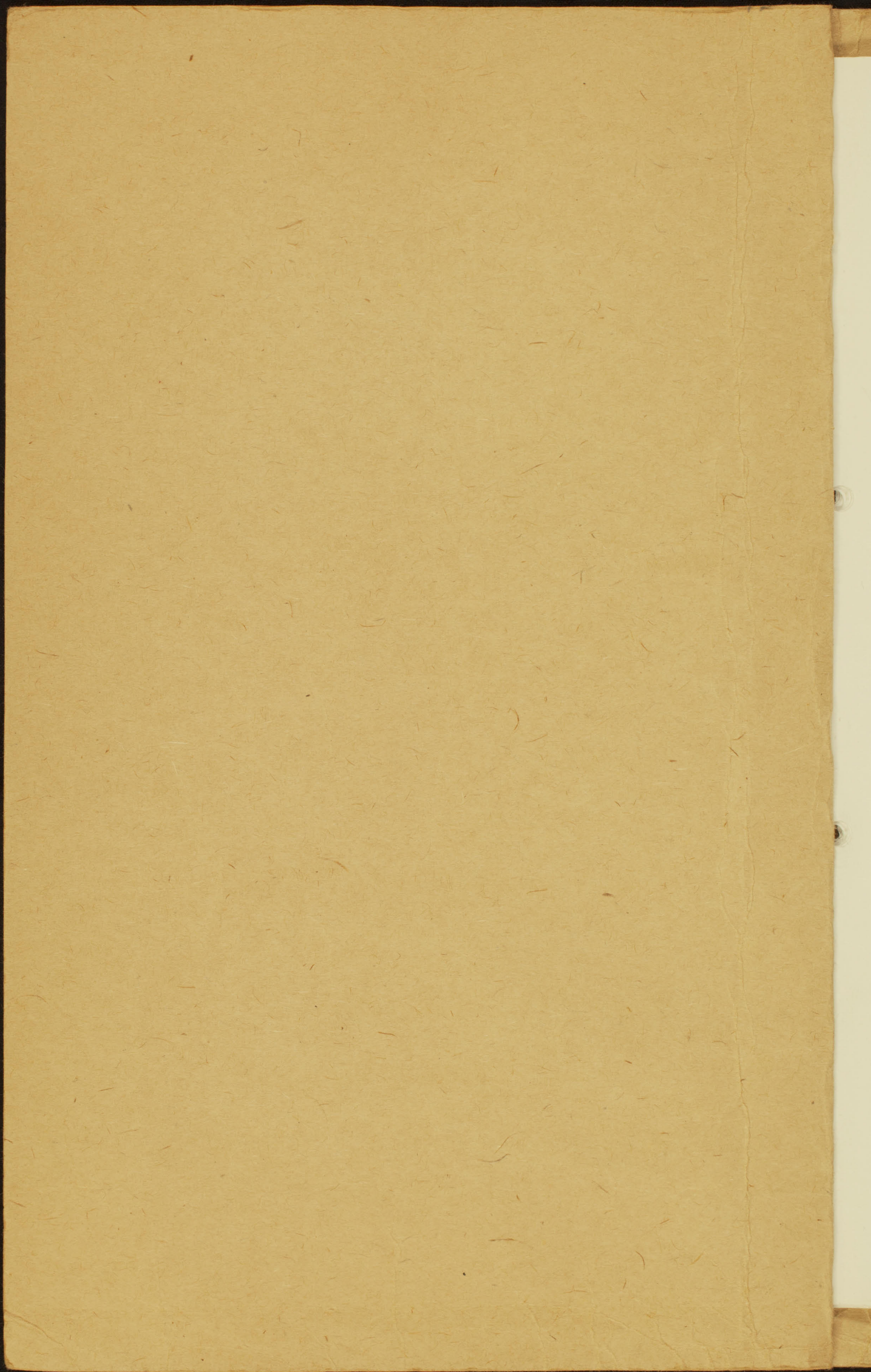


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S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources,



SUSANNAH SHARPE

**THE CURRENT LEGAL MANAGEMENT OF NEW ZEALAND'S
GEOTHERMAL RESOURCES**

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S532
SHARPE, S. The current legal management of N.Z.'s geothermal resources.

- 1 INTRODUCTION**
 - 1.1 Nature of the geothermal resource
 - 1.2 Definition of the geothermal resource
 - 1.3 Legal Background
 - 1.3.1 *Maori Customary Use*
 - 1.3.2 *Common Law*
 - 1.3.3 *Geothermal Energy Act 1953*
 - 1.3.4 *Water and Soil Conservation Act 1967*
 - 1.3.5 *Ministry of Energy Policy 1986*
 - 1.3.6 *Electricity Deregulation*
- 2 THE RESOURCE MANAGEMENT ACT 1991**
 - 2.1 Provisions Governing Geothermal Resources
 - 2.1.1 *Treatment as a water resource*
 - 2.1.2 *Discharges*
 - 2.1.3 *Determining applications for resource consents*
 - 2.1.4 *Crown rights in resource to continue*
 - 2.1.5 *Legislative recognition of Maori interests in geothermal resources*
 - 2.2 Central Government Role
 - 2.2.1 *Opportunity for National Policies*
- 3 MANAGEMENT BY REGIONAL COUNCILS**
 - 3.1 Responsibilities of Regional Councils
 - 3.2 Regional Policy Statements
 - 3.2.1 *Environment BOP*
 - 3.2.2 *Environment Waikato*
 - 3.3 Regional Plans
 - 3.4 Resource Developer Responsibilities
 - 3.5 Maori role in management of geothermal resources
 - 3.5.1 *Maori claims to geothermal resources*
 - 3.5.2 *Proposals for settlement*
- 4 ISSUES AT REGIONAL COUNCIL LEVEL**
 - 4.1 Formulation of Plans
 - 4.2 Favoured policies for conservation and development
 - 4.2.1 *Zoning*
 - 4.2.2 *Single Developer*
 - 4.2.3 *Strategic Equilibrium model*
 - 4.3 Consents
 - 4.3.1 *Mokai*
 - 4.3.2 *Wairakei*
 - 4.4 Benefits of Regional Government management versus Central Government
 - 4.4.1 *Energy Policy*
- 5 CONCLUSION & CRITIQUE**
- 6 APPENDICES**
- 7 REFERENCES**

S532

SHARPE, S. The current legal management of N.Z.'s geothermal resources.

1 INTRODUCTION

1.1 NATURE OF THE GEOTHERMAL RESOURCE

New Zealand's geothermal resource has many inherent values. It is an energy source, a feature of cultural significance, a scientific phenomenon and a tourist attraction. The energy source it creates is of particular note. As explained by Bowen there are, "[e]normous benefits accruing to New Zealand's economy from the existence of this low-cost and reliable source of indigenous energy and the (associated) jobs"¹. Geothermal energy constitutes about 7% of New Zealand's total national electricity generating capacity.² There is a capacity for greater geothermal energy utilisation than at present. According to the proposed Waikato Regional Policy Statement³ the present total useable energy in New Zealand's recognised geothermal resource is somewhere between 20,000 and 60,000PJ. Presently only a rate of 75PJ is used per year.

A notable aspect is the uniqueness of the geothermal resource. New Zealand is one of few countries in the world where geothermal energy contributes significantly to the national power supply. It is important to have careful management of the geothermal resource to enable it to continue on long term. Inefficient taking and use of geothermal energy may cause premature resource depletion. Energy is such an important resource that none of its forms should be disregarded or mismanaged.

The geothermal resource's different values create conflict and competition as to how it should be utilised. It is therefore important to have a legal and policy framework which harmonises the values as a resource. It requires a clear and careful framework. The necessity for such a framework was voiced in the early 1980s by the MP for Rotorua, P. East, "A strategy for the best use of geothermal energy is in both the local and the national interest and is needed for the preservation of the values of these areas".⁴

¹ R. Bowen *Geothermal Resources* (Applied Science Publishers, London, 1979) 125.

