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BIOPROSPECTING IN NEW ZEALAND

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*Te Whare Wānanga  
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## **ABSTRACT**

Bioprospecting is the examination of biological resources for features that may be of value for commercial development. It has the potential to create a wide range of benefits. New Zealand's rich biodiversity, especially its marine environment and indigenous knowledge makes it a prime target for bioprospecting activity. In response to New Zealand's obligations to implement access and benefit sharing regimes, to avoid the exploitation of its indigenous resources and loss of any potential benefits, New Zealand has begun developing a bioprospecting policy. However, New Zealand's development of a bioprospecting policy may have come too late to prevent the loss of potential benefits, at least in the near future. There are already a number of examples of products that have been developed using New Zealand's biological resources and traditional knowledge for which the benefits have not been shared with the owners of those resources. It is also unlikely that New Zealand would have either the legal avenues and or the financial resources to enforce its sovereign rights to its genetic resources retrospectively. If New Zealand wishes to secure benefits from bioprospecting it must therefore do so soon.

This paper examines the issues surrounding bioprospecting, including the ownership and access of biological resources, protection of traditional knowledge, distribution of benefits, and intellectual property rights. It argues that to take advantage of the small window of opportunity New Zealand must review its existing legislation and make the changes necessary to facilitate any bioprospecting activity. Implementing specific legislation at this time could usurp the Wai 262 claim and unnecessarily restrict any bioprospecting activity reducing the benefits to New Zealand.

The text of this paper (excluding abstract, table of contents, footnotes, bibliography and appendices) comprises approximately 14589 words.

## I INTRODUCTION

In the aftermath of the International adoption of the Convention on Biological Diversity, many countries are moving to seek economic returns from the commercial use of their biological resources. Biodiversity prospecting or bioprospecting is "the examination of biological resources for features that may be of value for commercial development."<sup>1</sup> The growing consumer demand for naturally sourced products, combined with technological advances in the pharmaceutical, agricultural and biotechnology industries have fuelled bioprospecting activities worldwide.<sup>2</sup>

Biotechnology is a multibillion dollar global industry, and bioprospecting is of growing interest to New Zealand's science agencies and large multinational companies, particularly given the extensive range of biodiversity, the untapped potential of our marine environment and technological advances in screening for bioactive substances. However, "whilst some of our species are endemic, their bioactive components may be found in other parts of the world or can be synthesised in a laboratory."<sup>3</sup> In terms of benefiting from bioprospecting activities it is anticipated there is a window of opportunity where New Zealand has a comparative advantage over other countries, particularly developing countries.<sup>4</sup> There is a concern that foreign researchers are currently benefiting from easy access to biological resources without sufficient capture of down stream benefits by New Zealand.

There is currently no legal or policy framework for managing bioprospecting in New Zealand. Instead its regulatory framework is ad hoc, fragmented and reliant on legislation designed for other purposes. The framework is also not suited to maximising potential benefits or managing potential risks from bioprospecting activities. This enhances the risk of biopiracy, resulting in lost opportunities for

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<sup>1</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 3.

<sup>2</sup> S Laird and ten K Kate *Biodiversity Prospecting: The Commercial Use of Genetic Resources and Best Practice in Benefit-Sharing* (Earthscan Publications Limited, London, UK, 2002) 3.

<sup>3</sup> Ministry of Economic Development, above, 3.

<sup>4</sup> Ministry of Economic Development, above, 3.

managed access to biological resources in New Zealand. New Zealand is in the initial stages of developing a bioprospecting policy to address the risks associated with New Zealand's current policy regime.

In order to examine bioprospecting in New Zealand the first part of this paper will set out the definition of bioprospecting, the international context and then examine the existing statutory framework identifying what the potential implications the current framework has on bioprospecting. It will then discuss particular issues for Maori, particularly the Wai 262 claim and the treatment of traditional knowledge. The second part of this paper will then examine the distribution and sharing of the benefits. Finally, this paper presents a series of options that have been used by different countries and organisations to implement access and benefit sharing arrangements and proposes that a less restrictive approach should be taken to ensure that New Zealand can capture the benefits from the bioprospecting activity and the distribution and sharing of those benefits.

## **II WHAT IS BIOPROSPECTING**

### **A Definition**

Biodiversity prospecting or bioprospecting is "the examination of biological resources for features that may be of value for commercial development."<sup>5</sup> The features may include "chemical compounds, genes and their products or, in some cases, the physical properties of the material in question."<sup>6</sup> This definition "only includes the search for products, which may be of potential commercial use, excluding non-commercial biodiversity research, for example studies conducted by universities and independent research institutions."<sup>7</sup>

The term biological resources, has been defined in the Convention on Biological Diversity (CBD) to include "genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or

<sup>5</sup> Ministry of Economic Development, above, 3.

<sup>6</sup> Ministry of Economic Development, above, 6.

potential use or value for humanity.”<sup>8</sup> This includes plants, animals, fungi, microorganisms and viruses, the parts and products thereof, which may be of value to humans.<sup>9</sup> Biological resources are generally used in two ways, either for their physical components to directly make a product, or for the information those organisms contain.<sup>10</sup>

Bioprospecting is distinguished from other biotechnology research because it incorporates the concept of prospecting, which is the “search of biological material for as-yet-undiscovered substances and applications.”<sup>11</sup> It is also important to note that the definition of biological resources does not include human or human tissues.<sup>12</sup> Bioprospecting is not about genetic modification or issues associated with the collection and use of human tissue and genetic material.<sup>13</sup> Some of these issues will be considered by the review of the Human Tissues Act currently undertaken by the Ministry of Health.

### **B The Nature of Bioprospecting**

The use of natural resources in the development of new products is an old phenomenon, dating back as far as 2600BC in Mesopotamia.<sup>14</sup> Oils were used from cedar and cypress, liquorice, myrrh and poppy juice, among other things. These substances are still in use today for the treatment of a variety of illnesses and infections. Ancient Egyptian, Chinese and Indian documents also show that

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<sup>7</sup> Ministry of Economic Development, above, 2.

<sup>8</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 2.

<sup>9</sup> Kristy Hall *Bioprospecting Position Paper: What is Bioprospecting and What are our International Commitments?* (Ministry of Economic Development, 2003).

<sup>10</sup> John R Adair “The Bioprospecting Question: Should the United States Charge Biotechnology Companies for the Commercial Use of Public Wild Genetic Resources?” (1997) 24 Ecology L.Q. 131, 137.

<sup>11</sup> Antarctica New Zealand *Bioprospecting in Antarctica: Discussion Paper* (Wellington, 2002).

<sup>12</sup> Refer Decision 11/11(2) of the Second Conference of the Parties of the Convention on Biological Diversity.

<sup>13</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 4.

<sup>14</sup> General Introduction 1.1 Plant-Derived Drugs Natural products  
<http://wwwscholar.lib.vt.edu/theses/available/etd-72198-18137/unrestricted/Body.pdf> (last accessed 7 August 2003).



medicine in these societies included numerous plant-based remedies and preventives.<sup>15</sup>

The growing consumer demand for naturally sourced products, combined with technological advances in the pharmaceutical, agricultural and biotechnology industries have fuelled bioprospecting activities worldwide.<sup>16</sup> Nearly half of the world's 25 top selling drugs are derived from natural resources, and the global market value of pharmaceuticals derived from wealth from biological resources is estimated at \$75-\$150 billion (US).<sup>17</sup> Bioprospecting has been responsible for such discoveries as Quinine, the anti-malarial drug, from the bark of a Cinchona species, and anti-bacterial agents from the Penicillin species.<sup>18</sup> Discoveries from bioprospecting have been utilised in other markets such as fragrances and flavours, horticulture, crop protection, botanical medicinal and cosmetics.<sup>19</sup>

### **C Where Is Bioprospecting Conducted?**

An essential aspect of bioprospecting is that it is a search for novel sources of organisms. This makes most micro-organisms, many marine environments, and extreme ecosystems such as that of the Antarctic the most sought after locations.<sup>20</sup> The developing countries have been a primary target for bioprospecting because of their unique biodiversity and relatively untouched lands. New Zealand is also a potential hot spot for bioprospectors because of its isolation, its indigenous flora and fauna has developed in a particular way. New Zealand's Exclusive Economic Zone (EEZ) is the fourth largest in the world, which provides a rich source of marine material.<sup>21</sup> For example, the large number of hydrothermic vents in New Zealand's EEZ offers an opportunity to study micro-organisms that have developed in extreme

<sup>15</sup> Biodiversity, Biotechnology, and Law: West Africa  
<<http://www.aaas.org/international/africa/gbdi/mod2a.htm>> (last accessed 7 August 2003).

