupo in 1840 or 1841 Edward Wakefield learned of the springs now known as Ketetahi situated on the northern flanks of Mount Tongariro, to which Maori from "all parts" travelled to benefit from the "healing qualities" of the springs and pools.[9]

While some springs were famous for their healing qualities, many others were used for cooking or simply for recreational bathing. Dieffenbach wrote that the springs at Ohinemutu (Rotorua) were regarded by the Ngati Whakaue people as "a natural kitchen".[10] Descriptions of Maori soaking and bathing in the pools at Ohinemutu and elsewhere feature in virtually all diaries and published accounts by European visitors, many of whom were entranced by the remarkable landscapes of Rotorua and Taupo and the Maori communities set amongst them. Maori use of the resource was certainly not confined to bathing and cooking. Maori collected or mined various geothermal products, including kokowai, a kind of paint or dye,[11] and various clays and natural soaps, including a strange edible clay collected at Rotomahana and used as a medicine. The central North Island has severe winters and geothermal heat was used to heat houses and greenhouses. At Ohinemutu kumara (sweet potato) seedlings were placed in baskets and placed in "natural hot-houses",[12] shortening the growing season by a critical six weeks. Elsewhere crops were grown in geothermally-warmed soils. Maori engaged in large-scale engineering and constructed artificial pools and channels to regulate the flow and temperature of the hot water. Maori distinguished between the different kinds of hydrothermal features: puia were geysers and intermittent boiling springs and also volcanic craters, ngawha were continuous boiling mudpools and springs; waiariki were springs suitable for bathing.[13] Steam baths were constructed over the natural hot steam vents. Stone slabs were placed over vents and fumaroles and the hot stone was used to dry berries and other foodstuffs at Rotomahana and fresh-water fish and shellfish at Ohinemutu.

This all-important resource was at the centre of a number of well-known Arawa and Tuwharetoa traditions. There are many versions of the famous story of Ngatoro-i-Rangi, a great tohunga and explorer, who came to Aotearoa on the canoe Te Arawa and who explored the inland regions, naming all the landmarks as he went.[14] Perishing of cold on the freezing

6 Ferdinand von Hochstetter, *Geology of New Zealand*, 1864, English translation by C A Fleming, Government Printer, Wellington, 1959, 45.
7 Ibid, 149.
8 Ibid, 161.
9 E J Wakefield, *Adventure in New Zealand*, John Murray, London, 1845, vol ii, 83.
10 Dieffenbach, above n 5, 390-1.
11 See J C Bidwill, *Rambles in New Zealand*, W S Orr, London, 1841, 35-36.
12 W R Wade, *Journey in the Northern Island of New Zealand*, Hobart, 1842, 144-45.
13 Hochstetter, op cit, 139-41.
14 The earliest written version of this famous story appears to be that contained in the manuscript of the Arawa scholar Wiremu Maihi te Rangikaheke, written in 1849 and now held in the Grey collection of the Auckland Public Library. For a translation see George Graham, "Ngatoro-i-Rangi: his ascent of Tongariro and the neighbouring mountains, translated from the MS account of Wiremu te Rangikaheke", MS 120, M52, Auckland Institute and Museum Library. This appears to be a specifically Arawa version of the story, which differs in a number of details from the

slopes of Mt Tongariro he called for fire to be brought from Polynesia. His sisters complied with his request and the fire was brought first to Whakaari, White Island, a volcano in the Bay of Plenty, and then to Ngatoro-i-Rangi on the slopes of the mountain. Those bringing the fire came to the surface at various places, which explains why the main thermal areas are all to be found on a line from Tongariro to White Island. (Modern geologists have of course noticed the same thing, and explain it by the scientific theory of plate tectonics: the thermal zone lies on the boundary between the Pacific and Indo-Australian plates.) Arguably the Ngatoro-i-Rangi story can serve as a metaphor for the geothermal resource as such. The concept of the resource being linked to the ancestral homelands in central Polynesia also has some parallels with traditional accounts of the origins of geothermal resources in Hawaii.[15]

The resource was regulated by means of a system of customary law, the complete details of which are not today easy to construct. Evidence of this law can be found in Maori manuscripts of last century, in the minute books of the Maori Land Court, in the letters, journals, diaries and published accounts of European visitors, and in oral tradition still extant. This law included a law of property, by which some pools appear to have been vested in the whole community, but others in particular hapu (sub-tribes) and whanau (extended-families).[16] Evidence recorded in the minute books of the Native (later Maori) Land Court indicates that some individuals of high status owned their own pools.[17] Rights to gather tawa berries and other foodstuffs preserve them by cooking them in hot springs were described by Makereti, a distinguished Tuhourangi scholar and anthropologist, in her book *The Old Time Maori* published in 1938.[18] A rahui (prohibition) was placed over the food-gathering places to indicate that only some hapu of Tuhourangi had the right to gather food there.[19] Details recorded in the

Tuwharetoa versions recorded in the published literature: see "Lieutenant Bates rides to Taupo", *Auckland-Waikato Historical Societies Journal*, No 14, April 1969, p 6; Hochstetter, above n 7, 140 (Hochstetter obtained his version from Te Heuheu Tukino III, Iwikau, chief of Ngati Tuwharetoa, in 1859); John Te H Grace, *Tuwharetoa: the history of the Maori people of the Taupo district*, Reed, Wellington, 1959, 61-64. For a full discussion and analysis of the various accounts, see R P Boast, *The hot lakes: Maori use and management of geothermal areas from the evidence of European visitors*, unpublished report to the Waitangi Tribunal (Geothermal claims #A79), 1992, 22-31.

15 In both Hawaii and New Zealand the geothermal resource is regarded as a valuable and beneficent resource brought to the new country from the ancestral homeland of Hawaiki.

16 See John Johnson, "Notes from a Journal", reprinted in Nancy Taylor (ed), *Early Travellers in New Zealand*, Oxford University Press, 1959, especially pp 155-8. Here Johnson describes his experiences of a visit to Ohinemutu in 1847. One large pool at Ohinemutu was regarded as the "common bathing-place" (ibid, 155). But other pools belonged to particular families and were fenced off in enclosures: "Each family has managed to secure two or more of these [pools], in the square fenced enclosures, common to native pas, which ... they use as a cooking place, but they also make use of them for other purposes of domestic convenience, one, being that of private baths called *wai ariki* which are hollowed out of the rock or shaped with flat slabs ..."

17 See evidence of Rangiteaorere Te Kiri in the Mokoia Island case, (1916) 1 Mokoia Island MB 48: "I know a bath called Kaiweka. It belonged to Tiki and Tutanekai." This is of course the bath that Hinemoa bathed in after her famous swim to Mokoia Island from the shore of Lake Rotorua.

18 Makereti (Maggie Papakura) was born at Whakarewarewa in 1872 and became a well-known tourist guide at the thermal area. She married Richard Staples-Browne in 1912 and moved to England where she wrote her book, intending to present it as part of her Oxford degree in anthropology, but died before the degree was conferred. On Makereti see Ngahuia te Awekotuku, "Remembering Makereti" in *Mana Wahine Maori*, New Women's Press, Auckland, 1992, 155-162. Makereti's *The Old Time Maori* was republished with an introductory biography by Ngahuia te Awekotuku by the New Women's Press in 1986; the details on food preservation at Whakarewarewa are at pp 207-8.

19 Ibid.

Land Court minute books record how ducks were gathered from the warm lakes at certain prescribed times of year and cooked and preserved in the springs.[20]

The Fenton agreement, 1880

The Fenton agreement was a treaty or agreement concluded between the Crown, represented by Chief Judge Fenton of the Native Land Court, and the chiefs of Ngati Whakaue of Te Arawa. The agreement was drawn up after a meeting between the chiefs and Fenton at Ngati Whakaue's meeting house, Tamatekapua, located at Ohinemutu by the shore of Lake Rotorua, and is dated 25 November 1880. The agreement paved the way for the Thermal Springs Acts and for the flood of investigations of title to Arawa land in the Rotorua region by the Land Court in the 1880s.

Before 1880 the Rotorua region was part of a zone of autonomous Maori authority. At Ohinemutu, the main settlement, the principal agency of authority was not the state but the Komiti Nui o Rotorua, the "great Committee", which met regularly in the Tamatekapua house and which had appointed a secretary to conduct its formal business. One of the main objectives of the Komiti was to prevent the Crown from acquiring Maori land in the region.[21] Europeans lived at Ohinemutu but as tenants on Maori-owned land. All the land in the Rotorua area was still uninvestigated Maori customary (papatipu) land which had never been surveyed or passed through the Maori Land Court, and in fact the Maori Land Court had never sat in Rotorua and was not welcome there. This is not to say that the area had been unaffected by change. The tourist industry was flourishing and essentially in Maori hands: this had brought great wealth to some of the Arawa tribes but there had been undesirable consequences as well.[22] For most tourists the highlight of their visit was the Pink and White Terraces at Rotomahana, located in Tuhourangi territory.