² Electricity Corporation of NZ Ltd, *Electricity Supply and Demand in New Zealand*, May 1994, 13.

³ Environment Waikato, *Proposed Waikato Regional Policy Statement*, (Environment Waikato, Hamilton) para 1.1.1.

⁴ P. East MP for Rotorua Introductory address, in Keam, R.F. (ed.) *Seminar Proceedings Oct 1981 Geothermal Systems: Energy, Tourism and Conservation*, (Nature Conservation Council, 1982) 4.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

\$532

SHARPE, S. The current legal management of N.Z.'s geothermal resources,

The Resource Management Act 1991 governs the management of geothermal resources. The management function is carried out mainly by two Regional Councils, Environment Bay of Plenty and Environment Waikato because New Zealand's geothermal resources are concentrated in the Taupo volcanic zone. The Bay of Islands contains the only geothermal energy resource of significance outside the Taupo volcanic zone, known as the Ngawha geothermal system. This paper examines the way in which these Regional Councils are carrying out their management function in light of the fact that the Resource Management Act allows the Councils a wide scope for policy formation.

1.2 DEFINITION OF THE GEOTHERMAL RESOURCE

For a number of reasons there is difficulty in defining geothermal resources. It is an energy resource and a water resource. It manifests itself in many different forms. It is a resource on the surface of the earth and underground. Defining the limits of a geothermal system are difficult. Dr Sheppard provides a description of the nature of geothermal systems;

"A geothermal system does not stand alone. It is part of much larger systems which involve as essential components the climate of a region, the hydrology and types of rocks in a region, the regional and even global geological processes that result in the way the geology of a region has formed, and not least, that this is a continuous and dynamic process that is changing and evolving".⁵

Geothermal fields consist of:

- 1 A heat source (deep rocks heated by deep volcanic phenomena).
- 2 A reservoir where heat and fluids are temporarily stored.
- 3 Surface discharge areas where geothermal fluids and heat appear at or close to the surface. Many significant cultural, biological and aesthetic values are associated with surface features.
- 4 A recharge area where rain water moves towards that heat source and reservoir.⁶

Clearly geothermal systems are complicated phenomena. Over time, the nature of the 'resource' has also changed. As Boast explains, the idea of geothermal resource as an energy resource, "has

⁵ Waitangi Tribunal Report, *Ngawha Geothermal Resource Report* (Wai 304), (Brooker & Friend Ltd, Wellington, 1993) 80.

⁶ Ministry for the Environment *Review of Rotorua Geothermal Royalties* (Ministry for the Environment, 1992) para2.1.

only existed as such in New Zealand since World War II".⁷ Prior to technological advancement that enabled it to be utilised as an energy resource it was valued for its qualities as a tourist attraction and to Maori as a resource in customary usage.

The Resource Management Act 1991, (section 2) defines, "geothermal energy" as 'energy derived or derivable from and produced within the earth by natural heat phenomena; and includes all geothermal water'; and "geothermal water" as 'water heated within the earth by natural phenomena to a temperature of 30 degrees Celsius or more; and includes all steam, water, and water vapour, and every mixture of all or any of them that has been heated by natural phenomena'. The terminology of the Resource Management Act 1991 definition follows its predecessor, the Geothermal Energy Act 1953. These definitions have been described by Boast as, "rather illogical because it is not ordinary usage to include 'geothermal water' as an aspect of 'geothermal energy'; more naturally it would be the other way around".⁸ This disparity demonstrates the complexity of defining the geothermal resource. The definition in the Resource Management Act generally defines the geothermal resource as a water resource. This reflects a choice made in order to solve the complexity of the resource, by grouping it with water.

Regional Councils have also attempted to further define the geothermal resource. In the Waikato Regional Policy Statement the resource is said to include, "all geothermal energy (including geothermal water), material containing heat or energy (derived from within the earth) surrounding any geothermal water, and all plants, animals and characteristics dependant on geothermal energy, located in the Region".⁹ The latter part of this definition which includes all entities dependent on geothermal energy, seems to create a wider definition of geothermal resources than in the Resource Management Act. This may reflect the wide scope for generation of policy concerning geothermal resources that is handed to Regional Councils in the Resource Management Act.

⁷ RP Boast *Geothermal Resources in New Zealand: A Legal History* (Unpublished) 1.
⁸ RP Boast 'Treaty of Waitangi' in *Brookers Resource Management* Vol 1A (Wellington, Brooker's, 1991) 95.
⁹ Above n 3.

\$532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

1.3 LEGAL BACKGROUND

1.3.1 Maori customary use

Maori had many applications for the geothermal resource¹⁰. Waitangi Tribunal claims to the geothermal resource contain much documentation on its extensive uses. Uses ranged from medicinal value for curing skin disease, to harnessing geothermal energy to heat crops so they grew faster and could be dried out for storage.¹¹ The resource enabled Maori to sustain prosperous large communities in cold central North Island areas. The resource is at the centre of a number of Arawa and Tuwharetoa traditions, for instance the story of Ngatoro-i-Rangi.¹² Its significance as a resource to Maori is also evident in the vocabulary developed to identify its different features. Puia (meaning geysers, intermittent boiling springs, and volcanic craters), ngawha (continuous boiling mud pools and springs) and waiariki (springs suitable for bathing) are some examples.

To Maori geothermal resources are a taonga¹³. As the Waitangi Tribunal recorded in the *Ngawha Geothermal Resource Report*, "On all counts, then, the Ngawha springs and the underground resource are a taonga for Ngapuhi".¹⁴ In the *Preliminary Report on the Te Arawa Representative Geothermal Resource Claims* geothermal resources are repeatedly referred to as highly valued taonga. For example, "...the respective claimants have rangatiratanga over hot pools and springs which in each case, are a highly valued taonga over which they exercise kaitiakitanga".¹⁵ To Maori the resource stands as a united, indivisible taonga. Kaumatua (elders) in the *Ngawha Report* provide evidence of this unity, "the springs are the face or eye of the resource but its whatumanawa

¹⁰ See E Stokes 'Maori Values in Geothermal Resources' in R.F. Keam (ed.) *Geothermal Systems: Energy, Tourism and Conservation Conference Proceedings* (Nature Conservation Council, 1982) 37-51, for more detail on the significance to Maori of geothermal resources.

¹¹ For more detail see Ernest Dieffenbach, *Travels in New Zealand*, (John Murray, London, 1843); Ferdinand von Hochstetter, *Geology of New Zealand, 1864*, (English translation by CA Fleming, Government Printer, Wellington, 1959); E J Wakefield, *Adventure in New Zealand*, (John Murray, London, 1845, vol ii).

¹² There are many versions of this story. Ngatoro-i-rangi, explorer and tohunga comes to Aotearoa and explores inland until perishing of cold on Tongariro, he calls for fire from Polynesia. Fire was brought to him, explaining the thermal area in a line from White Island to Tongariro. For one version 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.

¹³ Taonga can be taken to mean highly prized object; a treasure.

¹⁴ Above n 5, 20.

¹⁵ Waitangi Tribunal *Preliminary Report on the Te Arawa Representative Geothermal Resource Claims* (Wai 153) (Brooker & Friend Ltd, Wellington, 1993) 17. See also references to taonga at 7 and 13.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

or heart is below the ground and connected to other surface manifestations in the district".¹⁶

Geothermal resources are objects of guardianship, management and control, or in Maori, under the rangatiratanga or kaitiakitanga¹⁷ of the hapu or iwi.