<sup>16</sup> S Laird and ten K Kate *Biodiversity Prospecting: The Commercial Use of Genetic Resources and Best Practice in Benefit-Sharing* (Earthscan Publications Limited, London, UK) 3.

<sup>17</sup> S Laird and ten K Kate, above, 3.

<sup>18</sup> Biodiversity, Biotechnology, and Law: West Africa  
<<http://www.aaas.org/international/africa/gbdi/mod2a.htm>> (last accessed 7 August 2003).

<sup>19</sup> S Laird and ten K Kate, above, 3.

<sup>20</sup> The Magic Pudding Company Pty Ltd *Biotechnology Collaboration between New Zealand and Queensland: Opportunities for Growth* (Report prepared for Industry New Zealand, 2003).

environments.<sup>22</sup> There is also a wealth of indigenous knowledge that makes New Zealand an attractive place to bioprospect.

There is evidence to suggest that bioprospecting is already being conducted in New Zealand by a "wide range of agencies, including domestic and foreign biotechnology firms, universities and research institutions".<sup>23</sup> An example of product development include Living Nature, a New Zealand based company using plants and clays to make cosmetic products. Their products are exported to Germany and the United States.<sup>24</sup> Foreign biotechnology companies have substantial involvement in New Zealand's bioprospecting, although usually in collaboration with Crown Research Institutions (CRIs).<sup>25</sup> However, it is difficult know exactly to what extent its resources are being targeted as there has been no formal research conducted into the scale of the industry.<sup>26</sup>

#### **D Benefits of Bioprospecting**

Bioprospecting is an activity that has the potential to provide a variety of benefits for countries such as New Zealand. The benefits can be either monetary or non-monetary. The most commonly thought of financial benefit are the royalties from the end product, which are secured through the retention of intellectual property. However, they are not a guaranteed benefit, as only a small proportion of bioactive substances will ever make it to the stage of commercial production. Even if a product is developed there may be a number of inputs included in the final product, which makes it difficult to identify how one particular substance has contributed to the final product.<sup>27</sup>

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<sup>21</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 4.

<sup>22</sup> Daniel Brown *Bioprospecting: Problem Definition* (Ministry of Economic Development Research Paper, 2001).

<sup>23</sup> Ministry of Economic Development, above, 3.

<sup>24</sup> Ministry of Economic Development, above, 3.

<sup>25</sup> Ministry of Economic Development, above, 3.

<sup>26</sup> Ministry of Economic Development, above, 3.

<sup>27</sup> Ministry of Economic Development, above, 7.

Bioprospecting is high cost and a high-risk process, with no guarantee of any financial returns at all. For example, even in the first six years of the bilateral bioprospecting contract between Costa Rica's National Institute of Biodiversity (INBio) and a United States pharmaceutical company, Merck, no royalty payments were received from bioprospecting.

As well as royalties, other financial benefits include bioprospecting fees, percentage of research budget, development of alternative income generating schemes and collection of samples, supply of biological material.<sup>28</sup> Non-monetary benefits include acknowledgement in publication, joint research and increased scientific capacity, participation in planning and decision-making, control over samples and research, technology transfer, training in bioprospecting methods, collection and preparation of samples.<sup>29</sup>

There are a number of stages in a bioprospecting activity. The first stage includes the initial discovery of the material, screening for useful properties and describing new chemical structures. The second stage requires protecting the new chemical structures, usually by patenting. Patenting is the most relevant property right, as it enables the owner to have an exclusive right to control the commercial exploitation of an invention for a limited time.<sup>30</sup> The next three stages include the product development, manufacturing and finally, if successful, the marketing of the final product.<sup>31</sup>

New Zealand is most likely to capture benefits in the early stages of the bioprospecting activity, as this is when the initial discovery of the material is made and screened for useful properties.<sup>32</sup> Benefits can be obtained from adding value to a discovery through the chain of scientific research and development, downstream

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<sup>28</sup> Department for Environment and Heritage *Access to Biological Resources in South Australia: Discussion Paper* (South Australia, 2000).

<sup>29</sup> Columbia University School of International and Public Affairs, "Access to Genetic Resources: An Evaluation of the Development and Implementation of Recent regulation and Access Agreements" (Environmental Policy Studies, Working Paper No 4, New York, 1999) 75.

<sup>30</sup> Other intellectual property rights include trademarks, copyrights, plant variety rights and designs.

<sup>31</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002).

industrial development related to scientific discoveries, royalty streams to the "owner" of a bioactive discovery that is commercially developed, increased capacity of New Zealand's scientific sector through bioprospecting research and increased scientific knowledge of New Zealand's biology and ecology.<sup>33</sup>

However, there may only be a narrow window of opportunity for New Zealand to capture and maximise possible economic benefits from access to its biological resources. Australian policy work on bioprospecting has suggested there is a 5-7 year window of opportunity available.<sup>34</sup> This is because as technology advances, the approach to the development of new drugs will increasingly shift from the screening of natural products to rational drug design. There will be the ability to synthesise micro-organisms in a laboratory without prior knowledge of their existence in nature. The new screening technologies also seem to reduce the value of local knowledge for increasing the 'hit' rate in the screening of biological materials. It is also likely that discoveries can be made elsewhere, although there are some species endemic to New Zealand, the substances derived from bioprospecting could be found in other species, in other parts of the world. If this is the case, legislative responses may be too slow to capture the opportunities available.<sup>35</sup>

### ***E Intellectual Property***

Intellectual property creates property rights over intangible information, including industrial designs, inventions and images. The underlying rationale for intellectual property right systems is that they offer protection to new innovations and therefore create incentives for further investment in developing future innovations. In the context of genetic resources, intellectual property rights are often defined and protected in the form of patents.<sup>36</sup> Patenting is the most relevant property right, as it enables the owner to have an exclusive right to control the

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<sup>32</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 7.

<sup>33</sup> Ministry of Economic Development, above, 7.

<sup>34</sup> Ministry of Economic Development, above, 7.

<sup>35</sup> Ministry of Economic Development, above, 7.

<sup>36</sup> The Patents Act 1953.

commercial exploitation of an invention for a limited time.<sup>37</sup> Patents will not be granted for micro-organisms found in their natural state, only if they have been modified.<sup>38</sup> A patent will also only give the applicant protection for twenty years, once that time period is over the knowledge is part of the public domain. The Government is currently reviewing the Patents Act and whether the boundaries of patentability should be extended.<sup>39</sup>

### **III INTERNATIONAL COMMITMENTS**

There are a number of international commitments of direct relevance to the management of bioprospecting activities. Many of these commitments are binding whereby Parties have a legal obligation to adhere to the requirements of these documents. Examples include the Convention on Biological Diversity (CBD), the Trade Related Intellectual Property Services Agreement (TRIPS), and the United Nations Convention on the Law of the Sea (UNCLOS). Others are non-binding moral commitments including Agenda 21, the Rio Principles, and the Millennium Development Goals. These are important commitments to take into account when implementing any policy related to bioprospecting. However, apart from a discussion on the CBD and a brief overview of the TRIPS agreement, considerations of these other international commitments are outside the scope of this paper.

#### **A The 1992 Convention on Biological Diversity**

The Convention on Biological Diversity (CBD), Rio de Janeiro, 5 June 1992, represents the first international commitment to the preservation of biological diversity on a global scale and has been ratified by more than 180 countries, including New Zealand.<sup>40</sup> Although the Convention does not specifically refer to the activity of bioprospecting it does cover a number of closely related issues involved

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<sup>37</sup> Kim Connolly-Stone *Patents, Property Rights and Benefit Sharing Issues in Relation to Bioprospecting* Bioprospecting in Antarctica Workshop 7-8 April 2003. Other intellectual property rights include trademarks, copyrights, plant variety rights and designs.

<sup>38</sup> Kim Connolly-Stone, above, 2003.

<sup>39</sup> See [www.iponz.govt.nz](http://www.iponz.govt.nz).

<sup>40</sup> New Zealand ratified on 16 September 1993.

in the bioprospecting process. This is evident in the Convention's three objectives: conserving biological diversity, using natural resources sustainably, and fairly and equitably sharing benefits derived from the use of genetic resources.<sup>41</sup> The last objective is of particular importance to developing countries, which hold most of the world's biodiversity, but consider that they do not receive a fair share of the benefits from the use of their resources in products resulting from bioprospecting.<sup>42</sup> Indigenous peoples, including Māori, share similar concerns.