Some Rotorua chiefs wanted to develop their area further and to establish better schools for local children. This may have predisposed them to enter into negotiations with the state. However the idea of concluding some sort of formal agreement between the chiefs and the Crown seems to have originated mainly in Chief Judge Fenton's own brain. Quite what his objectives were is not altogether clear. From what is known of Fenton, and from his clear distaste for the European tenants "squatting" on Maori land at Ohinemutu, it is likely that his main objective was to regularise land ownership around Rotorua by means of some process which would give

20 See the evidence of Hera Peka relating to Lake Rotokawa, near Taupo, in the Rotokawa case at (1897) 10 Taupo MB 203. For general studies of settlement patterns around Taupo see R G Ward, "Maori settlement in the Taupo country", (1956) 65 *Journal of the Polynesian Society* 41; A Walton, "The population of the Lake Taupo region, New Zealand, 1839-1859", (1986) 8 *New Zealand Journal of Archaeology*, 75.

21 The Komiti Nui is described in Fenton's report of 18 December 1880, MA 13/79, National Archives, Wellington. He notes that he found at Ohinemutu "a regularly organised head body with Chairman, Secretary and officers". It was originally, says Fenton, "constituted as a Land League for the prime objective of preventing alienation to the Crown" but had come to have a variety of other functions.

22 See Ngahuia te Awekotuku, "The Sociocultural impact of tourism on the Te Arawa people of Rotorua", PhD thesis, University of Hawaii, 1981 and "Te Hu o Tarawera" in *Mana Wahine Maori*, New Women's Press, Auckland, 1991, 155-162; Peter Waaka, "Whakarewarewa" in Stafford et al, *Rotorua 1880-1980*, Rotorua and District Historical Society, 1980, and "Tarawera — 100 years before the eruption", *Tarawera Eruption Centennial Exhibition 1886-1986*, Rotorua District Council, Rotorua, 1986.

an influential role to the Native Land Court. Fenton had instructions from Rolleston, the Native Minister, which reveal that the government's main objectives were to regularise land tenure and give the European hotel and store keepers at Ohinemutu some kind of regular tenure, to do something to "secure sanitary regulations being enforced" and to generally "render the Lake Country more agreeable to visitors than it is at present".[23] Fenton was given a very free hand and was left completely to his own devices to draw up whatever agreement he thought necessary.

Fenton stayed at Ohinemutu for about a fortnight and had a number of meetings with Ngati Whakaue leaders. In his report Fenton stated that he visited the "neighbouring tribes", although the only other Arawa iwi specifically mentioned by him is Tuhourangi.[24] The Fenton agreement seems principally to have been made with Ngati Whakaue only (although there was a separate agreement made with Tuhourangi, Fenton afterwards said it "need not be noticed"[25]). The Fenton agreement was entirely concerned with the arrangements for the new town of Rotorua. Following a survey to be conducted by the Chief Surveyor, the Native Land Court was to sit at Rotorua and adjudicate on the block known as Te Pukeroa or Pukeroa-Oruawhata (which accounts for most of the modern city).[26] The village of Ohinemutu was to be left out of the survey and the investigation of title. Following the survey, the Pukeroa block was to be cut up into sections and leased, the income to be paid to the Maori owners. The leases were to be sold by auction in Auckland and were to be for a period of 99 years. Special provision was made for the hot springs and thermal areas:[27]

> All the medicinal waters within the Town shall be Public Reserves under the management of the doctor, who may make laws regulating their use.

From Ngati Whakaue's perspective the agreement had the advantage of guaranteeing to them income from their land at Rotorua and protecting their interests as the new town grew up around them. For the government the agreement facilitated the arrival of the Native Land Court into the area, and regularised land tenure so that a new spa town could be created in the "Hot Lakes" district.

The Thermal Springs Acts 1881 and 1883

The Thermal-Springs Districts Act 1881 was described in its long title as an act "to provide for the settlement of the Thermal-Springs Districts of the Colony". Facilitating the "settlement" of the region was a principal objective of the legislation, as the Preamble shows:

> Whereas it would be advantageous to the colony, and beneficial to the Maori owners of land in which natural mineral springs and thermal waters exist, that such localities should

23 Telegraph, Bryce to Fenton (date illegible: 10 November 1880?), MA 13/79, National Archives, Wellington.

24 F D Fenton, Report, 18 December 1880, MA 13/79, National Archives, Wellington.

25 Fenton to Rolleston, 14 February 1882, MA 13/79, National Archives, Wellington.

26 Fenton Agreement, 25 November 1880, MS translation on MA 13/79, National Archives, Wellington, cl 1. There are in fact three versions of the agreement on the file, one in Maori and two in English. The two English versions differ only slightly – one appears to be an idiomatic translation of the Maori-language original (Fenton wrote and spoke Maori fluently) and the other a more formal version for official purposes. The Maori text is signed by many individual Maori signatories and on the back Fenton signed it "for the Government".

27 Ibid, cl 3.6.

be opened to colonization and made available for settlement: And it is expedient that powers should be given to the Governor enabling him to make arrangements for effecting that object ...

The 1881 Act conferred on the Crown a statutory monopoly over Maori land acquisition in the "Thermal-Springs districts". The Act was thus a partial restoration of Crown pre-emption, relinquished over the whole country two decades previously by the Native Lands Act 1862. The 1881 Act allowed the Governor to proclaim "localities in which there are considerable numbers of the ngawha, waiariki, or hot or mineral springs, lakes, rivers or waters".[28] Only the Crown could then buy Maori land in the proclaimed areas.[29] Once an area had been proclaimed the Governor was empowered to "make arrangements with the Native proprietors" to purchase land in the proclaimed area and establish towns and survey off farms, provided that "the land has passed through the Native Land Court".[30]

The Fenton agreement itself is not mentioned in the 1881 Act, but it was discussed fully in parliament. The four Maori MPs and some opposition members (including Sir George Grey) pointed out that although the Fenton agreement had been concluded only with Ngati Whakaue, the Act itself had a much wider political ambit – in fact anywhere where there were thermal springs. The government's response was to narrow the Act so that only areas within the Tauranga and East Taupo counties could be proclaimed under it.[31] This, however, was at that time still an enormous area, encompassing virtually the whole of the central North Island thermal regions and extending well beyond the territory not merely of Ngati Whakaue but of the entire Arawa confederation. The first area proclaimed under the Act was the Pukeroa-Oruawhata block at Rotorua, an area of 3,200 acres, proclaimed on 13 October 1881. The concerns of Major Te Wheoro and Sir George Grey were fully realised, however, with the next proclamation, which proclaimed an area of 616,890 acres to be subject to the Act.[32] This was followed by another which proclaimed a large area immediately to the north of Lake Taupo. The effect was that the government acquired a complete monopoly of land purchase for itself in a substantial area stretching from Tauranga to Taupo.

Why the government chose to restore pre-emption over such a wide area at this time is unclear. One objective was almost certainly to prevent private purchasers from obtaining title to important thermal areas. Shortly before the Act was passed Robert Graham, a well-known entrepreneur, managed to acquire title to the Wairakei block near Taupo.[33] This block contained some famous and picturesque hot springs and geysers. The government feared that other thermal areas would be sold by their Maori owners to other private individuals. The government wanted not merely to encourage a tourist industry; it wished to actively develop and promote it itself. This is shown by some further provisions of the Thermal-Springs Districts Act 1881. Section 5(3) empowered the Governor to:

28 Thermal-Springs Districts Act 1881 s 2.
29 Ibid, s 4.
30 Ibid, s 5.
31 Ibid, s 14.
32 *New Zealand Gazette*, 1881, 1375.
33 See Evelyn Stokes, *Wairakei Geothermal area: some historical perspectives*, University of Waikato, Hamilton, 1991.

treat with and agree with the Native proprietors for the use and enjoyment by the public of all mineral or other springs, lakes, rivers and waters.

And by section 6(7) the Governor was empowered to:

manage and control the use of all mineral springs, hot springs, ngawha, waiariki, lakes, rivers and waters, and fix and authorise the collection of fees for the use thereof ... with the consent of the Native proprietors, to be ascertained in such manner as he may think fit.