The use of the geothermal resource for the whole community was regulated by customary law. It was similar to a law of property whereby some pools vested in the whole community, some with hapu, whanau or even individuals of high status.¹⁸

1.3.2 Common Law

There has never been a common law regime specific to geothermal resources. The closest legal framework to it would be that for groundwater. Groundwater at common law becomes one's property only once it is abstracted.¹⁹ This is quite different to the common law riparian rights doctrine applicable to surface water. In the case of groundwater, existing users have no guaranteed rights of protection of the groundwater or any cause of action if other users abstract groundwater from the system. Access to groundwater is limited to landowners or those with consent of the landowners. If the geothermal resource was treated as groundwater is, the 'doctrine of capture' would apply. According to Boast, the essence of this doctrine, "is that whoever lawfully abstracts the resource, even from underneath neighbouring land, acquires property in the resource thus 'captured'".²⁰

Doctrine of Aboriginal Title

This common law doctrine²¹ presents one possibility for establishing Maori property rights in the geothermal resource that has yet to be explored. Under this doctrine title is based on use and

¹⁶ n 5, 1.

¹⁷ Rangatiratanga: In Treaty claims and issues rangatiratanga is generally used to signify trusteeship, see Ngawha Report, n 5, 18. In Ngai Tahu Sea Fisheries Report rangatiratanga was noted to include management and control of the resource. Kaitiakitanga: can be taken to mean guardianship; and in relation to a resource, includes the idea of stewardship.

¹⁸ Above n 7, 4 and evidence from minute books of Maori Land Court, oral tradition, Maori manuscripts of last century, and accounts of European visitors see John Johnson, "Notes from a Journal," reprinted in Nancy Taylor (ed.), *Early Travellers in New Zealand*, (Oxford University Press, 1959)

¹⁹ see *Acton v Blundell* (1843) 12 M & W 324, 152 ER 1223. The Court held that groundwater not owned by anyone until abstracted. On groundwater also see *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.

²⁰ R.P. Boast and DA Edmunds *Geothermal Resource Management: Ownership and Management Issues* (Ministry of Maori Development)30.

\$532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

occupation rights. It governs the situation where indigenous peoples property rights have been extinguished by the Crown. Such extinguishment under this doctrine is only legitimate where consent has been given. In effect the property interests of 'aboriginal' populations will survive and remain enforceable after sovereignty is transferred unless the new sovereign has properly extinguished them. Boast asserts that Maori property rights to geothermal resources may never have been extinguished²². This is because the language of the Resource Management Act and its predecessors is not explicit enough so as to extinguish Maori customary title.

1.3.3 Geothermal Energy Act 1953

In 1947 the Ministry of Works began investigation into the use of geothermal energy for power generation. This culminated in developments for a geothermal power station at Wairakei. Moves to industrial exploitation of the resource spurred the government to introduce the Geothermal Steam Bill 1952. The legislation aimed to nationalise development rights in geothermal energy. The following year the more comprehensive Geothermal Energy Act 1953 replaced the Steam Act. The Geothermal Steam Act had only nationalised 'steam' for the purpose of electricity generation. Section 3(1) of the Geothermal Energy Act 1953 widened this definition to, "the sole right to tap, take, use and apply geothermal energy", without any reference to purpose. A system of licensing was established by the Act to be administered by the Ministry of Works. Boast describes the Geothermal Energy Act as "a fairly typical resource nationalisation statute".²³ Its central section nationalises the resource, giving the Crown exclusive rights. The nationalisation of the geothermal resource is framed in terms of the Crown's rights to the geothermal resource as a water resource. In contrast, the Petroleum Act 1937,²⁴ nationalised the petroleum resource in such a way that the actual resource itself was nationalised in all its manifestations, not in terms of an analogous resource.

²¹ For New Zealand see, *Te Weehi v Regional Fisheries Officer* [1986] 1 NZLR 680, *Te Runanganui o Te Ika Whenua Inc. Soc v Attorney General* [1994] 2 NZLR 20; *Mabo v Queensland* [1992] 66 ALR 408(HCA): "native title is not extinguished unless there be a clear and plain intention to do so" (p.438)

²² n 20, 9 and see R.P Boast *The Legal Framework for Geothermal Resources: A Historical Study* (Report to Waitangi Tribunal, 1991).

²³ n 7, 15.

²⁴ Petroleum Act 1937 s 3(1) '...all petroleum existing in its natural condition on or below the surface of any land, whether the land has been alienated from the Crown or not, is hereby declared to be the property of the Crown'.

\$532
SHARPE, S. The current legal management of N.Z.'s geothermal resources.

\$532

SHARPE, S. The current legal management of N.Z.'s geothermal resources.

1.3.4 *Water and Soil Conservation Act 1967*

This Act nationalised water rights, abolishing common law riparian rights. The sole right to use all "natural water" was vested in the Crown pursuant to section 21. "Natural water" in section 2 was defined to include geothermal steam, and later amended in 1981 to cover, 'water or steam or vapour heated by geothermal energy; whatever its temperature'. To extract or use geothermal water it was necessary to obtain a water right from a Regional Water Boards set up under the Act to administer all water concerns. The Water and Soil Conservation Act failed however to provide, "criteria governing applications for water rights and discharges, it failed to provide a statutory basis for geothermal management planning, and it failed to provide for water conservation orders to apply to geothermal systems."²⁵ To develop a geothermal field it was necessary to obtain a licence under Geothermal Energy Act 1953 from the Ministry of Works and a water right from the local Regional Water Board.²⁶

1.3.5 *Ministry of Energy Policy 1986*

In 1982 the Ministry of Energy created the Officials Geothermal Coordinating Committee to develop policy and planning recommendations for geothermal resources in New Zealand. Papers produced and issues canvassed by this group culminated in a final policy statement released by the Ministry of Energy in 1986, *Geothermal Resources: a policy and management framework*.²⁷ This was the first example of any national planning for the resource.

The policy statement listed its 'goals', 'objectives' for geothermal management and the 'policies' with which to implement these. One of its four listed goals was, "To preserve and protect scenic and other natural characteristics of geothermal resources". One major objective of the policy was, "To promote the use of geothermal energy where there are no major conflicts with other uses or values of the resource, and to do so with minimum impact on the environment". It divided the thermal areas into three groups. The first group being, "areas containing New Zealand's unique and outstanding hydrothermal features that must be completely preserved." Secondly an intermediate grouping, "of outstanding thermal features, recommended for protection from exploitation until geothermal energy demands exceed energy available." The last category of lowest

²⁵ n 8, 96.

²⁶ *Kear v Ministry of Works and Development* {1982} 1 NZLR 319.

²⁷ The Officials Geothermal Coordinating Committee *Geothermal Resources - A Policy and Management Framework* (Ministry of Energy, January 1986)

priority for preservation were areas," irreversibly spoiled by exploitation and those with no recognised unique geological or geophysical features".²⁸ The classification scheme and policy directives in this document, according to Boast, "continue to influence the planning practices of regional councils today".²⁹

1.3.6 Electricity Deregulation

In 1987 the state monopoly on electricity generation for the national grid was abolished. At the same time the electricity division of the Ministry of Energy was converted to a company, ECNZ, and regulated under the State Owned Enterprises Act 1986. Deregulation continued with the Energy Companies Act 1992 which called for all electricity supply authorities to be corporatised by the end of that year. And in 1994, the national grid was made a separate state enterprise called Transpower Ltd. Transpower has to operate under a policy of open access to all generators and suppliers. On February 1 1996 Wairakei and Ohaaki Geothermal Stations were part of seven power stations around the country who made a break away from ECNZ. A new company called Contact Energy took on Wairakei and Ohaaki. The company is still a state owned enterprise. This change comes from an effort to increase competition and encourage private investment in the industry. Mr Heaps, Contact Geothermal manager, is reported as saying, "We truly have competition in this area, and competition must keep pressure on prices and make companies more efficient".³⁰

2 THE RESOURCE MANAGEMENT ACT

2.1 PROVISIONS GOVERNING GEOTHERMAL RESOURCES

2.1.1 Treatment as a water resource

In the Resource Management Act the geothermal resource is treated as a water resource. Section 2 defines 'water' to include 'geothermal water' and 'water body'. And 'geothermal energy' is defined to include all 'geothermal water'. In the *Ngawha Geothermal Resource Report* a commentator from the Ministry for the Environment, Mr Lawson states, "Government confirmed that the management of water should continue on a catchment based approach and that geothermal energy

²⁸ Ibid, 9.