The Convention recognises "the sovereign rights of a nation to exploit their own biological and genetic resources according to their environmental policies, provided they do so in accordance with the Charter of the United Nations and the principles of international law."<sup>43</sup> States also have the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or areas beyond the limits of national jurisdiction.<sup>44</sup>

Article 15 of the CBD<sup>45</sup> "recognises the sovereign rights of States over their natural resources,"<sup>46</sup> including the authority to determine access and benefit sharing regimes in line with the Convention.<sup>47</sup> This is one of the most significant objectives as it establishes that nations have sovereign rights over their genetic resource, and that the source country can expect some form of compensation for their use.<sup>48</sup> This reverses the principle of "common heritage of mankind" which held that the genetic resources of the world had belonged to everyone.<sup>49</sup> This Article also specifies the parameters for access to genetic resources which are that the source country should provide access to genetic resources subject to "prior informed consent" (PIC) unless

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<sup>41</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 1.

<sup>42</sup> Secretariat of the Convention on Biological Diversity, Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their utilisation, 2002, iii.

<sup>43</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 3.

<sup>44</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 3.

<sup>45</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 15.

<sup>46</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 15(a).

<sup>47</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 15(2).

<sup>48</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 15, para 1.

<sup>49</sup> Roger A Sedjo "Property Rights, Genetic Resources, and Biotechnological Change" (1992) 35 J.L & Econ 199, 206.

that Party decides prior informed consent is unnecessary<sup>50</sup> and where granted it should be on “mutually agreed terms”<sup>51</sup>

PIC is one of the main responsibilities of the governments when implementing their obligations regarding access to genetic resources. PIC ensures that governments can evaluate bioprospecting activity before it occurs and therefore are able to control access over the raw biological materials. This doctrine can extend to any group, indigenous or otherwise provided that they have some recognisable interest in the genetic resource.<sup>52</sup>

Articles 15 to 19 contains obligations that relate more closely to bioprospecting, they request that contracting parties adopt measures that aim to achieve the fair and equitable sharing of benefits arising from the commercial (and other) utilisation of genetic resources, and the results of research and development, with the State that provided the resource.<sup>53</sup> “Genetic resources” are defined as “any material of plant, animal, microbial or other origin containing functional units of heredity...of actual or potential value.”<sup>54</sup> However, sections 15 to 19 specify that “only those that are provided by Contracting Parties that are countries of origin of such resources or by the Parties that have acquired the genetic resources in accordance with this Convention.”<sup>55</sup> This suggests that any access and benefit sharing regimes developed under the CBD only apply to native or endemic species. Such regimes would only cover introduced species, biochemicals or other biological products or cell components not containing DNA or RNA, if they were acquired under the provisions of the Convention.<sup>56</sup>

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<sup>50</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 15(5).

<sup>51</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 15(4).

<sup>52</sup> Convention on Biological Diversity *Building A New Partnership: Draft Guidelines on Access and Benefit Sharing Regarding the Utilisation of Genetic Resources* (Switzerland Submission, UNEP/CBD/WG-ABS/1/INF/5).

<sup>53</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 15(7). See also Articles 16 and 19 regarding access to and transfer of technology, and handling of biotechnology and distribution of its benefits.

<sup>54</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 2.

<sup>55</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 15(3).

<sup>56</sup> Kristy Hall *Bioprospecting Position Paper: What is Bioprospecting And What Are Our International Commitments?* (Ministry of Economic Development, 2003).

The Convention text is very general and does not specify the method for achieving improved access and benefit sharing. However, a number of Articles request for the transfer of technology between Parties,<sup>57</sup> information exchange,<sup>58</sup> scientific cooperation,<sup>59</sup> and the provision of funding.<sup>60</sup> The Conference of the Parties (COP), for the CBD have produced a set of policy guidelines called the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising Out of their Utilisation. These are non-binding guidelines which establish a number of "roles and responsibilities"<sup>61</sup> for contracting parties. Guidance is provided on matters such as the negotiation, monitoring and evaluation, implementation and enforcement of access benefit sharing (ABS) agreements (contracts), procedures for obtaining prior informed consent<sup>62</sup> and mechanisms for benefit sharing.<sup>63</sup> The World Intellectual Property Office provides technical advice to the CBD on ABS implementation issues.

The Convention also recognises the association between indigenous people, traditional knowledge and biological resources, including the need to ensure that the use of such knowledge is done with the approval and acknowledgement of the holders of that knowledge and that equitable benefit sharing with indigenous knowledge holders occurs.<sup>64</sup> The CBD has established an ad hoc Working Group to help interpret and implement Article 8(j).<sup>65</sup>

## **B TRIPS**

The Agreement on Trade Related Aspects of Intellectual Property (TRIPS) is the most relevant agreement for bioprospecting under the World Trade Organisation (WTO). It was "developed in order to reduce distortions and impediments to international trade, and taking into account the need to promote

<sup>57</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, arts 1 and 16.

<sup>58</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 17.

<sup>59</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 18.

<sup>60</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, arts 1 and 20.

<sup>61</sup> Bonn Guidelines Section II.

<sup>62</sup> Bonn Guidelines Articles 24 to 40.

<sup>63</sup> Bonn Guidelines Article 23.

<sup>64</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 8(j).

<sup>65</sup> COP Decision IV/9.



effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not in themselves become barriers to legitimate trade.”<sup>66</sup> The Agreement sets out the minimum intellectual property rights standards for all WTO members. These standards, especially patents have an impact on biodiversity management. In the case of patents, “it provides generally that patents must be available for inventions, whether products or processes, in all fields of technology.”<sup>67</sup>

### **C TRIPS and CBD**

There is a concern that the TRIPS agreement is incompatible with the objectives of the CBD and therefore the two agreements cannot be implemented consistently. This is based on the conflicts between the goals of these two Conventions. The TRIPS agreement allows private rights to be established over inventions based on genetic resources through patents and the CBD recognises sovereign rights over their genetic resources.

Those that purport this view (primarily developing countries), propose amending Article 27(3)(b) of the TRIPS Agreement to make the grant of patents contingent on the provision of a declaration of the origin of genetic resources, proof of prior informed consent where the genetic resources are the subject of traditional knowledge and evidence of fair and equitable benefit-sharing ensuring compliance with CBD provisions.<sup>68</sup> This view also addressed the difficulties that States may encounter when implementing the amendment to Article 27(3)(b), for example implementing domestic legislation that can cope with identifying the origin of species.

The opposing view is that there is no conflict between the two agreements. The fact that the TRIPS agreement is silent on biodiversity issues does not necessarily mean it is in conflict with the CBD. Rather it preserves the flexibility of

<sup>66</sup> WTO Ministerial Declaration, September 1986; TRIPs, Preamble.

<sup>67</sup> Sarma Lakshmi “Biopiracy: Twentieth Century Imperialism in the Form of International Agreements” (1999) 13 *Temp.Int'l & Comp.L.J.* 107,124.

individual members to design and implement domestic intellectual property systems that meet obligations under the TRIPS Agreement and national priorities under the CBD.

At the international level, work is being carried out by WIPO to look at ways of doing this and in New Zealand, for example, the new Trade Marks Bill is expected to contain provisions to ensure that inappropriate registration decisions are not made in respect to the registration of Maori words and symbols. Other options, such as a special *sui generis* (or stand alone) system of protection for indigenous intellectual property are also being examined.<sup>69</sup>

On a related front, the WTO is currently reviewing the choice Members presently have over whether to allow the patenting of plants, animals (including humans) and essentially biological processes for the production of plants or animals. In New Zealand, Maori have traditionally opposed the patenting of life forms for spiritual and cultural reasons.

#### **IV NEW ZEALAND AND BIOPROSPECTING**

##### **A New Zealand Biodiversity Strategy**

New Zealand's domestic obligations to facilitate access to and benefit-sharing arising from the use of its biological resources are based on the New Zealand Biodiversity Strategy. This strategy seeks to implement New Zealand's international obligations under the CBD.<sup>70</sup>

Objective 4.3 of the biodiversity strategy is to "*Develop an integrated policy and legislative framework for managing bioprospecting in New Zealand, including arrangements for sharing benefits from the use of genetic resources, which are consistent with international commitments*". This strategy also creates obligations

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<sup>68</sup> Ministry of Foreign Affairs and Trade *The WTO Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)* (Information Paper, 1999).

<sup>69</sup> Ministry of Foreign Affairs and Trade *The WTO Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)* (Information Paper, 1999).