In 1883 the Thermal-Springs Act was amended. The amending act specifically provided that the Fenton agreement of 1881 and a subsequent supplementary agreement between Ngati Whakaue and the Crown of 25 February 1883 (the "Clarke agreement") were "valid and effectual".[34] The amending act also contained a number of provisions relating to the projected railway from the Waikato to Rotorua undertaken by the Thames Valley and Rotorua Railway Company.[35] The Rotorua chiefs wanted a railway linking Rotorua with the rest of the country and had donated sufficient land to the company not only for track and stations but also as security for debentures the company was attempting to float in the City of London.

Slowly the new town of Rotorua began to develop. The first step was the investigation of the Pukeroa-Oruawhata block by the Native Land Court in 1881. The case was heard by Judge Symonds from January-June 1881, with Fenton anxiously controlling events from behind the scenes. Although a number of iwi of Te Arawa asserted claims to the block, the outcome was a success for Ngati Whakaue, who were conveniently found by the Court to be essentially the only legitimate owners.[36] With this decision Te Arawa's careful policy of resisting the Land Court collapsed, and the Pukeroa case was followed by rapid sequence of other hearings as Arawa iwi brought their lands to the Court and received individualised titles. As huge blocks such as Rotomahana-Parekarangi and Rotomahana-Patetere-Paeroa ground through the Native Land Court, the new town was surveyed out and the Pukeroa-Oruawhata leases successfully auctioned in Auckland. Everything seemed to be proceeding to plan, as T W Lewis, the Secretary of the Native Department, later described:[37]

At the time the township was laid out and leased, there was a sanguine belief that the place had before it an important and prosperous future. It was generally supposed that the Government, who evidently took a great interest in the scheme, would use every effort to

34 Thermal Springs District Act 1881 Amendment Act 1883, s 2.

35 Ibid, s 6.

36 Judge Symonds' decision is at (1881) 1 Rotorua MB 344. Although the actual hearing lasted, by fits and starts, for nearly six months, and generated a substantial volume of evidence, Judge Symonds' decision is amazingly brief (9 short paragraphs). The case usefully illustrates the process of adjudication of title as it was typically conducted by the Native Land Court. Various Arawa tribes advanced claims to the block: Ngati Whakaue, Tuhourangi, Ngati Rangiwewehi, Ngati Uenukukopako. The evidence discloses a complex tribal history and subtle linkages between the tribes. Ngati Whakaue went last and had essentially just one witness, the great chief Hamuera Pango, who rested Ngati Whakaue's claim to the block on standard categories of conquest, permanent occupation, fortification, cultivation, burial places, and "mana over this and the adjacent lands". Judge Symonds awarded the whole block to Ngati Whakaue, completely disallowing the claims of all other Arawa tribes. The only other successful claimants were Ngati Kea and Ngati Tuara, two small groups who had fled to Rotorua seeking refuge from the powerful Waikato tribes and who had been granted by Ngati Whakaue a small piece of land at a place known as Tarewa.

37 Lewis to Native Minister, 12 May 1890 (copy of letter attached to pleadings in a civil action by Eruera te Uremutu et al, in a separate bundle attached to LS 1, 16514 (Rotorua Township), Parts 2 and 3, National Archives, Wellington.

make it a complete success ... A Railway was projected by a private company to bring Rotorua within a day's easy reach of Auckland, and when the leases were offered in Auckland by auction, although the upset prices were high, they were exceeded, and a vigorous competition ensued for sections within the Township, and for the day of the sale everything looked couleur de rose; the natives moreover imagined that large revenues arising from the land as rents, would be assured to them, and went into debt accordingly.

But hopes were soon dashed and were replaced by a sequence of disasters. The 1880s were a time of severe economic contraction. Many lessees did not bother to take up their leases, and most of those who did declined to pay any rent. When the government tried to bring proceedings to collect rent on behalf of the Maori owners the case was thrown out by Gillies J in the High Court on a technicality.[38] The anticipated crowds of tourists failed to arrive. Then in 1886 there was a huge eruption of Mount Tarawera, not far from Rotorua, which destroyed the region's prime tourist attraction, the Pink and White Terraces at Rotomahana. Many Tuhourangi lost their lives, entire villages were destroyed, and a shattered remnant of the tribe took refuge with their Ngati Wahiao relatives at Whakarewarewa.[39] Ngati Whakaue for their part became disillusioned with the whole arrangement, and abandoned the lease project, most owners selling the freehold of the now apparently worthless Pukeroa block to the Crown in 1889.

III. Mining and Tourism

Mining

Maori themselves mined minerals at geothermal sites. Kokowai (a dye) and sulphur were collected from places such as Rotokawa (the name means "sour lake") near Taupo. The sulphur was dug out in "big blocks" and "carried off in sacks and pikau bags", and was used as a medicine: the sulphur was burnt and the smoke used to treat skin diseases or was breathed in as a cure for asthma.[40]

Mining was very important in the 19th-century New Zealand colonial economy, and a number of attempts were made to extract minerals at geothermal sites. One famous geothermal site which was mined at various times is Whakaari (White Island), an active volcano in the Bay of Plenty. The island lies 51 kilometres out to sea and covers an area of 238 hectares. In 1867, after a hearing at Maketu, the Native Land Court issued a title to the island to Retireti Tapihana (Retreat Tapsell) and his sister Kataraina (Katherine). The Tapsells were a part-Maori family, their father being one Philip Tapsell, a Dane, who settled on the Bay of Plenty Coast as a merchant in 1830 – his true name was Hans Felk – and their mother a prominent Arawa woman, Hine-i-turama of Ngati Whakaue. Reteriti said that the island was bought by his father from its Ngati Awa owners many years earlier. This claim, amounting to an Arawa claim to the islands by purchase, was accepted by the Native Land Court despite some Ngati Awa

38 Ibid: "... The late Mr Justice Gillies reversed the decisions of the lower Courts, principally, I have heard, on the ground that the Ngatiwhakaue were not a corporate body and could not be a contracting power to a Lease."

39 On the eruption see D M Stafford, *The founding years in Rotorua*, Ray Richards and Rotorua District Council, 1986, 247-78.

40 Evidence of Kurupai Whata in (1979) 60 Taupo MB 97, cited in Evelyn Stokes, Taupo Sewage Disposal Options: A report to Taupo District Council, 1991 (copy in possession of author), 34. The Ngati Tahu people of North Taupo referred to sulphur as kupapa or kupapapapa.

opposition.[41] After getting title to the island Retireti and Kataraina soon sold it to George Simpkins, Kataraina's husband, and in 1874 the island was in turn sold to Judge Wilson of the Native Land Court, and William Kelly. They formed a syndicate to work the sulphur deposits, and 600-700 tons of sulphur was eventually shipped to Sydney. The venture was not, however, a financial success.

In 1906 one Andrew Gray, a promoter and speculator, offered to sell the island to the government for £5000. Although some officials were enthusiastic, the government of the day rejected Gray's proposal, and so in 1913 the island was sold not to the Crown but to the White Island Sulphur Company, a Canadian concern based at Vancouver. By 1913 elaborate mineworkings had been built. As it was now a working mine, Inspectors of Mines visited the island and reported that the very active volcanic crater presented a "very uncanny appearance" and made the island a very dangerous place indeed. These warnings were prescient. In September 1914 there was a massive explosion, all the mineworkings were destroyed and all ten men working on the island killed. The White Island Sulphur Company then seems to have simply vanished. A further attempt to mine the sulphur deposits on the island was made in the 1930s, but this too was abandoned as unprofitable. The island today is still privately owned and has the status of a private wildlife refuge. It is the subject of a claim to the Waitangi Tribunal by two separate claimant groups, one by H M Mead and C M Paul of Ngati Awa and the other by a group known as Te-Whanau-a-Te-Ehutu of Te Kaha.[42]

Another geothermal area which was mined was Ngawha, in Northland. Instead of sulphur, however, Ngawha was of interest because of its deposits of cinnabar, an ore of mercury. (The presence of mercury in the thermal waters of Ngawha led other promoters to press the case for Ngawha becoming an international centre for the treatment of syphilis.) Various efforts were made to mine cinnabar at Ngawha after 1870, when the presence of the ore was first noticed, and in the 1890s an English syndicate established a mine there which proved unsuccessful. In 1928 a company called Kaikohe Developments Ltd, a subsidiary of ICI, was established to mine cinnabar at Ngawha. The company acquired land there itself, and also obtained a mining licence over an area of Crown land near the hot springs. An opencast mine and an elaborate plant was established. The plan was to transport the ore by aerial ropeways to bins, where it would be dried, roasted in furnaces and the volatilized ore passed through condensers to extract the mercury. Much money was spent on the plant, and about 20 tons of mercury was successfully mined, but the project was bedevilled by technical problems. The onset of depression in any event led to a collapse

41 The case can be found at (1867) 1 Maketu MB 1-4. An application for a rehearing was made in 1874, but by this time the island had already been Crown granted and the application was declined: see Closed File 889, Maori Land Court, Rotorua. For a full discussion of the case and the rehearing application see R P Boast, *Whakaari (White Island) and Motuhora (Whale Island): a report to the Waitangi Tribunal*, November 1993, pp 23-39.