²⁹ n 8, 97.

³⁰ Jacky Curson, 'Wairakei Geothermal Power Station leading the world' *Taupo Weekender*, Friday April 1996, 24.

\$532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

should be administered together with water management.”³¹ Effectively all geothermal systems are placed within the framework of ‘water’. This placing of the geothermal resource under the water regime neglects its many values, which range from tourism to use as an energy resource.

The main operative provision for water is section 14, related to restrictions on water. In subsection (1) of this section, the taking, use, damming, or diverting of any, “(b)Heat or energy from water; or (c) Heat or energy from the material surrounding any geothermal water” is prohibited unless subsection (3) criteria allow. In the case of the geothermal resources, two criteria seem most applicable; either ss(3)(a), a rule in a regional plan(or relevant proposed plan) or a resource consent, must allow the activity. Alternatively ss(3)(c) may apply 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.” Section 14 is problematic in its reference to ‘person’. There is no definition or framing of exactly who is covered by the term. Neither is the use of the term ‘tangata whenua’ defined. Arguably the ss(3)(c) exemption could be raised to build a geothermal power station if the end result was for Maori customary purposes.

Water conservation orders are possible for geothermal systems under section 199. This is an innovative change to the previous regime of the Water and Soil Conservation Act 1967 which did not allow water conservation orders for geothermal systems. Such orders under the Resource Management Act aim to protect and preserve ‘outstanding’ water bodies but cannot act as a management tool for unprotected values. Also unlike plans, water conservation orders cannot restrict existing lawful uses of water.

2.1.2 Discharges

Section 15, related to restrictions on discharges applies to geothermal water, because geothermal water once extracted is a “contaminant” under the section 2 broad definition. This is because geothermal discharges are usually hot and contain high quantities of minerals in solution. When geothermal energy is used, fluid will usually have to be reinjected and therefore require an exemption in a rule of a regional plan or resource consent. Re-injection involves injecting surplus cooling water into the ground again. It eliminates discharges of hot, mineralised water into rivers.

³¹ n 5, 130.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources,

Technology is still being developed to find a method of extracting minerals from the surplus geothermal water before it is released into rivers. Reinjection is already used at Ohaaki Station and moves are under way to implement the process at Wairakei Power station, pending resource consent appeal. Taking geothermal water requires a 'water permit'³², and to discharge will require a 'discharge permit'.³³

2.1.3 *Determining applications for resource consents*

There are a range of principles regional councils must consider in their exercise of power under section 104 to issue resource consents for use of the geothermal resource. Part II matters³⁴ have primacy over all other considerations in consent applications because section 104 is 'subject to Part II' (following the 1993 Amendment). The section 5 objective of sustainability (included in Part II requirements) pervades any management under the Act. This is an issue of much relevance to geothermal systems because there is some question as to whether they can be managed sustainably at all. Any type of exploitation could be counter to an objective of sustainability. And it is questionable whether any "sustainable management" over the whole resource is at all possible. There are also a list of matters in section 104³⁵ that the Councils must 'have regard' to. One of the primary matters in this list is, 'Any actual and potential effects on the environment of allowing the activity', pursuant to section 104(1)(a).

2.1.4 *Crown rights in resource to continue*

The Resource Management Act 1991 repealed most of the Geothermal Energy Act 1953. Section 354 (1)(a) of the Resource Management Act continues the section 3 Geothermal Energy Act right of the Crown to the geothermal resource. In effect however this right is vested with Regional Councils by the Resource Management Act. Regional councils under section 30(e)(iii) of the same Act, have the power of control over the use and allocation of geothermal resources. The wording of the section is that Regional Councils have control of 'taking, use, damming, and diversion' of water (therein including geothermal water). Further to this, section 30(e)(iii) clearly describes the wide ambit of the Regional Councils with the wording, "control of the taking or use of geothermal energy". Control of discharges of contaminants also comes under section 30(1)(e).

³² Resource Management Act 1991 s 87(d)

³³ Resource Management Act 1991 s 87(e)

³⁴ See Appendix A.

³⁵ See Appendix B.

\$532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

Royalties for the use of geothermal energy can be set under section 360(1)(c) of the Resource Management Act. Under this section the Governor General is enabled to make regulations on payment for use of geothermal energy. Part III of the Resource Management Regulations 1991 provides the currently operative regulations. The Ministry for the Environment has conducted a review of royalties that will operate under the Resource Management Act³⁶. The formula for royalties are the same as under the previous legislation. Two types of royalties, resource rentals and environmental user charges are distinguished by the Ministry for the Environment. The Ministry's review focused on Rotorua geothermal fields but has implications for management of geothermal areas outside Rotorua.

2.1.5 *Legislative recognition of Maori interests in geothermal resources*

The legislation prior to the Resource Management Act gave no recognition to Maori interests in the geothermal resource. The Resource Management Act makes an advance on the previous regimes by allowing some input by Maori into the process of management and conservation standards. In the creation of Regional Plans and Policy Statements there are a range of considerations³⁷ councils may have regard to that involve Maori interests being taken into account. Applications for resource consents involve Part II considerations³⁸, that recognise Maori interests. Resource consents may also be allowed where a use is in accordance with tikanga Maori³⁹.

A local authority may transfer some of its functions under the Act to an iwi authority pursuant to section 33(1). Geothermal waters of 'outstanding significance in accordance with tikanga Maori', may under section 199(c) be subject to water conservation orders. Heritage orders can protect a geothermal resource where a place is of 'special significance to the tangata whenua for spiritual, cultural, or historical reasons'⁴⁰.

³⁶ n 6, para 4.1.

³⁷ Resource Management Act 1991 includes iwi planning documents s61(2)(a)(ii) and s66(2)(c)(ii); an regional policy statement must state matters of resource management significant to iwi authorities, s62(1)(b); the desirability of a regional plan when significant concerns to tangata whenua, s65(3)(e).

³⁸ Resource Management Act 1991, Part II s6(e), s7(a), s7(e), and s8; see Appendix A.

³⁹ Resource Management Act 1991 s 4(2)(c) and s14(3)(c).

⁴⁰ section 189(1)(a).

\$532

SHARPE, S. The current legal management of N.Z.'s geothermal resources,

2.2 CENTRAL GOVERNMENT ROLE

The planning functions the Ministries of Works, Energy and Commerce which operated successively are abolished by the Resource Management Act. Some form of central government control may exist in terms of making sure the Regional Councils management machinery is set up successfully.⁴¹ The Ministry for the Environment ensures that the tools for regional level management are appropriately fashioned so that good management can flow from there. If the plan is not sufficient the Ministry for the Environment can take it to the Planning Tribunal and make submissions for change.

2.2.1 Opportunity for National Policies

A residual power of Crown over geothermal resources could exist in section 45, National Policy Statements. But as yet no National Policy Statement for the resource has been issued, nor is it contemplated. In fact the Ministry for the Environment has expressed doubt as to the value of such a Statement. This is clear from its 1992 report: *Review of Rotorua Geothermal Royalties*⁴². "National Policy Statements are issued by the Minister for the Environment on matters of national importance[Section 45]. These Policy Statements may be useful for coordinating the management of geothermal resources from a national perspective, particularly across administrative boundaries - the boundaries of the Bay of Plenty and Waikato Regional Council bear little relationship to geothermal resources in the vicinity of Waimangu and Waiotapu. National Policy statements may be useful in defining national issues, but they are unlikely to be appropriate for the management and allocation of specific resources. They will not be discussed further". The report also stated that regulations under section 43 for National Environmental Standards were inappropriate, "because of the diversity of physical characteristics and uses of geothermal fields".