<sup>70</sup> The New Zealand Biodiversity Strategy, February 2000  
<<http://www.doc.govt.nz/Conservation/The-New-Zealand-Biodiversity-Strategy/index.asp>> (last accessed 7 July 2003).

for the protection of Maori traditional knowledge in relation to biological resources, and the sharing of benefits derived from this knowledge.<sup>71</sup>

## ***B Oceans Policy***

An improved access regime for bioprospecting in the marine environment also compliments work being done under the current ocean policy review. For example, the oceans policy is identifying the means by which marine activities can contribute to the wealth and wellbeing of New Zealanders. Bioprospecting has the potential to lead to valuable discoveries and up skill our scientific sector. The proposed Oceans Policy will provide overarching direction for decision making on all activities in the oceans. This work will seek to improve the access regime for bioprospecting in the marine environment.<sup>72</sup>

## ***C Current New Zealand Policy***

New Zealand is currently in its early stages of developing a policy on bioprospecting. The Ministry of Economic Development took the lead role on the project on 18 May 2001. Prior to this, Department of Conservation (DoC) led work in the area, as part of the Central Government Co-ordinating Group for Biodiversity, established to implement the New Zealand Biodiversity Strategy.<sup>73</sup> The release of the discussion document in November 2002 and the submissions received in response to the document has highlighted the respective issues in relation to bioprospecting for New Zealand. This section of the paper will identify the current issues of concern for bioprospecting in New Zealand.

## ***D Existing Statutory Framework***

### ***1 Ownership of resources***

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<sup>71</sup> The New Zealand Biodiversity Strategy, February 2000  
<<http://www.doc.govt.nz/Conservation/The-New-Zealand-Biodiversity-Strategy/index.asp>> (last accessed 7 July 2003).

<sup>72</sup> Oceans Policy <http://www.oceans.govt.nz/policy/index.html> (last accessed 25 June 2003).

<sup>73</sup> Daniel Brown *Bioprospecting: Problem Definition* (Ministry of Economic Development Research Paper, 2001).

The ownership of biological material is fragmented and there is no framework specific to bioprospecting in New Zealand. The Wildlife Act 1953 grants Crown ownership over all indigenous land mammals, most birds, reptiles and some invertebrates irrespective of where they are found.<sup>74</sup> The common law vests ownership, of microorganisms, specimens of plants and fauna (not covered by the Wildlife Act) with the relevant landowner (including private landowners).<sup>75</sup>

The Native Plants Protection Act 1934 prohibits the taking of 'significant' quantities of most native plants without landowner permission. On public land, that permission must come from government or local authorities. Exceptions are made for medicinal, research or horticultural plant uses and for certain plants, such as kanuka, manuka, bracken and nettles and related species, i.e., does not apply to mosses, lichens or algae.<sup>76</sup> The Continental Shelf Act 1964 vests all rights that are exercisable by New Zealand with respect to the continental shelf and its natural resources in the Crown.<sup>77</sup>

The Crown does not formally own fish and marine species other than marine mammals, but most are managed under the Fisheries Act.<sup>78</sup> The Crown asserts management control over all marine mammals through the Marine Mammals Protection Act 1971.

DoC manages access to the land it administers under the Conservation Act 1987, and for granting others possession of indigenous plant and animal material from that land. This Act applies to the public conservation estate and includes both land and water out to the territorial sea (12NM). This includes about 30 per cent of New Zealand's landmass,<sup>79</sup> over 1,000 threatened species, including the preservation of indigenous freshwater fisheries and the protection of recreational freshwater

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<sup>74</sup> Wildlife Act 1953, section 3.

<sup>75</sup> However, it has been suggested that 'much indigenous biodiversity on private land is unprotected.' Cited in FAO, *New Zealand Country Report to the FAO International Technical Conference on Plant Genetic Resources*: Leipzig (1996) 31.

<sup>76</sup> Wildlife Act 1953, section 4(2).

<sup>77</sup> The limits of New Zealand's continental shelf are currently being defined and must be submitted to the United Nations Commission on the Limits of the Continental Shelf in 2009.

<sup>78</sup> If they are part of a marine protected area they are managed under the appropriate legislation.

<sup>79</sup> See Conservation Act 1987.

fisheries and freshwater fish habitats. DoC is the authorised agency for the purposes of that taking of any marine life or material in any marine reserve.<sup>80</sup> However, currently DoC cannot manage commercial activities in marine reserves as the Marine Reserves Bill is currently under review.<sup>81</sup>

## 2 *Access to resources- private land*

On private land, the landowner is able to grant access to and possession of any biological material except for species covered by both the Wildlife Act 1953 and the Native Plants Protection Act 1934.<sup>82</sup> In this case the private landowner can grant access to the land, but access to the actual resource will require consent from the Crown manager. It is anticipated that biodiscovery as a process of bioprospecting will not involve the Resource Management Act 1991 (RMA). The Act is only likely to be triggered further downstream in the biotechnology continuum for processes such as bioharvesting.<sup>83</sup>

## 3 *Access to resources – crown managed areas*

Access to biological resources on the Conservation Estate is provided for under Part 3B of the Conservation Act.<sup>84</sup> The concession regime also applies to the Wildlife Act.<sup>85</sup> A concession must be obtained to carry out any commercial<sup>86</sup> or research activity in the conservation area.<sup>87</sup> DoC could carry out bioprospecting on

<sup>80</sup> Marine Reserves Act, section 11b.

<sup>81</sup> Jane Gunn *Bioprospecting in the Marine Environment* (Ministry of Economic Development Research Paper, 2003).

<sup>82</sup> However, it has been suggested that “much indigenous biodiversity on private land is unprotected.” Cited in FAO, New Zealand. Country Report to the FAO International Technical Conference on Plant Genetic Resources: Leipzig (1996) 31.

<sup>83</sup> Rebecca Macky *Bioprospecting in New Zealand: Access to Resources- on land, in water bodies and in the coastal marine area* (Ministry of Economic Development, 2003).

<sup>84</sup> Conservation Act 1987, section 170(2) states no activity should be carried out in a conservation area without a concession. There are some exceptions to this-including those taken without specific gain/reward for the activity. An activity includes a trade, business or occupation.

<sup>85</sup> A concessions regime applies in wildlife sanctuaries, wildlife refuges and, wildlife management reserves under section 14AA of the Conservation Act 1987.

<sup>86</sup> Conservation Act 1987, section Q17.

<sup>87</sup> There are some exceptions to this, including those undertaken without specific gain/reward for the activity.

the public conservation estate without a concession<sup>88</sup> or resource consent under the RMA. However, this is presumed to only apply for research purposes.

The application process for these concessions or permits is outlined in the Permissions Standard Operating Procedure (SOP), which is a separate document from the legislation. The application process varies depending upon the potential effects of the activity. A DoC concession only gives approval for the one collection activity and may be granted subject to conditions of consent. Applications can be either high or low impact depending on their impact. Low impact (non notified applications) can take 2 days, high impact (notified) 4-6 weeks. The timelines are enlarged if there is a commercial component. The main difference is that non-notified concessions will take approximately six weeks to approve and notified concessions will take approximately six months for approval. DoC administers and manages conservation areas, natural and historical reserves through conservation management strategies (CMS), conservation management plans (CMP) and freshwater management plans (MP) under the Conservation Act.<sup>89</sup> An activity must be consistent with both a CMP and CMS in order to obtain a concession approval.<sup>90</sup>

#### 4 *Marine environment*

Under the Fisheries Act 1996, initial access to a marine resource can be obtained by provision of a special permit issued by the Ministry of Fisheries (Mfish) that exists for the taking of any "aquatic life" for non-commercial, scientific or research purposes.<sup>91</sup> The Fisheries Act has an extremely wide definition of aquatic life and fisheries resources, which encompass anything that might be taken for the purposes of bioprospecting.<sup>92</sup> This would include, for example, sponges, seaweed, fish species, marine organisms and fresh water algae.<sup>93</sup>

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<sup>88</sup> Conservation Act 1987, section 17 0(1)(d) states a concession is not required for an activity carried out by DoC in the exercise of its functions.

<sup>89</sup> The CMS and CMPs documents are provided for in Part 3A of the Act and are generally area specific describing why an area is important and they recommend how to manage change.

<sup>90</sup> Conservation Act 1987, section 17T. Where there is no CMP/CMS the Minister can grant a concession after consideration is given to sections 17S, 17T, 17U. (section 17W(2)).

<sup>91</sup> Fisheries Act 1996, section 97.

<sup>92</sup> Note that minerals are managed under the Crown Minerals Act 1991 and not the Fisheries Act.