42 The preceding paragraph is based on R P Boast, *Whakaari (White Island) and Motuhora (Whale Island): A Report to the Waitangi Tribunal*, 1992, where the documentation is set out in full. The claims to Whakaari have been given the claim Nos Wai 206 and Wai 225 by the Waitangi Tribunal Division of the Department of Justice. Both claims raise as a grievance the Crown's acquisition of Whakaari, but as it happens the island was never acquired by the Crown, and was in fact sold privately by the Tapsell family once they had obtained title in the Native Land Court. As noted in the text attempts were made to sell the island to the government, but these attempts were rebuffed.

in the world market for mercury. In September 1931 the operation was closed and the plant dismantled.[43] Meanwhile a small part of the thermal area at Ngawha continued in Maori ownership, and local hapu of the Ngapuhi iwi continued to bathe in their pools as they had always done, at the same time making a number of attempts to make their pools more attractive to visitors.

No particular regime to facilitate mining in geothermal areas was ever established by parliament, probably fortunately. It was, instead, governed by ordinary mining law. In New Zealand law ownership of minerals depends for the most part on the date of the original Crown grant. In earlier grants it was the practice to grant ownership of minerals; but subsequently the Crown came to progressively adopt the policy of reserving ownership and access rights.[44] In the case of White Island and part of Ngawha, the land was privately owned and the landowners were free to mine it if they wished. Crown land required a mining licence, which for the Crown-owned section of Ngawha was readily granted in 1929. The mines at White Island and Ngawha indicate the adventurousness of mining promoters and a surprising willingness to invest large amounts of capital in dangerous or technically difficult projects. Despite various attempts all attempts to establish permanent and profitable mines at White Island and Ngawha failed. The main application of geothermal resources continued to be tourism.

Spas and tourists

Once Ngati Whakaue had sold Pukeroa-Oruawhata to the government, the Crown became effectively the principal landowner at Rotorua. Ambitious plans were made to develop a world-class spa at Rotorua. The Tourist Department was in control of the process and exercised a considerable sway over the town. In 1902 Dr A S Wohlmann was appointed as resident government "balneologist" (ie medical specialist in bathing therapy) at Rotorua. On 13 August 1908, the Prime Minister, Sir Joseph Ward, opened the new bath-house at Rotorua, a massive Mock-Tudor building in the Government Gardens (today it is regrettably known as "Tudor Towers"). A band rotunda, cricket and bowling greens, tennis courts and an aviary were constructed nearby. Inside the bath-house new and allegedly curative treatments were offered. Most involved soaking in hot mineralised water or mud, but, more exotically, there were also radium water treatments, supposed to reduce blood pressure and tighten loose teeth, the "Greville hot air bath" and the "electric light bath". At Te Aroha another spa, featuring drinking fountains, bath-houses and a tea shop was laid out by the Tourist Department. A similar complex was also created at Hanmer in Canterbury.[45]

43 The foregoing is a summary of R P Boast, *Ngawha Springs: a report to the Waitangi Tribunal*, October 1992, pp 22-28. See also Mines Department Report, AJHR 1894, C2; MD 1, 10/13/169, National Archives, Wellington.

44 Currently the law is governed by the Crown Minerals Act 1991, s 11 (minerals reserved to Crown); s 48 (cancelling former rights of Crown entry). For obscure reasons the Crown relinquished by s 48 all former rights of access reserved in earlier grants or which the Crown had even purchased – a surprising and arguably unnecessary abandonment of valuable property rights which the Crown may later come to regret

45 On the spa era see generally Ian Rockel, *Taking the Waters: early spas in New Zealand*, Government Printer, Wellington, 1986.

Soaking in the pools was seen as only one of the attractions of Rotorua. The other continued to be the existing thermal areas. After the destruction of the Pink and White Terraces in the Tarawera eruption, the main attraction became the thermal area at Whakarewarewa, only a mile or so away from the town. Whakarewarewa was outside the old Pukeroa-Oruawhata block. By 1900 most of the land in and around Whakarewarewa had also come to be owned by the Crown, but the central part of the thermal area remained Maori-owned (as, indeed, it still is). Here the Ngati Wahiao/Tuhourangi community remained, carrying on with their traditional lifestyle – often much to the irritation of local officials. In 1906 the District Inspector of Works at Rotorua complained that local Maori persisted in cleaning potatoes and fish in some of the hot springs "and in fact I have had to draw the attention of the Sanitary Inspector to the matter, but it made little difference with the Natives".[46] The inhabitants of the village seem to have made one of the first commercial agreements relating to geothermal resources when they arranged to lease piped hot mineralised water to Messrs Nathan and Co who used it for their so-called "Oil Baths". The division of the thermal area into Crown and Maori-owned sections gave rise to a myriad of petty disputes, over rights of access, cooking and washing clothes in the pools, and tolls. The inhabitants wanted to retain some of the benefits of tourism, and strongly resented any attempt to use guides who were not from the village. These endless disputes and difficulties were a product of competing objectives: the Tourist Department wanted to turn Rotorua into a showcase for "respectable" tourists; the inhabitants of Whakarewarewa wished to carry on with their cherished traditional lifestyle. This lifestyle was not incompatible with tourism, but it did mean that some springs would continue to be used for washing and cooking – activities which did not always fit with the Tourist Department's plans to develop a South Seas Cheltenham.

The apogee of the spa era did not last long. Rotorua was too isolated and backward to compete with the great spas of Europe. Modern medicine came to discount the values of immersion in hot mineralised water and mud. The great bath-house at Rotorua was plagued with maintenance problems. In 1966 it was finally closed and is now used as a convention centre and museum. But despite the collapse of the spa ideal tourism continued to be important at Rotorua. The continuing importance of the Tourist Department, of tourism and of the preference of local Maori to keep living in their traditional communities amongst the hot springs at Ohinemutu and Whakarewarewa as the town grew up around them has made Rotorua a rather unique city.

The Thermal-Springs Act of 1910 was intended in the main to close the government's title to Pukeroa-Oruawhata. The Thermal-Springs Districts Acts of 1881 and 1883 were repealed. The 1910 legislation required Maori Land Boards to make enquiries as to whether land contained any hot springs, geysers etc before confirming any decision of Maori owners to sell their land. The 1910 Act also tidied up the matter of recalcitrant owners of Pukeroa-Oruawhata who had declined to sell their shares to the Crown. The Crown could have applied to the Native Land Court for the block to

46 Inspector of Works, Rotorua, to Superintendent, Department of Tourist and Health Resorts, 26 March 1906, TO 1, 1/107/1, National Archives, Wellington.

be partitioned between Crown and non-seller's shares, which would have involved costly surveys and tedious hearings before the Native Land Court. Instead the non-seller's shares were simply cancelled by statute and a procedure set up for the payment of compensation.[47] Pukeroa-Oruawhata became Crown land. Subsequently it was subdivided and much of it was sold off to private third parties; parks, reserves and hospital grounds remained in Crown ownership.

In 1903 the Scenery Preservation Act was passed, which allowed the government to compulsorily acquire "lands of scenic or historic interest, or on which there are thermal springs".[48] Most thermal areas at this time were still Maori-owned. Maori objected to the prospect of thermal areas being taken off them compulsorily under the Public Works Act.[49] There were petitions to parliament, and the member of parliament for Eastern Maori, A T Ngata, raised the matter of Maori concerns during a debate on the Scenery Preservation Amendment Bill in 1906.[50] The legality of compulsory taking of Maori land under the Scenery Preservation Acts is a tangled story in itself.[51] Two thermal areas were taken compulsorily, Waiotapu, to the south of Rotorua, and Awakeri in the Bay of Plenty.[52]

By 1940 the position was that some thermal areas were owned by the government, some by Maori, and at least one major one, Wairakei, was privately owned. Such law as had developed focused on land ownership in thermal areas. The "geothermal resource" meant, in fact, the famous surface thermal areas at Whakarewarewa, Wairakei, Waiotapu, Waimangu, Tikitere and so on, and the law reflected this. The Thermal-Springs Districts Acts had enabled the Crown to acquire large areas of the land in the Rotorua-Taupo region. By 1940 Maori had more or less lost control over the tourist industry they had monopolised in the 1870s. The Scenery Preservation Acts had facilitated some compulsory acquisition. But there was still no statutory regime governing underground geothermal systems. Householders at Rotorua and elsewhere seem to have put down bores to tap into the apparently abundant resource as and when they liked. The legal regime, if it can be called that, was that of the common law relating to groundwater – it belonged to nobody unless abstracted.[53] The underground resource was of no importance or interest to the state.