For the most part no national control over geothermal energy planning exists. At present the most we can expect in the way of national consistency in management of the geothermal resource is the fact that regional councils are empowered to consider consistency with other adjacent regional authorities.⁴³

⁴¹ Phonecall questioning - Ministry for environment Official June 7th.

⁴² n 6, para 4.7.

⁴³ Resource Management Act 1991 s61(2)(b), s62(1)(h), s66(2)(d).

\$532
 SHARPE, S. The current legal management of N.Z.'s geothermal resources,

3 MANAGEMENT BY REGIONAL COUNCILS

The principle regional councils involved with geothermal resources are Environment Waikato and Environment BOP. A joint venture to develop the Ngawha geothermal field was a major application to come before the Regional Council in Northland. In the current plans for that region there are however no special provisions for geothermal resources. The proposed plan currently still in formation will contain a general energy section. The focus for such a section being to conserve renewable energy sources. Geothermal resources could fall under this category but the proposed plan is not far enough along for any analysis of its methods and rules.

3.1 RESPONSIBILITIES OF THE REGIONAL COUNCIL

The main management devices for geothermal resources used by regional authorities will be regional policy statements and regional plans⁴⁴. Regional policy statements are obligatory and have to provide an overview of resource management issues of the region. Regional plans can focus on specific resources or issues and are not mandatory. Under section 65 regional councils may have an obligation to consider the desirability of preparing regional plans for any geothermal resource because the resource fulfils the criteria of that section.

Regional councils have a role in maintaining a liaison and integrated management with constituent and neighbouring territorial and regional councils which have geothermal resources. Provision of information on methods for development and enhancement of the resource is expected of them. They have an auditing role in relation to data required of geothermal developers.

3.2 REGIONAL POLICY STATEMENTS

3.2.1 Environment Bay Of Plenty Proposed Regional Policy Statement

This document states that, "Sustainable geothermal management means managing each geothermal field so that its potential's, qualities and attributes are retained and protected".⁴⁵ This policy is stated to be a guide to the preparation of regional plans. Its initial background statement details the characteristics of the geothermal resource in the region. The different values of the resource are identified to include its value to Maori; its utility value to humankind as a commercially desirable energy source; the intrinsic value of uniqueness and rarity of geothermal features and ecosystems;

⁴⁴ Resource Management Act 1191 s 59, and s 63.

⁴⁵ Bay of Plenty Regional Council *Proposed Regional Policy Statement* in appendix 5 of the Proposed Rotorua Geothermal Regional Plan (Environment Bay of Plenty, Whakatane, 1994) 177.

\$532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

and its amenity, recreation and tourist values. It is noted that it is important to identify features requiring protection.

The Environment Bay Of Plenty Proposed Regional Policy Statement identifies four main issues for the policy statement to address; Geothermal Features, Maori Concerns, Use and Allocation of Geothermal Resource, and Geothermal Discharges and Effects. For each of these issues the Proposed Regional Policy Statement then seeks to set objectives, policies and methods of implementation. Maori concerns are considered within each of the other issues. In a final statement the anticipated environmental results of the Proposed Regional Policy Statement are listed.

3.2.2 *Environment Waikato Proposed Regional Policy Statement*

The preliminary part in the geothermal section of this Proposed Regional Policy Statement gives an overview and definition of the geothermal resource as it pertains to the Waikato region. It lists the applications of the Waikato region's geothermal resources. Following this various highly valued characteristics of the geothermal resource are listed. It notes the fact that, "the high value placed on a particular geothermal characteristic means that other geothermal resource characteristics are neglected". In other words a trade-off situation may result where for example a large scale geothermal fluid or heat extraction development cannot operate without affecting other characteristics of geothermal ecosystems.

The objectives of the proposed policy are:⁴⁶

- (1) To recognise the wide range of values associated with the region's geothermal resource by providing for the protection of intrinsic and amenity features, while allowing for use and development.
- (2) To ensure that the taking or use of the geothermal resource is carried out in a sustainable manner.
- (3) To actively encourage the appropriate agencies to collect, maintain and disseminate information on the geothermal resource to ensure that well informed decisions are made concerning its use, development and protection.

⁴⁶ as summarised in Environment Waikato Staff Report on Applications for Resource Consent by ECNZ in respect of Taking of geothermal fluid from TeMihi ..(Environment Waikato, Hamilton, November 1994) 17.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources,

(4) To ensure that the disposal of the geothermal resource is managed in such a manner as to avoid, remedy or mitigate any adverse effects on the environment and on cultural values.

3.3 REGIONAL PLANS

At present there are no regional plans or proposed regional plans which impact on geothermal resource consent applications in the Waikato.

Environment Bay Of Plenty does intend to prepare one general regional plan initially, rather than regional plans for each resource. A section within this plan may focus on geothermal resources specifically. For the Bay Of Plenty however the management of geothermal resources is a primary function of regional plans because the Proposed Rotorua Geothermal Regional Plan will be the critical operating document for any geothermal resource decisions in that region.

The purpose of the Proposed Rotorua Geothermal Regional Plan is to enable Environment Bay Of Plenty to achieve the integrated and sustainable management of the Rotorua geothermal resource. The regional plan lists its aims as; protecting surface features; protecting tikanga Maori; identifying and, as practicable, enhancing available geothermal resource; providing for the allocation of that resource for present and future efficient use; managing and controlling all adverse effects on the field; providing for efficient cost effective administration.⁴⁷

This is a comprehensive document covering all aspects of management of the geothermal resource in Rotorua. It describes the statutory and policy framework for the plan. The various values and significance of the regions geothermal resource are listed. The importance of the provisions of the Treaty of Waitangi are addressed. Previous geothermal management structures are surveyed. An overview of information of the resource in the region is supplied. Finally in-depth examination is given to issues pertaining to the resource and management options.

3.4 RESOURCE DEVELOPER RESPONSIBILITIES

Individual users as part of their operations are expected to establish methods for achieving councils' requirements. Environment Waikato states that, "[T]he onus is on users to demonstrate

⁴⁷ Bay of Plenty Regional Council *Proposed Rotorua Geothermal Regional Plan* (Environment B.O.P., Whakatane, January 1994)3-4.

\$532
 SHARPE, S. The current legal management of N.Z.'s geothermal resources,

that their proposals meet Regional Council goals and objectives"⁴⁸. Ways developers can do this include conducting an assessment of environmental effects on the environment and developing management plans. Monitoring systems are expected to be developed by developers and regional councils to measure effects of geothermal resource development.

3.5 MAORI ROLE IN MANAGEMENT OF GEOTHERMAL RESOURCES

Most of the mechanisms which allow a role for Maori operate at the discretion of the consent authority or just provide the opportunity to consider Maori views. There is no direct or mandatory involvement of Maori in management of geothermal resources. The Resource Management Act has been criticised for failing to provide adequately for tangata whenua rights in geothermal resources. To quote from the Waitangi Tribunal *Ngawha Geothermal Resource Report*;

"The tribunal finds that the Crown has acted in breach of Treaty principles in failing to ensure that the Geothermal Energy Act 1953 and s354 of the Resource Management Act 1991 which preserves existing rights to geothermal resources under the 1953 Act, contain adequate provisions to ensure that the Treaty rights of the claimants, in their geothermal resource at Ngawha, are fully protected. As a consequence the claimants have been, and are likely to continue to be, prejudiced by such a breach"⁴⁹.

Further to this, the report states,...