Special permits are granted at the discretion of the chief executive and usually limit access to the minimum amount of “fish” necessary for the research, which are usually samples of less than 30kg.<sup>94</sup> Special permits are only granted for investigative research and they do not provide for on-going access rights or exclusive access. They are also not issued where quota or a fishing permit already exists because it would undermine existing access arrangements and property rights in that fish stock.<sup>95</sup>

The application process for a special permit is not set out in the Fisheries Act; instead the process is set out in the *Special Permit Application Information Sheet*, which has been prepared by Mfish. The process requires the applicant to complete an application form, provide a detailed research proposal, complete a client information sheet, and provide detailed information on the species, quantities required, vessel, method of extraction, personnel and it goes on.<sup>96</sup> The decision process may also require an independent internal review or consultation with others who may be affected. The applications are individually assessed and costs are recovered according to a time-based fee. The applications may also take a year or more to process.<sup>97</sup>

In practice most bioprospecting has been opportunistic and occurred while undertaking other marine scientific research. Consequently Mfish has usually issued umbrella research permits to New Zealand Crown Research Institutions (CRI's)<sup>98</sup>, which avoid the need for individual of separate research purposes of bioprospecting. However, Mfish could be excluding potential bioprospectors from obtaining permits because of their preference to issue special permits to existing players, like CRIs.<sup>99</sup>

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<sup>93</sup> Jane Gunn, above, 2003.

<sup>94</sup> Jane Gunn, above, 2003.

<sup>95</sup> Ministry of Fisheries *Bioprospecting New Zealand* (submission to Ministry of Economic Development, 2003).

<sup>96</sup> Jane Gunn, above, 2003).

<sup>97</sup> Jane Gunn, above, 2003).

<sup>98</sup> Mfish advise that generic investigative research special permits are (or have been) held by NIWA, GNS, IRL and the Museum of New Zealand and that these agencies can and do take samples in partnership with overseas interests.

<sup>99</sup> Jane Gunn *Bioprospecting in the Marine Environment* (Ministry of Economic Development Research Paper, 2003).

## 5 *Foreign vessel approval process*

The Ministry of Foreign Affairs and Trade is the responsible agency for consenting to and handling any applications for marine scientific research in the EEZ and on the continental shelf.<sup>100</sup> MFAT have recently reviewed procedures for assessing requests from foreign governments wishing to conduct marine scientific research in New Zealand's jurisdiction. As a result of the review, the Ministry is endeavouring to identify an appropriate agency to coordinate inter-departmental consultation on applications and a central clearinghouse for all data, reports, samples and other information received as a result of foreign research vessels' activities.

## 6 *Continental Shelf Act 1964 and the Territorial Sea, Contiguous Zone and EEZ Act 1977*

The Continental Shelf Act 1964 establishes a regime to manage the natural resources of the continental shelf. The Act regulates prospecting for minerals and petroleum, but not other natural resources although it does exert sovereign rights over sedentary living organisms. The Territorial Sea, Contiguous Zone and EEZ Act 1977 provides for the exploration, exploitation, conservation and management of the resources in the zone. MFAT is the responsible agent for both these Acts.<sup>101</sup>

## ***E Issues with Existing Access Regimes to Biological Resources***

### *1 On crown-managed land*

There are a number of issues with the existing access regime for land, which has the potential to create barriers for bioprospecting in New Zealand. The objective of the Conservation Act is to provide protection and control over the public conservation estate. This potentially conflicts with bioprospecting activity, which is commercialising biological resources. The current concessions regime and

<sup>100</sup> This is in accordance with Article 246 of the United Nations Convention on the Law of the Sea (UNCLOS) which states that marine scientific research in the EEZ and on the continental shelf may only be conducted with the consent of the coastal state.

<sup>101</sup> Jane Gunn, above, 2003.



conservation management strategies, and conservation plans do not adequately provide for bioprospecting and the process is very complicated. One consequence of this is that the bioprospectors will prefer to go to private landowners because it will be easier to obtain consent for any activity.

## 2 *In the marine environment*

The current statutory framework for managing access and ownership in relation to bioprospecting in the marine environment has created a vast amount of uncertainty. The confusion has been compounded by the various agencies and their different information requirements, decision-making criteria, procedures and timeframes. In particular the special permit issued under the Fisheries Act is not particularly conducive to bioprospecting activity. The approval process is discretionary and as each application is determined on a case-by-case basis the outcomes cannot be predicted with sufficient certainty. The terms and conditions if imposed usually require release of information, which could be commercially sensitive. The process is time consuming and the costs of the applications are variable depending on the time it takes to process the application.<sup>102</sup> The permits are limited to investigative research and would not be applicable where the bioprospector required on-going access or ownership of the aquatic resource. All of these issues could act as an impediment for bioprospectors as overall it just seems to hard.

## 3 *For both land and marine resources*

There are difficulties with using the existing processes both in the terrestrial and marine environments for bioprospecting. In particular, the various management controls under the different pieces of legislation consist of ad hoc processes, are expensive and time consuming. In addition, the management responsibilities of different agencies are often conflicting, for example between DoC and Mfish in regard to freshwater resources. There is also ad hoc integration of related processes

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<sup>102</sup> Ministry of Fisheries *Bioprospecting New Zealand* (submission to Ministry of Economic Development, 2003).

where duplicate consents are often required, for example foreign research vessels require permits from both MFAT and Mfish.

There are difficulties in collecting statistical information on the extent of bioprospecting activity being undertaken. There is no central place where all the information is available for applicants about the required approval process for bioprospecting in marine environment. There is not even a single point of contact within agencies such as the Mfish, DoC and MFAT. Different officials provide different advice. This can be frustrating and confusing for applicants.<sup>103</sup>

There is no standard approach for dealing with intellectual property rights within the current regimes. A benefit sharing arrangement could potentially be a condition under the Conservation Act and the special permit under the Fisheries Act, however there is no current system to do so. Any future bioprospecting policy framework would need to recognise that property rights have been created under the quota management system. This includes testing for and developing the biological properties from any part of the species in question, including by-products and waste.<sup>104</sup> Therefore there would need to be a consultative mechanism implemented for all those who may have an interest in the resource.

The current framework does not adequately address export controls or measures to track and secure benefits for New Zealand that may result from commercial discoveries and patenting of biological material. Only the Marine Mammal Protection Act 1978, the Customs Export Prohibition Order 2002 and the Plants Act 1970 have some export controls. However, these do not cover all indigenous organisms, especially those on private land or in the vast majority of the marine environment. The following is a summary of the current statutory framework and implications this may have for bioprospecting.

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<sup>103</sup> Jane Gunn *Bioprospecting in the Marine Environment* (Ministry of Economic Development Research Paper, 2003).

<sup>104</sup> Ministry of Fisheries *Bioprospecting New Zealand* (submission to Ministry of Economic Development, 2003).

## *F Other Processes*

### *1 The moratorium on the public conservation estate*

Since 1995 DoC have not exercised their delegated authority for issuing permits for the collection of indigenous genetic resources from the conservation estate whether commercial or non-commercial in nature. There has effectively been a moratorium on the public conservation estate, with the exception that collection of indigenous flora and fauna for authentic non-bioprospecting research or for education would be permissible. This was intended to safeguard the Government's options in response to the Wai 262 claim, by preventing the commercialisation of material that may later be subject to Waitangi Tribunal recommendations and possible government action.<sup>105</sup>

There is a question as to whether it is appropriate that DoC's statutory function powers can be suspended due to the existence of the Wai 262 claim. In 1996 the Conservation Amendment Act put in place the current concessions regime, 1 year after the moratorium was put in place. It would seem to be *ultra vires* to have a policy that nullifies the operation of the legislative provisions. Therefore all applications under this regime would have to be considered on a case-by-case basis through the statutory process and a decision would need to be made on the merits.<sup>106</sup> This is supported by section 30(1)(a) of the Conservation Act 1987. Section 4 of the Conservation Act also requires the decision-maker to give effect to the principles of the Treaty of Waitangi. Although this does depend on the nature of the application and who will be affected. Any concerns will be part of the overall considerations in relation to the application.

It is still unclear as to whether the moratorium is still in place, as DoC has not formally addressed this issue. In a recent draft general policy on the Conservation Act and related legislation DoC have stated that "the Department will seek to avoid actions which would create a grievance or prevent the redress of

<sup>105</sup> Interview with Caron Mounsey-Smith, Senior Policy Analyst (the author, Wellington, 8 September, 2003).

<sup>106</sup> See Conservation Act 1987, section 30(1)(a).

Treaty claim”<sup>107</sup> which suggests that there still may be restrictions. However there is currently confusion in the research community and this acts as a disincentive for bioprospectors.