IV. Nationalism and The Geothermal Energy Act 1953

By 1947 New Zealand was facing severe power shortages. New industries and housing created additional demand for electricity. The govern-

47 Thermal Springs Districts Act 1910, ss 10-11.

48 Scenery Preservation Act 1903 ss 3-5.

49 See petition of Haupeta Hautehoro (or Rotorua) and 100 others, 1904, copy on TO 1, 1904/191/12.

50 See (1906) 138 *New Zealand Parliamentary Debates*, 596.

51 See Scenery Preservation Amendment Acts 1906 and 1910.

52 See R P Boast, *The Legal Framework for Geothermal Resources: a historical study*, report to the Waitangi Tribunal, 1991, 24-28.

53 The leading case on groundwater is the decision of Exchequer Chamber in *Acton v Blundell* (1843), 12 M & W 324, 152 ER 1223. The Court held that groundwater is owned by no-one until abstracted and that for underground water there is no equivalent to the riparian rights doctrine: see Tindal CJ at 152 ER 1233-4. This case is the starting-point for the so-called "rule of capture", of importance in oil and gas law in some jurisdictions: see generally Crommelin, "The US Rule of Capture: its place in Australia", [1986] *AMPLA Yearbook* 265. On groundwater see also *Chasemore v Richards* (1859) 7 HLC 349, *Bradford Corporation v Pickles* [1895] AC 587, and *Salt Union v Brunner, Mond & Co* [1906] 2 KB 822.

ment was embarrassed by public criticism of the endless power cuts. Officials of the Ministry of Works began to consider the option of geothermal power to supplement an expanded programme of state-built hydro-electric stations. Mr Robert (Bob) Semple, the Minister of Works, reported to parliament in 1947 that it was proposed to investigate geothermal power generation,[54] and the following year Ministry of Works staff travelled to Italy to visit the only geothermal power station then in operation in the world, at Lardarello, which had been in operation since 1914. By 1950 the first trial bores were in place at Wairakei, selected as the most promising site; two years later 17 bores were in place, some going down 1,500 feet. Pressure levels were excellent and temperatures were high, sometimes higher than at Lardarello, but there were technical problems in that Wairakei produced wet steam – Lardarello ran on dry steam. Much of the technology necessary for a power station run on hot water was in fact pioneered at Wairakei, the second geothermal power station in the world to be built. At first it was planned to construct a 20 MW power station; but eventually the two power stations at Wairakei, commissioned from 1958-1964, were to produce at their peak 192 MW.

The developments at Wairakei were part of the reasons for the Geothermal Steam Bill, introduced by the government into the House in 1952. Also of some significance was a project to extract 'heavy water'[55] from geothermal steam, first mooted during discussions between Dr Marsden, the scientific advisor to the New Zealand High Commission in London, and Sir John Crockcroft, Director of the British government's Atomic Energy Research Establishment at Harwell.[56] The extent to which this project was connected to military applications is not clear. A guaranteed supply of heavy water had implications for the design of Britain's proposed atomic-powered submarines, as the New Zealand Department of Scientific and Industrial Research recognised at the time.[57] Work on a secret feasibility study began at Wairakei, disguised under the title of "heat exchange research". But in late 1954 the whole project became public when a British technical team visited the country and discussed the project fairly openly with the media.[58] There was much local excitement and interest. The sensitivities and anxieties about nuclear energy so prevalent today did not exist in 1954. In the end the heavy water plant was never built, apparently

54 Statement by the Hon R Semple, Minister in Charge of the State Hydro-Electric Department, 1947 AJHR D-4.

55 "Heavy water" (deuterium oxide) is chemically similar to ordinary water, with the difference that the hydrogen component of the water molecule is deuterium, an isotope of hydrogen, its nucleus being double the mass of ordinary hydrogen. "Heavy water" has a number of applications in nuclear physics and is used as a moderator in nuclear reactors; it is also of importance in producing thermonuclear weapons.

56 See Memorandum from the British High Commission to the Government of New Zealand, 17 March 1952, copy on NZED 1, 2/0/83, National Archives, Wellington. Britain wanted to obtain an independent supply of heavy water which would free it from dependence on production in the United States.

57 DSIR memo 5 August 1952, copy on NZED 1, 2/0/83: "The exact relationship of the supply of heavy water to the military and industrial application of heavy water is not known in New Zealand, but it seems probable that the certainty of adequate supplies at reasonable cost could affect the design of atomic power plants for submarines and other special purpose reactors."

58 The British delegation's visit was reported in *The Evening Post* (Wellington), 22 November 1954; the following day the heavy water extraction project was formally announced by the Prime Minister, Mr Holland: see "Joint Body to Control Heavy Water Station", *The Dominion* (Wellington), 23 November 1954. By this time the project had been at the planning stage for at least two years.

for reasons of cost.[59] However the heavy water project may have been an additional reason for the government's original decision to nationalise the resource.

In introducing the second reading debate on the Geothermal Steam Bill in 1952 the Minister of Works in the Holland National government, W S Goosman, explained that the Geothermal Steam Bill was "intended to put geothermal steam in the same position as water for the generation of electricity".[60] This is a significant clue to the objectives of the legislation. Its historical antecedent was the Water-power Act 1903, which had nationalised the right to generate electricity from hydro-electric power stations. The connections between technological advance and nationalisation are obvious. The Water-power Act had stipulated that:[61]

> Subject to any rights lawfully held, the sole right to use water in lakes, falls, rivers, or streams for the purpose of generating or storing electricity or other power shall vest in His Majesty.

This earlier nationalisation had been coupled with a licensing regime, whereby private operators who wished to generate electricity had to apply for a licence (this could only be for particular users or projects: private hydro-electric electricity generation for sale to general consumers was forbidden[62]). The Geothermal Steam Bill followed the same general approach: nationalisation coupled with licensing.

However, resource nationalisation was an extremely sensitive political issue in 1952. The Labour government of 1935 to 1949 had been committed to the principle of public ownership of key resources. In 1937 it had nationalised petroleum, despite a protest by Sir Apirana Ngata that this was contrary to the Treaty of Waitangi.[63] In 1945 the New Zealand government enacted the Atomic Energy Act 1945, which vested all uranium in the Crown. In both cases the legislation was careful to stipulate that no compensation was payable.[64] But there was no petroleum or uranium mining industry in existence and the legislation had at the time little impact. Far different was the situation of coal. New Zealand has huge coal reserves and the coal mining industry was large and powerful; the Miner's Union – which favoured nationalisation – was also politically powerful within the Labour party. In 1948 the Labour Government passed the Coal Act, which vested all coal in the Crown.[65] This impacted directly on many private coal-owners. In 1949 Labour lost the general election. One of the first

59 The author has been unsuccessful in locating information as to why, in the end, the heavy water plant was not proceeded with. According to Robin Fry (*Power from the Earth*, Ministry of Works, Wellington, 1985, p 9), "due to cost factors the heavy water part of the project was ultimately dropped, and the design modified."

60 (1952) 297 NZPD 446.

61 Water-power Act 1903 s 2(1).

62 Water-power Act 1903 s 4.

63 Ngata's invocation of the Treaty of Waitangi on this occasion deserves to be better-known: see (1937) 249 *New Zealand Parliamentary Debates* 1048. Following Ngata's intervention the enactment of the legislation was held up while an opinion was obtained from the Solicitor-General as to whether the provisions nationalising petroleum were contrary to the Treaty of Waitangi. The Solicitor-General advised the House that they did not as the Act affected everyone regardless of race: "the legislation is comprehensive and treats equally all subjects of His Majesty": see (1937) 249 *New Zealand Parliamentary Debates* 1236.

64 Petroleum Act 1937, s 39(5); Atomic Energy Act 1945, s 8; the Geothermal Energy Act 1953, s 14, also provided that no compensation was payable for the nationalisation.