(And the Crown has not),..." in delegating extensive powers to local and regional authorities under the Act, ensured that its Treaty duty of protection of Maori interests will be implemented... it appears that in promoting this legislation, the Crown has been at pains to ensure the decision makers are not required to act in conformity with and apply Treaty principles. They may do so, but they are not obliged to do so."⁵⁰

The Waitangi Tribunal concludes that the Resource Management Act is fatally flawed because of this and recommends amendment so that the Act is consistent with the Treaty of Waitangi. As Part II of the Resource Management Act is worded at present Maori Treaty rights are not accorded appropriate standing and are therefore at risk of being depreciated.

⁴⁸ Waikato Regional Council *Geothermal Management Strategy - Issues and Options*. (Environment Waikato, Hamilton, 30 November 1992) 27.

⁴⁹ n 5, 141.

⁵⁰ n 5, 154.

\$532
 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

S532

SHARPE, S. The current legal management of N.Z.'s geothermal resources,

The same finding was made in the Waitangi Tribunal *Preliminary Report on the Te Arawa Representative Geothermal Resource Claims*, "the Crown has failed to provide in the Resource Management Act 1991, a system or provisions according the claimants' interest in the geothermal resource a sufficient priority," and "the claimants should be afforded proper scope for the exercise of authority in relation to the management of the resource"⁵¹.

3.5.1 *Maori claims to the geothermal resource*

Maori claimants of the resource mainly base their rights on the Treaty of Waitangi.⁵² For example it is a breach of the Treaty principle of active protection to deny their right to taonga such as the geothermal resource. They also talk in terms of being kaitiaki or guardians of the resource. The principle of their management of the resource being kaitiakitanga. The main finding of the reports has been that although the geothermal resource is a taonga for Maori there is no complete Maori ownership of fields today because the resource is dependant on alienation of the whole surface title. More research is necessary into the alienation of these lands and percentage of surface title that Maori hold. This will be an expensive and time consuming process that is discouraging for many claimants and has effectively stalled claims.

In the Te Arawa claim⁵³ a recommendation was made that the Crown should impose a moratorium on granting resource consents or notifying regional plans, or the imposition of royalties or resource rentals until determination is made in relation to the claims on geothermal fields. But following the Waitangi Tribunal recommendations there have been no directives from the Crown to Environment Bay Of Plenty as a result. So Environment Bay Of Plenty makes the statement that it continues to operate under the Resource Management Act 1991 in managing the Rotorua geothermal resource. As part of this management function it, " respects the rangatira of tangata whenua who live on the field and will seek to establish a partnership⁵⁴ of management of the resource, primarily in the Whakarewarewa and Ohinemutu areas of the field."⁵⁵

⁵¹ n 15, 23.

⁵² Two reports, for the Ngawha and Te Arawa Waitangi Tribunal claims have been made. Other claims in geothermal resources yet to be heard are; by Ngati Tahu Tribal Trust (North Taupo); Ngati Awa Maori Trust Board for White Island and Whale Island; a general Tuwharetoa claim; and other miscellaneous claims to thermal areas like, Tarawera block and Te Puia Springs in the East Cape.

⁵³ n 15, 35.

⁵⁴ A partnership involving a) The registration and protection of geothermal taonga; b) The determination of who has the right to claim geothermal use rights under section 14 (3) (c) of the RMA; c) Resolution of the concerns and matters of importance to tangata whenua noted at the Geothermal Meeting with Te

3.5.2 Proposals for Settlement

The Office of Treaty of Waitangi Claims has made proposals⁵⁶ on how it will deal with claims to 'water and geothermal energy'. The proposal aims to clarify the complexities involved in settling Treaty claims to natural resources. It outlines the types of interest claimants may have in a natural resource, how to establish a well- founded grievance in relation to a natural resource and the forms and levels of redress available. Interests in Natural Resources are classified into four main types; ownership, use, value and regulatory.

Some principles that the Crown proposes are:

- Article II interests in natural resources are use and value interests. Therefore it does not intend to negotiate Treaty claims based on Maori ownership interests in natural resources;
- Treaty claims to be negotiated based on an acceptance of use and value interests in natural resources, where they can be shown to derive from uses and values in 1840, with allowance for the development of those uses and values as contemplated in 1840;
- fair sale of land extinguishes any use interests in resources connected with the land, unless they were clearly understood to have been reserved from sale.⁵⁷

The Crown does allow where a well-founded grievance is established that the redress available may include reinstatement of use and value interests, and even allocation of property rights in natural resources. But there may be a number of constraints on such rights. This policy acts to limit the rights that Maori will be able to claim in geothermal resources to less than 'ownership.' And the establishing of any claim is restricted to situations where there is a severe Treaty grievance.

Arawa Representatives of 15 July 1993; d) Any other partnership matters that the tangata whenua or Environment BOP consider require attention.

⁵⁵ n 47, 32.

⁵⁶ Department of Justice *Crown Proposals for the Settlement of Treaty of Waitangi Claims* (Office of Treaty Settlements, P.O. Box 180 Wellington).

⁵⁷ *Ibid*, 18.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

4 ISSUES AT REGIONAL COUNCIL LEVEL

4.1 FORMULATION OF PLANS

The Waikato Regional Council has been forming a Geothermal Management Policy since 1990. The process of creating a geothermal management plan is well advanced. Formation of this policy involved consultation with the public, geothermal community and tangata whenua. The result has been an identification of Council responsibilities, developer responsibilities and formulation of a widely supported geothermal policy. At present the plan is under mediation at the Planning Tribunal. It is likely that some amendments will result following the Planning Tribunal decision⁵⁸. But the basic concepts will remain the same.

Environment Bay Of Plenty states that its Management Policy needed to cover, "effects of fluid and energy abstraction on geothermal fields and features, the effects of geothermal development and hazards, any effect on the environment caused through the discharge of geothermal fluid, and socio-economic consequences on local communities and national prosperity"⁵⁹.

Environment Bay Of Plenty had to have regard to certain matters in the preparation of the Rotorua geothermal regional plan. Sections 66(2)(a) and 67(2)(c) of the Resource Management Act require that the regional plan is not inconsistent with policy provisions of the Proposed Regional Policy Statement. Regard also had to be given to inconsistencies with the Environment Bay Of Plenty Transitional Regional Plan active at the time of this Regional plans formulation. Other regional plans, such as the Environment Bay Of Plenty Regional Land Plan and Environment Bay Of Plenty Regional Air Plan, and the Rotorua District Plan were also considered in the preparation process.

The Waitangi Tribunal claim for Te Arawa found that appropriate legislative action needed to be taken by the Crown to ensure that the plan for the Rotorua geothermal field properly included protection of the tangata whenua's Treaty rights in the field⁶⁰. It was of the opinion that only once consideration of Maori interests in the geothermal resource has been ensured should the management plan be notified.

⁵⁸ Example given by Jim McLeod of Enviroment Waikato,(in a phone interview); section 6 and section 18 provision for trading is likely to change such that one can split the resource. This will encourage reinjection.

⁵⁹ n 45, 178.

⁶⁰ n 15, 35.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

4.2 FAVOURED POLICIES FOR BALANCING CONSERVATION AND DEVELOPMENT

4.2.1 Zoning

To deal with possible adverse affects of development of geothermal systems, Environment Waikato proposes to designate zones. This policy is set out in the geothermal section of Environment Waikato Proposed Regional Policy Statement. Policy three of this section specifically refers to implementation methods for 'Protected and Development Geothermal Systems' as including;

"(ii) determine Protected Geothermal Systems in which geothermal characteristics will be protected
 (iii) determine Development Geothermal Systems in which the taking and use of geothermal energy (including geothermal water) will be allowed while avoiding, remedying or mitigating adverse effects".⁶¹ Further discussion on the implementation of this policy of designating zones is given in Waikato Regional Council Staff Discussion Papers⁶². This policy of zoning is clearly the favoured policy of Environment Waikato. This is evident from a Environment Waikato Report on an application for resource consents at Wairakei, under its stated 'Geothermal Policy' it says," the regional council proposes to designate zones containing systems whose reservoirs can be developed (Reservoir Development Zones) and zones containing systems whose reservoirs will be protected (Reservoir Protection Zones)".⁶³

In Reservoir Development Zones, geothermal systems can be developed and effects of this will be allowed. Effects on the discharge subsystem will need to be either remedied or mitigated but need not be avoided. In Reservoir Protection Zones the reservoir is to be protected. Effects of fluid and energy production will have to be avoided. Thus adverse effects on the discharge features and ecosystems can be prevented. The process of identifying the values and uses of zones and individual geothermal systems within zones is ongoing for the Council. This whole idea of listing and classifying of geothermal systems carries through and borrows from policy initiatives begun in the early 1980's and consolidated in the Ministry of Energy Policy in 1986.