## 2 *Fisheries moratorium*

Since 1992 the Ministry of Fisheries has placed a moratorium on issuing new commercial fishing permits. The moratorium is in place due to the absence of sustainable management regimes systems and not to compromise the Treaty partner’s rights in the allocation of fisheries resources. However, the Fisheries Act is currently being revised and it is proposed that this moratorium be lifted due to a revised framework for authorising commercial fishing.<sup>108</sup>

### **G *Access to Biological Resources in Existing Databases and Collections***

There is a large amount of scientific information already collected on biodiversity that is scattered around various New Zealand databases.<sup>109</sup> Each database has its own management regime and access conditions. It is anticipated that information contained in some of these resources will increasingly be used as alternative sources to the natural environment and therefore represents an increasingly valuable resource. The Foundation for Research, Science & Technology (FORST) and the Ministry of Research Science and Technology (MORST) are currently undertaking a review of the twenty-five databases and collections designated nationally significant. The review will include considerations of access and benefit sharing provisions, however, the review is not intended to go beyond these twenty-five databases and collections and it will not explicitly include the exploration of policy options for the databases/collections managed by Crown agencies responsible for providing access to biological resources.<sup>110</sup>

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<sup>107</sup> The Department of Conservation *Draft General Policy Conservation Act and Related Legislation* August 2003.

<sup>108</sup> Jane Gunn *Bioprospecting in the Marine Environment* (Ministry of Economic Development Research Paper, 2003).

<sup>109</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 24.

## *H Treaty of Waitangi and Maori Interests*

The use of indigenous biological resources for commercial outcomes raises a number of issues for Maori. These are the ownership and protection of traditional knowledge (mataaranga Maori), ethical issues concerning the ownership of genetic resources, the patenting of life forms, the importance of consultation with iwi and the involvement of Maori in the decision-making process.<sup>111</sup> This section will consider two of the main areas of concern that potentially create uncertainty for bioprospecting in New Zealand.

### *1 Wai 262 claim*

The ownership of indigenous biological resources is an issue, which is primarily contained within the context of the Wai 262 claim. Ngāti Kuri, Ngāti Wai, Te Rarawa, Ngāti Porou, Ngāti Kahungunu and Ngāti Koata lodged this claim in the Waitangi Tribunal in 1991. It alleges that the Crown has breached its obligation to protect the cultural and intellectual property of Maori.<sup>112</sup> This claim arises from Article II of the Treaty of Waitangi, which guaranteed Maori "full chieftainship of all their possessions (taonga)." Taonga literally means "treasures" rendered in the English version of the Treaty as natural resources including lands, forest, fisheries and other properties.

The claim asserts that the Treaty guarantees rights of ownership, control, and authority over the genetic resources of indigenous flora and fauna, and cultural and intellectual heritage and traditional knowledge. It also asserts that the Crown is in breach of Article II of the Treaty through the enactment of legislation, including the

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<sup>110</sup> Ministry of Economic Development, above, 24.

<sup>111</sup> Ministry of Economic Development: Overview of Major Issues raised by Stakeholder groups. <http://www.med.govt.nz/ers/nat-res/bioprospecting/submissions/summary/summary-02.html> (last accessed 4 August 2003).

<sup>112</sup> Ministry of Economic Development < <http://www.med.govt.nz/ers/nat-res/bioprospecting/bioprospecting-qa.html> > (last accessed 25 June 2003).

Patents Act, which is inconsistent with those rights.<sup>113</sup> Therefore the Wai 262 claim has implications on the management of biological resources.

The claim entered the hearing stage in 1998 and since that time the Tribunal has finished hearing tangata whenua evidence, tangata whenua expert witnesses and Tribunal commissioned researchers. As tangata whenua and some expert evidence have been presented and further Statements of Claim filed, the number and scope of the claim issues has increased. To date Wai 262 claim issues have not been rationalised either collectively by claimants across their Statements of Claim or by the Tribunal.<sup>114</sup>

On 28 July 2002, in response to a Tribunal direction, the Crown filed its Statement of Response, which responds to the statements of claim, filed by the claimants. By way of Memorandum of Directions dated 30 May 2002, the Waitangi Tribunal decided that all remaining Wai 262 hearings were to be put on hold pending the formulation by the Tribunal of a Statement of Issues for Wai 262. Then all the parties involved will have the opportunity to comment and this will form the focus of the Tribunal's final report. The Tribunal has not yet released its Statement of Issues.<sup>115</sup> The Wai 262 inquiry is still some way from completion.

Concerns similar to those in Wai 262 have also been expressed in the 1993 Mataatua Declaration on the Cultural and Intellectual Property Rights of Indigenous Peoples held in Whakatane.<sup>116</sup> The Declaration, was formulated at the First International Conference of the Cultural and Intellectual Property Rights on Indigenous Peoples, calls for a "moratorium on any further commercialisation of indigenous medicinal plants...must be declared until indigenous communities have

<sup>113</sup> M Roberts, W Norman, N Mininnick, D Wihongi and C Kirwood Kaitiakitanga: *Maori Perspectives on Conservation, Pacific Conservation Biology* (Surrey Beatty and Sons, Sydney, Australia, 1995) 7-20.

<sup>114</sup> Ministry of Economic Development <<http://www.med.govt.nz/buslt/intprop/info-sheets/wai-262.html>> (last accessed 25 June 2003).

<sup>115</sup> Ministry of Economic Development <<http://www.med.govt.nz/buslt/intprop/info-sheets/wai-262.html>> (last accessed 25 June 2003).

<sup>116</sup> Commission on Human Rights *Maataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples* (E/CN.4/Sub.2/AC.4/1993/CRP.5, 1993) Recommendation 2.8.

developed appropriate protection mechanisms.”<sup>117</sup> This declaration was subsequently tabled in the United Nations (Working Group on Indigenous Peoples) and ratified by 60 States.<sup>118</sup>

The foreshore and seabed claim also has implications on the management of biological resources in the foreshore and seabed area including the access to biological resources and benefit sharing arrangements. The government is currently consulting on how to resolve the foreshores and seabed issue with submissions closing 3 October 2003.

The unresolved Wai 262 claim and potentially the outcome of the foreshore and seabed claim do create uncertainty around the ownership and possession of New Zealand's biological resources. This hinders the ability of the New Zealand government to determine rights and obligations in relation to bioprospecting.<sup>119</sup> In fact there is already anecdotal evidence of foreign researchers withdrawing from investment in New Zealand because of the perceived uncertainty and risk created by Wai 262.<sup>120</sup> Some overseas researchers have expressed their opinion that it is impossible to engage bioprospecting in New Zealand, given the issues surrounding the Māori claims and intellectual property rights.<sup>121</sup>

## 2 *Traditional knowledge*

A major concern for Maori and other indigenous peoples is that their cultural knowledge of plants, animals and the environment are being used for commercial gain, often without their informed consent and without any benefits flowing back to them.<sup>122</sup> The concern is prompted by a lack of recognition and protection in New Zealand's common and statutory law in regards to the use and ownership of

<sup>117</sup> Commission on Human Rights *Maataatua Declaration on Cultural and Intellectual Property Rights of Indigenous Peoples* (E/CN.4/Sub.2/AC.4/1993/CRP.5, 1993) Recommendation 2.8.

<sup>118</sup> Te Puna Kokiri *Mana Tangata* <<http://www.tpk.govt.nz/publications/docs/tangata/index.htm>> (last accessed 7 August 2003).

<sup>119</sup> Ministry of Economic Development <<http://www.med.govt.nz/buslt/intprop/info-sheets/wai-262.html>> (last accessed 25 June 2003).

<sup>120</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 3.

<sup>121</sup> Stephen Whitton *Bioprospecting in New Zealand* (submission to Ministry of Economic Development, 2003).

traditional knowledge. This issue is not unique to New Zealand and other countries are considering these matters. It is also considered in a number of forums.

These locations where populated also possess a wealth of indigenous knowledge which is used in a large proportion of the drugs and pharmaceutical products in use today. "Chemical compounds derived from plants, animals and micro-organisms are more easily identified and of greatest commercial value when collected with indigenous knowledge and or found in territories traditionally inhabited by indigenous peoples."<sup>123</sup> According to one international study, which surveyed 119 commercially useful plant-based drugs, 74 per cent of these were previously known and used in traditional medicine. Medicines derived from plants originally used by indigenous peoples have an annual world market of US\$43 billion.<sup>124</sup>

Intellectual property laws require individual or joint authorship to be clearly established before protection can be given. Traditional knowledge and traditional knowledge-based innovations and practices are developed incrementally over several generations and it may be collectively owned.<sup>125</sup> Māori do not view their knowledge in terms of property at all as that is something that has an owner and is used for the purpose of extracting economic benefits instead they view knowledge in terms of community and individual responsibilities.<sup>126</sup>

Other difficulties with using intellectual property to protect traditional knowledge are that for the most part it is available in the public domain so it is unable to be protected by patents or copyright. Patents can only be used for new, inventive and useful things. Therefore, anyone can access this information and use it for monetary gains without the permission of traditional knowledge holders and

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<sup>122</sup> See UNDP, *Conserving Indigenous Knowledge: Integrating Two Systems of Innovation* (1994) 3.