65 Coal Act 1948 s 3(1).

actions of the National government was to "denationalise" coal and restore the pre-1948 status quo.[66] These events greatly raised the political temperature regarding resource nationalisation. The issue was of course characteristic of other Western democracies at the same time, as the post-War "mixed economies" developed in Europe and Australasia. Coal nationalisation in New Zealand followed a precedent set by the Labour government in Britain, and the whole debate in New Zealand quite closely reflected British controversies over nationalisation and "denationalisation".

This background explains the difficulties that confronted both the government and the opposition over the Geothermal Steam Bill in 1952 and the Geothermal Energy Bill the following year. The legislation's main purpose was to nationalise development rights in geothermal energy on the model of the Water-power Act 1903. The Labour opposition could hardly oppose this, given its own earlier nationalisations of petroleum, uranium and coal. One exchange in parliament shows this:[67]

> The Hon Mr McLagan (Oppn, Riccarton) ... The Bill proposes not only nationalization, but confiscation without compensation. It is no wonder that the Minister wanted to get over the explanation of the Bill as rapidly as possible ...
>
> Mr Smith. Don't you like it?
>
> The Hon Mr McLagan. – Of course we like it, and support it, but does the party opposite like it, particularly when there is to be no compensation?

Government members somewhat unconvincingly argued that the purpose of the legislation was not to nationalise the resource, but to set up a licensing system which would give private developers a better title to geothermal energy than they had been able to acquire formerly.[68]

In the event the Geothermal Steam Act was found to be not comprehensive enough and was withdrawn and replaced by the Geothermal Energy Act the following year. One reason for this was the situation that had developed at Kawerau in the Bay of Plenty. Here the government and private interests were jointly establishing a huge pulp and paper mill to process timber from state plantation forests. It was planned to run the mill in part on natural geothermal steam, but the land from which the steam needed to be drawn was Maori-owned. The Crown could have taken the land under the Public Works Act but officials were apprehensive about the costs: access to geothermal energy had suddenly become very valuable.[69] The Steam Act only nationalised steam for the purpose of electricity generation. At Kawerau the engineers planned to use geothermal steam directly to run the paper machines and other plant. So while the 1952 Act had provided that "the sole right to take, use, and apply geothermal steam *for the purpose of generating electricity* shall vest in the Crown" s 3(1) of the Geothermal Energy Act 1953 stated:

66 Coal Mines Amendment Act 1950, s 2.

67 (1952) 297 NZPD 449.

68 See R A Bodkin at (1952) 297 *New Zealand Parliamentary Debates* 455.

69 Commissioner of Works to Minister of Works, 23 July 1953, ED 1, 2/0/22/3 Part II, National Archives, Wellington. After explaining the legal difficulties which had arisen at Kawerau, the Commissioner urged that "consideration should be given to legislation extending the provisions of the Geothermal Act to give the State protection in regard to the utilisation of this steam in the national interest and on a basis wider than the utilisation of this asset for the production of electricity."

Notwithstanding anything to the contrary in any Act, or in any Crown grant or certificate of title or lease or other instrument of title in respect of any land within the territorial limits of New Zealand, *the sole right to tap, take, use and apply geothermal energy* on or under the land shall vest in the Crown, whether the land has been alienated from the Crown or not.

The nationalisation was one of development rights, rather than the resource itself, and thus despite the more expansive wording the Geothermal Energy Act remained analogous to the Water-power Act rather than to the Petroleum or Atomic Energy Acts (in the latter the whole resource was simply vested in the Crown). This distinction, however theoretically interesting, was of little practical significance: in essence total control over the resource had passed to the Crown.

By the time of the 1953 Bill there was more information as to progress at Wairakei. The resource seemed limitless and endlessly self-renewable. W H Goosman, Minister of Works, was enthusiastic, even exultant, about the prospects.[70]

It is probably as good as an oil strike. We do not know how far this geothermal power will be developed, but it is highly improbable that what we take from it will ever interfere with its volume. ... It is just like poking holes into a boiler.

The Geothermal Energy Act 1953 was a fairly typical resource nationalisation statute. The core nationalisation section was flanked by ancillary provisions, stipulating that no compensation was payable[71] and establishing a system of licensing. No one could "sink any bore or tap, take, use, or apply geothermal energy" without first obtaining a licence from the Minister of Works.[72] Domestic uses "including cooking, heating, washing and bathing" were exempted from the requirement to obtain a licence unless from a bore more than 200 feet deep.[73] Outside this core structure the Act made provision for geothermal energy areas, which could be proclaimed by the Governor-General and where the Crown would have certain special rights and protections. There was also a provision aimed, it would seem, specifically at Kawerau. This was s 8, which empowered Ministers of the Crown to certify that an industrial undertaking "which will use geothermal energy" is of "national importance" (only Kawerau could have come within this at the time). The Crown could then take not only land in the vicinity, but easements and profits a prendre, thus allowing the Crown to grant itself easements over the Maori land at Kawerau in order to gain access to drilling sites and to construct pipelines without actually having to acquire the land. This might seem high-handed to say the least; but no one gave the matter a thought in 1953. The Labour opposition was just as excited about the potentialities of Wairakei as the government, and there was much pride in the achievements of New Zealand engineers, beginning a long history of international eminence in geothermal engineering which has continued to the present day. No one even considered the possibility that there might be unextinguished Maori property rights in the resource. Maori property rights were not raised in the debates at all, a

70 (1953) 301 *New Zealand Parliamentary Debates* 2647.
71 Geothermal Energy Act 1953 s 14. This restricted compensation to situations where the geothermal energy was "of actual benefit" to "the owners or occupiers of the land".
72 Ibid, s 9.
73 Ibid.

striking contrast with the debates on the Petroleum Bill in 1937. Perhaps this was because of the post-war mood which favoured economic development at all costs and accepted unquestioningly that the state should play a major role in constructing power stations and establishing new industries. Today, with the emphasis placed so much on corporatisation or even privatisation of electricity generation and transmission, it is easy to forget the general consensus of only a few decades ago that the electricity industry should be state-controlled. This is shown by the remarks of Mr R G Gerard, government member for Ashburton, in the debate on the Geothermal Steam Bill:[74]

> This measure is consistent with previous measures. It is consistent with the Public Works Act of 1928 – and no one could say there was a Socialist Government in power then. It is also consistent with the Petroleum Act of 1937, and along the same lines as the Atomic Power Act. I am not a Socialist, and no one is ever likely to accuse me of being one; but there are some things that should be reserved to the State, and I think the generation of hydro-electric and geothermal power are among the things which the State must control in the interests of the people.

Most of the Geothermal Energy Act 1953 was repealed by the Resource Management Act in 1991.[75] However the property rights vested in the Crown by the 1953 Act, whatever exactly they might be, have been expressly preserved by s 354 of the Resource Management Act. Despite this, as will be seen, the Crown's relinquishment of *control* of the resource to regional government in 1991 was a significant change.

V. Environmental Issues and the Treaty of Waitangi from 1953-1991

Environmental issues

It was assumed in 1953 that the underground geothermal resource was inexhaustible, beyond human capacity to manage or mismanage. But this has turned out to be far from the case. It slowly became apparent that without careful management the sustainability of geothermal fields could be affected by steam draw-off. In addition many surface geothermal areas have been destroyed or severely modified at a number of places since World War II.

At Geyser Valley, Wairakei, a popular privately-owned tourist destination, 244 thermal features were catalogued in a survey in 1951. There were 22 geysers and 122 cyclic flowing springs. But the nearby Wairakei power station has had severe effects, drying out all the geysers and most of the flowing springs at Geyser Valley and also at Spa, near Taupo, nearly 10 km away from the borefield. At Geyser Valley by 1968 the thermal activity had changed from boiling springs and geysers to "steam-heated, non-flowing pools, mud pools, fumaroles, extensive tracts of hot ground, and empty geyser basins".[76] At the same time geothermal activity at Karapiti, also nearby, increased. The construction of the Ohakuri dam on the upper Waikato by the Ministry of Works caused the formation of a new artificial

74 (1952) 297 *New Zealand Parliamentary Debates* 452.

75 The only provision of the 1953 Act now operative is s 12, which allows the Minister to authorise the closure of bores: see Resource Management Act 1991 s 362 and Eighth Schedule.

76 M Davenport et al, *Geothermal Management Planning: an overview*, Waikato Valley Authority Technical Publication No 48, Waikato Valley Authority [now Waikato Regional Council], Hamilton, 1987, 49.

lake. At the famous and historic thermal area at Orakeikorako, Maori land until compulsorily taken for the lake, the river rose 18 metres and submerged about 75% of the hot springs and geysers.[77] Hot springs and pools at Ohaaki, further upstream, were also flooded. Meanwhile at Rotorua the uncontrolled domestic and commercial draw-off began to affect the geysers and pools at Whakarewarewa, perhaps the most famous of all the surface sites. In 1979 two major springs at Whakarewarewa, Papakura and Korotiutiu, failed due to declining pressures.