Environment Bay Of Plenty has adopted a similar policy to that of Environment Waikato's Zoning system. In its Proposed Regional Policy Statement⁶⁴ its first two policy objectives in essence draw

⁶¹ Environment Waikato Proposed Regional Policy Statement (Environment Waikato, Hamilton) para 1.1.2 at 4.

⁶² Above n 48, 18-19 and see also Waikato Regional Council *Geothermal Management Strategy - Issues and Options. Staff Discussion Paper.* (Environment Waikato, Hamilton, 7 May 1992) 26.

⁶³ n 46, 35.

⁶⁴ n 45, 181-182.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

the same distinctions of having protection zones and those for development. First it specifies the objective of identifying 'Geothermal Features'. Under this head the objectives are to protect outstanding geothermal features and geothermal fields not available for consumptive resource use. Summarised, the policies that are to cover this involve establishing and identifying geothermal fields, taonga, features, and ecosystems so that they may be protected and sustained. Practically this involves compiling a current register which classifies all the Bay of Plenty's geothermal sites and features.

The second objective is for 'Use and Allocation'. This involves sustainable management of geothermal fields identified as being available for use and development. This involves establishing which geothermal fields are available for use, the amount of the geothermal resource to be allocated and means for management of any use. For implementation of this, responsibilities of Environment Bay Of Plenty are set out in an exhaustive list. Basically it will involve determining which geothermal fields are available for development and the controls to be placed on any use. To enable determinations on use of fields, access to information on geothermal resources must be available to Environment Bay Of Plenty and the public. Overall, this is a critical objective because as Environment Bay Of Plenty notes, "Without careful, equitable and informed management of the Region's geothermal resources, the sustainability principle can not be achieved, the value of the resource and its features will be compromised and the resource made vulnerable to over exploitation and waste".⁶⁵

In the Rotorua region the protection of surface features has been a real concern. The problem being that surface features of the resource there have not been adequately assessed for qualities requiring protection. To cope with this problem Environment Bay Of Plenty has chosen to give protection to all surface features.⁶⁶ In the Rotorua region due to concerns over the effect of geothermal fluid withdrawal, a shutdown of bores within the 1.5 kilometre extraction exclusion zone of Whakarewarewa area took effect from 1986 to 1988. Clearly a zoning and classification system is in place in for Rotorua.

⁶⁵ n 45, 186.

⁶⁶ n 47, 91.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

4.2.2 *Single Developer*

The Waikato Regional Council's favoured policy for the pursuit of sustainable development of a geothermal system for fluid and heat values is the 'single tapper' concept. This involves placing the exclusive right to tap the reservoir in a single commercial body. The single tapper is, "regulated by requirements for efficient take, but enabled to provide maximum benefit of use through commercial mechanisms".⁶⁷ A single tapper could involve a joint venture operation. And the single tapper concept does not restrict use. It still encourages a multiplicity of uses of geothermal resources. Many factors have been listed as rationale for this concept including the belief that it avoids fragmented development of a system and enables coordinated management.

4.2.3 *Strategic Equilibrium Model*

Environment Bay Of Plenty in its Regional Policy statement identifies the setting of an equilibrium as a means of sustainable management for geothermal fields identified as being available for use and development. Specifically it states it will, "Provide for any utility use of a geothermal resource only if it is satisfied beyond reasonable doubt that the potentials, qualities and attributes of the field will be satisfied with respect to an equilibrium set by Environment Bay Of Plenty".⁶⁸

A detailed set of favoured options for management have also been identified for the Rotorua region in the Regional plan. For sustaining of the Rotorua geothermal resource and prevention of irreversible destruction Environment Bay Of Plenty again chose the strategic equilibrium model. That is, "to sustain the field at a strategic equilibrium, set relative to the minimum geothermal aquifer water level, that protects surface features in a healthy state, yet provides for limited and controlled net abstraction from the field reservoir".⁶⁹

4.3 *CONSENTS*

At present resource consents have been issued for geothermal systems in the Waikato region that are clearly recognised as having, "characteristics that make them suitable for optimising values associated with large scale take and use of geothermal fluid and energy".⁷⁰ Consents that have been issued under the new Resource Management Act regime in Waikato are for the development

⁶⁷ n 46, 36.

⁶⁸ n 45, point 5.3.2(c)(xii), at 184.

⁶⁹ n 47, 83.

⁷⁰ n 46, 35.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

of a 14MW(e) electrical generation station at Rotokawa and a 50MW(e) electrical generation station at Mokai and further development at Wairakei. In each case there have been different issues⁷¹. Further development at Wairakei involved large scale extractive use, whereas at Rotokawa preservation of surface features was a major concern. The development at Mokai provided a real test to the single tapper policy and integration of Maori interests.

4.3.1 Mokai⁷²

The applicant for consent to develop geothermal resources at Mokai are tangata whenua of the land. These hapu represented by the Trustees of Tuaropaki Trust lodged applications in 1994 for consents to develop a geothermal power station. The applicants based their right on Kaitiakitanga over the resource. ECNZ made submissions opposing this application on the basis that their interest in the Mokai Field may be compromised. This concern was based on the fact that ECNZ has land holdings over the field and an interest in developing the resource. Given Environment Waikato's favoured "single tapper" policy it feared exclusion from any involvement in development of the field.

Environment Waikato staff acknowledged that the "single tapper" policy did diminish the likelihood of ECNZ or any other party independently developing the reservoir. Staff encouraged a joint management situation between interested parties. But the applicants in this case wished to pursue development individually. Environment Waikato had to be satisfied that the applicant had sufficient land holdings to undertake the development efficiently. Despite the Trusts small land holdings it was held to be sufficient for first stage development. Overall this consent application highlights Environment Waikato favoured use of the "single tapper" policy. It also acted as acknowledgment of kaitiakitanga as a legitimate principle in management of the resource.

4.2.3 Wairakei

In November 1994 applications for resource consents by ECNZ in respect of the Wairakei Field were made. The applications concerned taking of geothermal fluid from Te Mihi, reinjection of waste geothermal water, and drilling and testing of new wells. A number of submissions were made in opposition. McLachlan Interests, Taupo District Council, Department of Conservation,

⁷¹ Phonecall interview with Jim McLeod at Environment Waikato.

⁷² Environment Waikato Report from the Council Hearings Committee in to the Proposal of the Trustees of Tuaropaki Trust for the Mokai Geothermal Field (Environment Waikato, Hamilton, 1994).

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

Wairakei Tourist Park Committee and the Geological Society of New Zealand all raised objections to taking of fluid. In assessment of the proposal the take and reinjection were considered together because the effects of these co-dependant proposals are linked.

Findings on the take and reinjection application noted that there was a high degree of uncertainty as to the likely effects of these proposals. Therefore a monitoring system and flexible consent conditions needed to be put in place. The recommendation of Environment Waikato staff for the Wairakei field is that there should be, "sustainable production of high enthalpy fluid while avoiding, remedying or mitigating adverse environmental effects".⁷³ The emphasis is on continued production at a sustainable rate. Reinjection was supported as an alternative to continued river discharge. A range of options for recommendation in this application were made involving different combinations of take and location of development. Overall this consent application demonstrates that the Wairakei region is made readily available by Environment Waikato for large scale development.