<sup>123</sup> J R Axt, M L Corn, M Lee, D M Ackerman, *Biotechnology, Indigenous Peoples and Intellectual Property Rights* (Congressional Research Service, Washington DC: The Library of Congress, 1993) 6.

<sup>124</sup> NR Farnsworth "Screening Plants for New Medicines" in E O Wilson (ed) *Biodiversity* (National Academic Press, Washington DC, USA, 1996) 83, 97.

<sup>125</sup> The Ministry of Economic Development < <http://www.med.govt.nz/ers/nat-res/bioprospecting/bioprospecting-qa.html> > (last accessed 25 June 2003).



without needing to share the benefits gained from use of this knowledge.<sup>127</sup> Even if intellectual property laws protected it, eventually it would make it into the public arena due to limitation on the protection that is currently available.<sup>128</sup> Intellectual property is only used or connected to ideas or processes, which have a monetary value or where they are used in a commercial application. Traditional knowledge does not really fit in that way; it is mostly used to identify a potential resource, which could eventually be used to develop a product, which contains those characteristics. Therefore, currently anyone can access this information and use it for monetary gains without the permission of traditional knowledge holders and without needing to share the benefits gained from use of this knowledge.<sup>129</sup>

It is evident that the conventional intellectual property rights systems were not designed to anticipate or address the various concerns raised by the CBD in relation to matters such as access to genetic resources, equitable benefit sharing, and the protection of the traditional biodiversity related knowledge of indigenous communities. This has been recognised in international forums such as the World Intellectual Property Organisation and the CBD. The protection of traditional knowledge is part of the current review of the Patent legislation being undertaken by the Ministry of Economic Development.<sup>130</sup> Where it is not possible to develop positive solutions to these concerns within existing frameworks, the government sees merit in examining new and alternative models of protection.

## V *BENEFIT SHARING*

Benefit sharing has been defined as “all forms of compensation for the utilisation of genetic resources, whether monetary or non-monetary, and includes, in particular, the participation in scientific research and development on genetic

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<sup>126</sup> Te Runanga o Turanganui a Kiwa The Treaty of Waitangi and Bioprospecting (submission to Ministry of Economic Development, 2003).

<sup>127</sup> The Major Concerns for Indigenous People < <http://www.icip.lawnet.com.au/ch3.htm> > (last accessed 28 July 2003).

<sup>128</sup> Alexander Gillespie *Maori, Biodiversity and International Law* [http://lianz.waikato.ac.nz/PAPERS/al\\_gillespie/biodiversity.pdf](http://lianz.waikato.ac.nz/PAPERS/al_gillespie/biodiversity.pdf) (last accessed 7 August 2003).

<sup>129</sup> The Major Concerns for Indigenous People < <http://www.icip.lawnet.com.au/ch3.htm> > (last accessed 28 July 2003).

resources, and the making available of the findings of such scientific research and development and the transfer of technology.”<sup>131</sup> The obligations associated with benefit sharing do not apply retrospectively to any genetic resources acquired before the enactment of the CBD.<sup>132</sup>

The CBD sets out that there is to be an “equitable sharing of benefits” to all those who hold a direct stake in the biological resources.<sup>133</sup> The difficulties associated with benefit sharing are determining what the benefit is and how the benefits can be shared in a fair and equitable way. There are also difficulties in determining the particular stakeholders as they can include a number of different parties, for example government, research institutions, and indigenous people.<sup>134</sup> There is a real risk if all the stakeholders are not identified at the outset there may be repercussions later on, it is also against the principle of equitable sharing under the CBD.<sup>135</sup>

#### **A A Contractual Approach**

Benefit sharing examples have to date focused on bilateral and contractual agreements.<sup>136</sup> The advantages of using contracts are that they are flexible, require minimal government involvement, and cost effective.<sup>137</sup> Contracts can ensure that direct stakeholders interests can be taken into account and so far they have been used

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<sup>130</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 3.

<sup>131</sup> Convention on Biological Diversity *Building A New Partnership: Draft Guidelines on Access and Benefit-Sharing Regarding the Utilisation of Genetic Resources* (Submission by Switzerland UNEP/CBD/WG-ABS/1/INF/5, 2001).

<sup>132</sup> Kiichiro Hayashi *The International Environment for Access to Genetic Resources especially for monetary benefit-sharing matter: Convention on Biological Diversity* (Mitsubishi Research Institute INC and Ministry of Agriculture, Forestry and Fisheries of Japan, 2000) 10.

<sup>133</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, arts 15(7), 16(1) and 19.

<sup>134</sup> Bioprospecting/Biopiracy and Indigenous Peoples <[www.latinsynergy.org/bioprospecting.htm](http://www.latinsynergy.org/bioprospecting.htm)> (last accessed 6 July 2003).

<sup>135</sup> Environmental Policies Studies Workshop *Access to Genetic Resources: an Evaluation of the Development and Implementation of the Recent Regulation and Access Agreements* (School of International and Public Affairs, Columbia University, 1999) 31.

<sup>136</sup> WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore *Operational Principles for Intellectual Property Clauses of Contractual Agreements Concerning Access to Genetic Resources and Benefit Sharing* (Second Session, WIPO/GRTKF/IC/2/3, 2001).

<sup>137</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002).

to ensure benefit sharing in Costa Rica, Brazil, Columbia, Cameroon, the Philippines, Fiji and the United States.<sup>138</sup>

Bioprospecting agreements include both features that are common to ordinary contracts and intellectual property licensing agreements as well as features that are specific to the bioprospecting context. Some of the terms in a contract may relate to environmental impacts, cultural sensitivity, sunset and liability clauses, resource control, control of derivative information and resources, immediate benefit sharing and long term benefit sharing.<sup>139</sup>

### ***B Types of Benefit Sharing Mechanisms***

There are different types of benefit sharing mechanisms, which operate around a contractual framework.

#### *1 Permits and licences*

Permits can be issued which convey the right to access biological materials. The permit can set out conditions of access, for example limiting the type and amount of material to be collected, the collection area, the time allowed for collection, acceptable methods for collection and who will do the collecting.<sup>140</sup> Permits are currently used in New Zealand for obtaining access to resources, rather than benefit sharing. Licences are usually used to gain access and they can grant a property right without transferring the ownership of it.<sup>141</sup>

#### *2 Material transfer agreement*

The purpose of a Material Transfer Agreement (MTA) is to transfer proprietary material or information to third parties. These are the most common

<sup>138</sup> Alexander Gillespie *Maori, Biodiversity and International Law*  
[http://lianz.waikato.ac.nz/PAPERS/al\\_gillespie/biodiversity.pdf](http://lianz.waikato.ac.nz/PAPERS/al_gillespie/biodiversity.pdf) (last accessed 7 August 2003).

<sup>139</sup> Sarah A Laird "Contracts for Biodiversity Prospecting" in Walter V Reid et al (eds) *Biodiversity Prospecting; Using Genetic Resources for Sustainable Development* (World Resources Institute, Washington DC, 1993).

<sup>140</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 26-27.

contractual agreements used in bioprospecting because they are generally used for research purposes. They are a way to maintain control over access to the materials by the owner of the source. The MTA document defines the terms and conditions for transferring the material.<sup>142</sup>

### 3 Cooperative research and development agreements (CRADAs)

One of the most common examples of a contract is a co-operative research and development agreement (CRADA),<sup>143</sup> which are agreements that can be used between private industry and national agencies when working together on a mutually beneficial research and development project.<sup>144</sup> They can incorporate permits, MTAs and licences in the one agreement.<sup>145</sup> The agreements set out the roles and obligations of the parties and general provisions including legal details and assignment of rights. The agreements have several advantages in that the private sector can take advantage of the governments facilities, they encourage the development of relationships between the government and private sector and there is flexibility in regard to intellectual property.<sup>146</sup>

An example of a CRADA is the bilateral contract established between INBio and Merck Sharp and Dohme, Inc, a pharmaceutical company. At the time this agreement was signed on September 20, 1991, it was "hailed as the wave of the future" as it was the first bilateral contract of its kind at the time.<sup>147</sup> INBio is a national bioprospecting institution in Costa Rica, which operates as a private non-profit, public interest association.<sup>148</sup> The objective is for INBio "to promote the wise

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<sup>141</sup> Ministry of Economic Development, above, 26-27.