The spring failures at Whakarewarewa concerned many people. In 1980 a report was prepared on behalf of the Nature Conservation Council by B F Houghton, E F Lloyd and R F Keam for the New Zealand Geological Survey.[78] The authors expressed great concern about the damage already done to surface features and advocated that a classification system of geothermal areas be implemented, which would ensure that the most famous and attractive surface thermal areas be protected from development. In 1983 the Commission for the Environment, at this time a special government agency established by Cabinet directive in 1972, issued its own report on the geothermal fields, also pressing the case for a national system of classification and management. Within government an Officials Committee was established to prepare guidelines for geothermal resource management in 1982, and after various issues and discussion papers had been prepared and circulated for public comment a final policy statement was released by the Ministry of Energy in 1986 as *Geothermal Resources: a policy and management framework*. This was (and is) an important document, the first attempt to put a co-ordinated national strategy for the resource into operation. It endorsed the approach of Houghton, Lloyd and Keam and divided the main thermal areas into three groups, some targeted for complete protection and others for full-scale development, with an intermediate category in between.

In 1986 a fairly dramatic sequence of events occurred at Rotorua, where the city council had formerly exercised a Ministerial delegation under the Geothermal Energy Act giving the council control over the resource within city limits.[79] Concern over the city's poor management led to a Ministerial decision in 1986 to revoke all geothermal licences within a 1.5 kilometre radius of the Whakarewarewa field and to a cancellation of the delegation to the city council. This decision to revoke the licences, and the accompanying regulations, were then challenged in the High Court by the Rotorua Geothermal Users Association in 1987. The challenge failed. Heron J rejected the Association's claim that the Minister had exercised his powers unlawfully, and also rejected an argument that the formula used in the

77 See E F Lloyd, *Geology and hot springs at Orakeikorako*, New Zealand Geological Survey Bulletin No 85, Wellington, 1972. The effects of the compulsory taking of Maori land at Orakeikorako and the destruction of the home of the remaining kaitiaki (guardian) family of the Ngati Tahu people of North Taupo are described fully in E M Stokes, *Maori Issues at Orakei-Korako: a report compiled for Ngati Tahu Tribal Trust and Tutukau East Z Trust*, November 1988 (copy in possession of the author). The house at Orakeikorako belonged to George and Sarah Wharekawa, and was the last remnant of the Ngati Tahu Orakeikorako community. The Wharekawas moved to Taupo and the house was burnt by a Ministry of Works lake-clearing team.

78 B F Houghton, E F Lloyd and R F Keam, *The preservation of hydrothermal system features of scientific and other interest*, Report to the New Zealand Geological Survey on behalf of the Nature Conservation Council, Wellington, 1980.

79 The delegation was accompanied by the conferring of the necessary powers on the city council by the Rotorua City Council Geothermal Power Empowering Act 1967.

regulations for calculating resource rentals was repugnant to the overall scheme of the Geothermal Energy Act.[80] The closure of the bores was proceeded with, despite some public protests and a further challenge to the 1986 Regulations heard by the Regulations Review Committee at parliament.[81] On the other hand the exclusion zone was strongly supported by the Te Arawa Maori Trust Board, which had pressed for such an exclusion for a number of years before 1986. Since the enactment of the Resource Management Act 1991 the responsible agency for controlling the Rotorua geothermal fields is now Environment BOP (ie the Bay of Plenty Regional Council) which has opted to continue with the 1.5 km exclusion zone.[82]

Legislative developments 1967-1991

One of the most important steps in the development of New Zealand's system of environmental law was the enactment of the Water and Soil Conservation Act in 1967, one of the ancestral statutes of the current Resource Management Act 1991. The 1967 Act was as much a product of the statist and regulatory consensus of the post-War era as was the Geothermal Energy Act itself. The Water and Soil Conservation Act nationalised all water rights, abolishing the common law doctrine of riparian rights, and vested control of the resource in regional water bodies charged with the duties of classifying water and hearing and adjudicating on applications for water rights.

In regard to geothermal water it took some time for the relationship between the Geothermal Energy Act and the Water and Soil Conservation Act to be clarified. However in *Keam v Minister of Works and Development*[83] it was settled by the Court of Appeal that applicants seeking to develop a geothermal field needed two separate approvals: a licence under the Geothermal Energy Act and a water right from the appropriate regional water board under the Water and Soil Conservation Act. In fact the second became the more important of the two processes, and it was at hearings before regional water boards and on appeal to the Planning Tribunal that the main legal battles relating to geothermal resources were fought out in practice. Effective control of the resource was mainly exercised by two regional water boards, the Waikato Valley Authority and the Bay of Plenty Catchment Boards, which have now evolved into the Waikato and Bay of Plenty Regional Councils. The control over the resource exercised by these two bodies has been very significantly expanded by the Resource Management Act 1991.

Treaty of Waitangi Claims

A new development of the late 1980s was the emergence of a group of Maori resource claims in the Waitangi Tribunal. In the years from 1985-1988 the Waitangi Tribunal was at the height of its influence and prestige.

80 *Rotorua Geothermal Users Association v Minister of Energy*, unreported, 13 May 1987, High Court, Wellington, CP 543/86. Heron J described the City Council's administration of its delegated powers as "curious", issuing no licences of any kind "and notwithstanding evidence of a declining resource and its consequences on the physical features of Rotorua have made no charges on an annual or any other basis for the use of the energy that was being consumed." (pp 5-6).

81 Regulations Review Committee, *Report on the Committee's Inquiry into the Geothermal Energy Regulations*, Wellington, 1987.

82 "Thermal changes opposed", *Daily Post* (Rotorua), 26 January 1994.

83 [1982] 1 NZLR 319.

As has been argued above, Maori use of this particular resource was extensive and well-documented, and in the political climate of the late 1980s claims to geothermal resources by Maori individuals and organisations was hardly surprising.

The difficulty, however, was the very marked divergence of objectives of the various claimant groups. While all claims were couched in the standard discourse of the Crown's failure to comply with the principles of the Treaty of Waitangi, the redress sought varied considerably. Some organisations were particularly worried about damage to the resource and wanted further exploitation halted and existing surface fields repaired. But other groups had rather more commercial objectives in mind, seeking the freedom to manage "their" resource as they saw fit and especially the right to enter into joint ventures with state enterprises and private companies in order to reap the benefits of an increasingly deregulated electricity generation and supply industry. This divergence of objectives made it difficult for the various groups to join forces to pursue a common strategy or for the Crown to devise some kind of co-ordinated response. Although a sustained effort was originally made, no common front emerged and such commonality of interest as may have existed a few years ago has now completely disintegrated with different groups having gone their own way, some to the Waitangi Tribunal, some into negotiations with the Crown, and others directly into commercial projects with third parties.[84]

VI. The Resource Management Act 1991

The Resource Management Act 1991 should be seen as a product of the political configurations and general mood of the years 1987-1988. It was during this time that the principal policy papers on the proposed legislation were released by the Ministry for the Environment and the main policy decisions shaping the legislation were made.[85] The Act is pervaded by a

84 In 1993 the Tauhara North No 2 joint venture was granted consents by the Waikato Regional Council to extract geothermal fluid to develop a small power station at Rotokawa: the applicant was a joint venture between commercial interests and the local Maori landowners and was approved subject to conditions (*In re an application by Tauhara North No 2 Joint venture*, Report of the Waikato Regional Council Hearings Committee, 22 July 1993). Two Maori landowning groups, the Tuaropaki Trust and the Rotoma No 1 Incorporation, lodged applications in 1994 with Environment of Waikato (ie the Waikato Regional Council) for consents to develop geothermal power stations at Mokai and Rotoma: see "Maori trust backs power station plan", *Waikato Times* (Hamilton), 4 January 1994. (The Mokai field, where the Tuaropaki Trust owns some 2900 acres of land, is a site with huge potential and could supply about 200 MW of electricity.) Sometimes, however, Maori groups both oppose and support the same project: the proposed geothermal power station at Ngawha, in Northland, was a joint venture of Top Energy and the Tai Tokerau Maori Trust Board; but the same project was objected to by local hapu of the Ngapuhi iwi, who brought a claim to the Waitangi Tribunal: see "Hot springs power in doubt", *New Zealand Herald* (Auckland), 4 May 1994. On the other hand at Rotorua the Te Arawa Trust Board, chaired by Anaru Rangiheuea, continues to strongly support the 1.5 km exclusion zone originally imposed by the Minister of Energy in 1987: see "Arawa backing geothermal plan", *Daily Post* (Rotorua), 27 January 1994.