4.4 BENEFITS OF REGIONAL GOVERNMENT MANAGEMENT VERSUS CENTRAL GOVERNMENT

Management of geothermal resources at regional level has benefits perhaps unavailable at central government level. Local authorities may be better able to identify and manage local resource issues. It is Buhrs and Bartlett's opinion that, "devolution and decentralisation appeals to many environmentalists, as it ties in with their doubts about the capability of central governments and bureaucracies to deal with complex environmental problems as well as with philosophies of giving communities greater control over their resources"⁷⁴. But they admit that the move to devolution in resource policy and management, "may create a policy vacuum in many areas where national governments fail to provide guidance".⁷⁵

There may be some call for a National Policy Statement because as Edmunds and Boast noted, some sort of national co-ordination seems beneficial.⁷⁶ Geothermal resources can involve matters

⁷³ n 46,43.

⁷⁴ Ton Buhrs and R Bartlett *Environmental Policy in New Zealand - The Politics of Clean and Green?* (Oxford University Press, Auckland, 1993)105.

⁷⁵ *Ibid*, 105.

⁷⁶ n 20, 41.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

of national importance which would be best catered for from a national perspective. Section 6 of the Resource Management Act lists matters of national importance that include features of geothermal resources.⁷⁷

4.4.1 Energy Policy

The Parliamentary Commissioner Environment has also criticised the lack of national guidance in the management of energy resources, including geothermal energy. Helen Hughes points to the fact that, "It is in the national interest to ensure a sustainable energy management future for NZ and government policy and action needs to reflect this reality".⁷⁸ Under the Resource Management Act sustainable management of resources is dependant on the expertise and politics at district and regional council level, along with any guidance the central government chooses to give in policy statements. She expresses the opinion that local councils are accustomed to taking local concerns into account, but not national and international implications of local actions. Therefore because energy resources are, "essentially a matter of national concern, guidance and a consistent approach from government is required" because the "potential outcomes are far too important to leave solely to the experimentation of local authorities".⁷⁹

The Parliamentary Commissioner Environment recommends that energy (which would include geothermal energy) like the coast is a matter of such importance that a national policy governing it be mandatory. Recommendations of this report were that national sustainable energy management policy should be created and consideration should be given to aspects which may be in requires of a National Policy Statement in order to give guidance to district and regional councils. Geothermal resources, in particular the resources' energy potential needs such guidance. It is a resource that if exploited will not continue infinitely. Environment Waikato Proposed Regional Policy Statement identified this concern in its overview section, "The rate at which geothermal energy can be taken without producing significant adverse effects is finite. Inefficient take and use of that energy may result in premature resource depletion."⁸⁰

⁷⁷ s6(a) the preservation of the "natural character" of wetlands and lakes, and s6(b) "the protection of outstanding natural features"⁷⁷ and s6(c) "the protection of areas of significant indigenous vegetation and significant habitants of indigenous fauna" could include features of geothermal resources.

⁷⁸ Office of the Parliamentary Commissioner for the Environment *Sustainable Energy Management in New Zealand - Improvements required in Government Policy* (Parliamentary Commissioner for the Environment, Wellington, March 1992) 4.

⁷⁹ Ibid, 30.

⁸⁰ n 61, para 1.1.1 at summary note 2.

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

5 CONCLUSION & CRITIQUE

Under the current legislative system efforts are being made to try and establish a clear and careful framework for the administration of geothermal resources. Environment Waikato and Environment Bay Of Plenty both advocate a policy of zoning geothermal fields which continues government policy formed in 1986. This policy goes some way to recognising the range of values attributed to the resource because it will classify geothermal resources as protected or available for development.

Environment Waikato management policy for geothermal resources considers the 'single developer' policy to be the best option for 'sustainable' use and development of the geothermal resource. Management by Environment Bay Of Plenty of geothermal resources has focused on instituting a detailed regional plan for the Rotorua area. It also gives some less specific advice for management of geothermal resources of the wider region in the Environment Bay Of Plenty Regional Policy Statement. Environment Bay Of Plenty favours a strategic equilibrium model to manage use and development.

There is a clear call for amendment to the Resource Management Act so that Maori interests and management rights in geothermal resources are given greater comprehensive recognition. Maori claims in geothermal resources have been stalled by the Waitangi Tribunal finding that the resource is linked to the land title. It is a perplexing finding on the part of the Waitangi Tribunal because on the other hand we have the Resource Management Act treating the resource as water. There is a possibility that further Maori claims to property rights in geothermal resources could base their rights on the doctrine of Aboriginal Title.

The Resource Management Act has in effect left the management of geothermal resources wide open for Regional Councils to develop. This is especially evident in the favoured 'single developer' policy of Environment Waikato. Nothing in the Resource Management Act is specific enough to guide the management of geothermal resources at Regional Councils level. So the reality is that these authorities have free reign to develop their own preferred policies and change them at will. The flexibility given to Regional Councils is readily apparent in its consideration of resource consent applications. At one end of the scale Wairakei is readily available for large scale extractive

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources.

use. Then at Mokai, the resource is to be managed by the applicants principles of kaitiakitanga under the 'single developer' policy. This leaves much to be desired. It creates a lack of certainty for developers and conservationists of the resource.

Placement of the resource within the scheme of water resources is another predicament in the management of geothermal resources. The nature of the resource, in particular the difficulty in its definition and monitoring, perhaps led to its placement under the water regime. This way of dealing with the convoluted nature of the resource is not entirely beneficial. Treatment of geothermal resources as water, neglects its range of values in particular its potential as an energy resource requiring careful management.

There is a need for some overall national level policy for geothermal resources. This would not necessarily mean usurping regional level management. There a range of ways this could be catered for; a National Policy Statement, a National Environmental Standard, within a National Energy policy, or even a something similar to the Minerals Programme in operation for petroleum. Institution of such a measure would provide greater security for the number of important values of geothermal resources.

S532
SHARPE, S. The current legal management of N.Z.'s geothermal resources,

6 APPENDICES

A. PART II CONSIDERATIONS OF THE RESOURCE MANAGEMENT ACT 1991

(i) section 5- requires "sustainable management" of 'natural and physical resources'.

(ii) section 6 - matters of national importance the Council must "recognise and provide for," in relation to geothermal resources are:

-s6(b) The protection of outstanding natural features from inappropriate use and development.

-s6(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna

-s6(e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.

(iii) section 7 - 'other matters' the Council must "have particular regard to" include in relation to geothermal resources;

(a) kaitiakitanga

(b) The efficient use and development of natural and physical resources

(d) Intrinsic values of ecosystems

(f) Maintenance and enhancement of the quality of the environment.

(g) Any finite characteristics of natural and physical resources

(iv) section 8 - a council must take into account the principles of the Treaty of Waitangi

B. SECTION 104 RESOURCE MANAGEMENT ACT 1991- MATTERS TO WHICH COUNCILS MUST 'HAVE REGARD'

- s104(1)(a) Any actual and potential effects on the environment of allowing the activity

-s104(1)(b) Relevant regulations

-s104(1)(c) The proposed Regional Policy Statement

-s104(1)(d) Regional Plans, proposed regional plans

-s104(1)(e) Any District Plan

-s104(1)(g) and (h) Water Conservation orders, designations, heritage orders

-s104(1)(i) Any other matters the consent authority considers relevant and reasonably necessary to determine the applications

-s104(3) Sensitivity of environment and alternative methods or locations of discharge

-s104(8) Trade competition

S532 SHARPE, S. The current legal management of N.Z.'s geothermal resources,

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