85 Two discussion papers were released by the Ministry for the Environment in 1988: *Directions for change: a discussion paper* (August) and *People, Environment and Decision-Making* (December). Both reports, the latter especially, are written in a strangely opaque and impenetrable style. At p 45 of the December report it is stated that "the main issues are in improving the position of the Maori people in resource management, and in developing a management system that is able to evolve as further principles of the Treaty are clarified". This can be interpreted as a sensibly pragmatic approach, or as an astonishing admission that the proponents of the legislation had no idea what the consequences of a statutory reference to the Treaty of Waitangi in the Resource Management Act might be.

concern for the concept of "sustainable management" and for the special interests of the Maori people (although whether these interests have in fact been significantly advanced in reality by the legislation is a moot point[86]). The enthusiasm for deregulation and dismantling state planning functions also did not fail to leave a mark on the Resource Management Act.

These general factors can be readily seen in operation in the specific context of geothermal resources. Virtually all of the old Geothermal Energy Act 1953 was repealed in 1991. Geothermal resources are treated by the Resource Management Act as a water resource. Their management is subject to the general objectives of sustainability and the other principles and objectives listed in ss 5-8 of the Act. Section 8 refers specifically to the Treaty of Waitangi. There is also a specific reference to Maori interests in geothermal resources buried in the general sections relating to the taking and discharge of natural water.[87] As geothermal resources are seen as water resources, their control and management – as with other water resources – has been vested wholly in regional councils. The energy planning functions exercised successively by the Ministries of Works, Energy and Commerce have been abolished. Although some form of central government direction has been theoretically retained, for all practical purposes there is no national machinery in operation whatever for energy planning – including geothermal resource management.[88] Thus one of the few states in the world in which geothermal resources form a significant part of national energy supplies has abdicated all management and planning functions to the level of regional government.

VII. The Contemporary Paradigm: Geothermal Resources and the Dismantling of the Mixed Economy

As shown in the preceding section, while the Resource Management Act was a product of an era in which concerns about sustainable management and the Treaty of Waitangi were uppermost, it also was influenced by a growing emphasis on deregulation and privatisation of the energy industry. The state monopoly on electricity generation for the national grid had been abolished in 1987. In that year, also, the Electricity Division of the Ministry of Energy was converted into a company (Electricity Corporation of New Zealand – ECNZ) established under the Companies Act and regulated according to the directives of the State-Owned Enterprises Act 1986. In

86 The two Waitangi Tribunal reports dealing with geothermal resources are very critical of the general framework of the Resource Management Act, arguing that the Act fails to accord Maori rights under the Treaty of Waitangi an appropriate priority. See *Ngawha Geothermal Resource Report* (1993), 145-6; *Preliminary report on the Te Arawa representative geothermal claims* (1993), 28.

87 Resource Management Act 1991 s 14(3)(c). This states that "a person" is "not prohibited from taking, using, or diverting any water, heat or energy" if "in the case of geothermal water, the water, heat or energy is taken or used in accordance with tikanga Maori for the communal benefit of the tangata whenua of the area and does not have an adverse effect on the environment."

88 The only residuary authority over geothermal resources retained by central government derives from the powers of the Minister for the Environment to issue national policy statements under s 45 of the Resource Management Act 1991. Although some of the criteria listed in s 45 are arguably more than applicable to geothermal resources, no national policy statement regarding geothermal resources is currently contemplated, and indeed the value of such a statement was doubted by the Ministry for the Environment in a recent discussion paper: *Review of Rotorua Geothermal Royalties*, Ministry for the Environment, 1992, para 4.7. The same report at ibid also argues that it was not appropriate for regulations to be made under s 43 prescribing national environmental standards "because of the diversity of physical characteristics and uses of geothermal fields".

the Resource Management Act itself the trend to deregulation and privatisation was reflected negatively by the abolition of the energy planning and management functions of central government. Since then deregulation has been carried forward by a number of positive steps. In 1992 the Energy Companies Act required the corporatisation of all former electricity supply authorities by 31 December 1992. In July 1994 control of the national grid was removed from ECNZ and vested in a separate State enterprise, Transpower Ltd, which is required to operate the grid under a policy of open access to all generators and suppliers. Although the major generating stations and the grid remain in public ownership, the closely regulated and state-dominated electricity industry taken for granted by New Zealanders up to 1987 has in fact been dismantled.

A full review of the background to this latest phase in the history of the law affecting geothermal resources is beyond the scope of this article. It seems clear, however, that the changes of the last few years will lead to increased pressure on geothermal resources, ironically at a time when the energy planning functions of central government have themselves been effectively abolished. Some Maori landowners are actively engaged in geothermal power projects in association with publicly-owned electricity companies and the private sector.[89]

VIII. Summary and Conclusions

The major contention advanced by this article is that perceptions of 'resources' – and hence the relevant legal structures – vary over time. These perceptions are a product of a configuration of the political issues of the day mixed with more long-term shifts in general ideological attitudes. Thus the Geothermal Energy Act 1953 was partly a product of some pressing contemporary problems (the need for additional sources of energy, the Kawerau pulp and paper mill project, the proposed heavy water project), and in part the product of a general political consensus favouring state control of the electricity generation industry. These concerns affected the perception of the 'resource' itself – it was suddenly perceived, for the first time, as an energy resource of national significance. The Resource Management Act 1991, equally, is a response to some contemporary political problems (Maori claims to the resource, public concern about environmental damage to thermal areas) and represents a much broader ideological shift (the rhetoric of 'sustainability', the need to dismantle older regulatory frameworks and government planning). This too has affected the perception of the 'resource' – the vision of geothermal resources as an untapped energy resource as 'good as an oil strike' has faded to be replaced by new perceptions emphasising at one and the same time environmental issues, Maori claims, and dismantling of the state-owned electricity industry.

New Zealand is relatively unusual in its dependence on geothermal resources. It could well be argued that the decision in 1991 to treat geothermal resources solely as a water resource makes little sense and contrasts strangely with the very different approach taken to minerals at the same time.[90]

89 At Rotokawa, Mokai, Ngawha, and Rotoma: see n 74, above.
90 See Crown Minerals Act 1991, ss 12-21 (Minerals programmes).

Running through the entire history is the important, but still unresolved, issue of Maori claims to the resource. As shown, a plausible case can be constructed that the resource was of particular importance to some Maori groups. Arguments that Crown management policies were contrary to the Treaty of Waitangi have already been made in the Waitangi Tribunal, although the Tribunal's response to date has been somewhat muted, and indeed the Tribunal has *rejected* the argument that the whole "resource" belongs to Maori at the present day.[91] It is unlikely that this question will disappear, although the varying aims of the various Maori groups with an interest in the resource have blunted the issue and allowed the current programme of further deregulation to proceed with little apparent difficulty. Indeed the opportunities posed by the most recent changes have been welcomed by at least some Maori groups who quite clearly see little point in proceeding with claims to the resource in the Waitangi Tribunal.

Lastly, and perhaps less obviously, the historical narrative set out in this article demonstrates some singularities of New Zealand law. The common law has been of little relevance to geothermal resources: it is statutes that have counted. This began with the first Thermal Springs Acts in 1881. It is not that the common law relating to groundwater or to aboriginal title is not part of the law of New Zealand. Rather, in this, as in so many areas, the ground is now so thickly planted with statute that the common law rules have become of little practical importance.

91 In its *Ngawha* and *Te Arawa* reports the Tribunal declined to hold that Maori have rangatiratanga over the entire resource at the present time: the extent of Maori property rights in respect of the resource at present depends on the history of land alienation in the relevant area: *Ngawha Geothermal Resource Report* (1993), p 91, 133-34; *Preliminary report on the Te Arawa representative geothermal resource claims* (1993) 33. Thus in *Ngawha* the Tribunal rejected a submission that the nationalisation of the resource in 1953 was contrary to the Treaty because due to the particular land alienation history at Ngawha "they [the claimants] no longer had such rights over the whole of the resource": ibid, 140. These findings are much more significant than they appear, amounting to a rejection of the central claimant contention that as Maori never expressly alienated the resource they must still own it today; by insisting that a claim to geothermal resource ownership is linked to the ownership of surface titles claimants are forced to research the often extremely complex land alienation history before they can press a geothermal resource claim. This may be one of the reasons why the Waitangi Tribunal geothermal claims have now disappeared from view.