<sup>142</sup> Kim Connolly-Stone "Patents, Property Rights and Benefit Sharing Issues in Relation to Bioprospecting" (Bioprospecting in Antarctica Workshop, Christchurch, 7-8 April 2003).

<sup>143</sup> *Edmonds Inst v Babbitt*, 42 F.Supp.2d 1, 4 (D.C.Cir. 1999).

<sup>144</sup> Biodiversity, Biotechnology and Law Training Course West Africa <[www.aaas.org/international/africa/gbdi/mod2c.html](http://www.aaas.org/international/africa/gbdi/mod2c.html)> (last accessed 7 August 2003).

<sup>145</sup> Biodiversity, Biotechnology and Law Training Course West Africa <[www.aaas.org/international/africa/gbdi/mod2c.html](http://www.aaas.org/international/africa/gbdi/mod2c.html)> (last accessed 7 August 2003).

<sup>146</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 26.

<sup>147</sup> Edgar J Asebey and Jill D Kempenaar "Biodiversity: Opportunities and Obligations: The Intellectual Property Perspective on Biodiversity: Biodiversity Prospecting: Fulfilling the Mandate of the Biodiversity Convention" (1995) 28 *Vand.J.Transnat'l L.* 703, 725.

<sup>148</sup> Walter V Reid and others "A New Lease on Life" in Walter V Reid and others eds *Biodiversity Prospecting* (World Resource Institute, New York, 1993) 1, 9.

management and use of biotic wealth through the development and distribution of information on species, genes and ecosystems"<sup>149</sup> INBio is "fully empowered by the Costa Rican government to enter into contracts and agreements with national and international institutions and individuals."<sup>150</sup>

Under the agreement between INBio and Merck, INBio provided 10,000 extracts from wild plants, insects and microorganisms to Merck who would have the exclusive right to analyse the samples for two years. In consideration, INBio received an upfront fee of \$1 million, \$130,000 worth of scientific equipment and a royalty from any commercial drug developed from the agreement (thought to be between 1 and 3 per cent of net sales, although these provisions are kept secret).<sup>151</sup> The fact that the royalty provisions have been kept secret is one of the major concerns as it is unclear whether Costa Rica is being fairly compensated.<sup>152</sup> It is known that ten percent of INBio's initial revenue and fifty percent of the royalties will be paid to Costa Rica's National Park Fund.<sup>153</sup> This is required under INBio's mandate that a percentage of its returns go towards conservation and to employ local indigenous communities in collection related jobs.<sup>154</sup>

The INBio-Merck contract has been successful due to it ensuring the sustainability of Costa Rica's biodiversity and still maintaining simple and flexible procedures for applying access. The Costa Rica model illustrates that a private contract is one way to establish a legal framework within which bioprospecting can be conducted. This model has allowed Costa Rica to attract positive investment that

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<sup>149</sup> Walter V Reid, above, 9.

<sup>150</sup> Christopher J Hunter "Sustainable Bioprospecting: Using Private Contracts and International Legal Principles and Policies to Conserve Raw Medicinal Materials" (1997) 25 B.C. Envtl.Aff.L.Rev. 129, 144.

<sup>151</sup> David R Downes "New Diplomacy for the Biodiversity Trade: Biodiversity, Biotechnology and Intellectual Property in the Convention on Biological Diversity" (1993) 4 *Touro J Transnat'l L.* 1, 8.

<sup>152</sup> Edgar J Asebey and Jill D Kempenaar "Biodiversity: Opportunities and Obligations: The Intellectual Property Perspective on Biodiversity: Biodiversity Prospecting: Fulfilling the Mandate of the Biodiversity Convention" (1995) 28 *Vand.J.Transnat'l L.* 703, 726.

<sup>153</sup> Walter V Reid "The Economic Realities of Biodiversity" (1993-94) *Issues Sci & Tech*, Winter, 48, 50.

<sup>154</sup> Edgar J Asebey and Jill D Kempenaar, above, 725.

has contributed not only to the conservation of the resource but also to the infrastructure of the country.<sup>155</sup>

### *C The Contractual Approach and Indigenous Peoples*

The use of contracts can address issues with traditional knowledge and also enable indigenous communities to gain a stake in the benefits.<sup>156</sup> The World Trade Organisation Committee on Trade and Environment has recommended contracts as a way of effectively providing compensation for traditional knowledge.<sup>157</sup> FORST reported that contracts were the most suitable methods for benefit sharing and controlling spiritually significant resources.<sup>158</sup> This is because it avoids the cost and difficulties of intellectual property provisions.<sup>159</sup> The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Folklore ("the IGC") has developed as a pilot project, an on-line database of contractual practices and clauses relating to intellectual property, access to genetic resources and benefit sharing.<sup>160</sup>

Including traditional knowledge in contracts is one way of acknowledging the "owners" and use of that knowledge. It can also be a way of protecting that knowledge, which may be one of the benefits that could come out of the benefit sharing arrangement, as it is difficult to put a monetary value on that knowledge. Peru has implemented a system whereby they issue licences, which give permissions to use material and traditional knowledge in particular ways. However, the application is limited in order to make it consistent with cultural concerns and sustainable use. The licences are monitored and enforced by local groups in

<sup>155</sup> Christopher J Hunter "Sustainable Bioprospecting: Using Private Contracts and International Legal Principles and Policies to Conserve Raw Medicinal Materials" (1997) 25 B.C. Env'tl.Aff.L.Rev. 129, 144.

<sup>156</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 29.

<sup>157</sup> David V Williams Maturanga Maori and Taonga authorised by direction from the Waitangi Tribunal 3 May 1996 (Jan 1997) 39, Quoting WTO committee on T& E 8 Nov 1996 para 143.

<sup>158</sup> The Foundation for Research, Science & Technology is the principles Crown funding body for research in New Zealand. Peter Morten *A Discussion Paper on the Foundation for RS&T's Intellectual Property Policy* (unpublished 2001) 1, 8.

<sup>159</sup> Sarah Ireland, *Bioprospecting and the Rights of Indigenous Peoples* (LLM Research Paper, Victoria University of Wellington, 1999).

<sup>160</sup> <<http://www.wipo.int/globalissues/databases/contracts/index.html>> (last accessed 7 August 2003).

conjunction with state authorities which gives the indigenous people control over the process.<sup>161</sup>

There are a number of overseas models, which ensure that indigenous peoples rights to biological resources are protected. For example in Fiji, 83 percent of the land is communally owned by indigenous Fijians and this has been recognised by research institutions through bioprospecting contracts. Under the Philippines Presidential Executive Order 247,<sup>162</sup> indigenous cultural communities and indigenous peoples are recognised as having property and intellectual rights over flora and fauna. Any bioprospecting on ancestral lands and domains of indigenous communities can only occur with the prior informed consent of such communities, which has to be obtained in accordance with the customary laws of the concerned community.<sup>163</sup> This is provided for as the Free and Prior Informed Consent in the Indigenous Peoples Rights Act of 1997 of the Philippines.<sup>164</sup>

The Andean Pact's Common System on Access to Genetic Resources also allows the indigenous communities to participate in the process of admission of access requests. However, they do not create any type of rights in the knowledge or materials under the communities' control. The Philippines Executive Order provides for the granting of compulsory licences in case the knowledge or materials that are obtained are patented.<sup>165</sup>

However, there is the other extreme where indigenous and local communities are not conferred any participation rights at all for example in the Malaysian states of Sarawak<sup>166</sup> and Sabah.<sup>167</sup> Costa Rica's agreements, including INBio-Merck also

<sup>161</sup> Environmental Policies Studies Workshop *Access to Genetic Resources: an Evaluation of the Development and Implementation of the Recent Regulation and Access Agreements* (School of International and Public Affairs, Columbia University, 1999) 31.

<sup>162</sup> Philippines Presidential Executive Order 247 1995.

<sup>163</sup> Republic of the Philippines Executive Order No.247. Traditional Resource Rights <<http://users.ox.ac.uk/~wgtrr/>> (last accessed 7 August 2003).

<sup>164</sup> Republic Act No. 8371 <<http://www.chanrobles.com/republicactno8371.htm>> (last accessed 7 August 2003).

<sup>165</sup> Carlos M Correa "Beyond TRIPs: Protecting Communities' Knowledge" in Graham Dutfield Chapter 11: Rights, Resources and Responses <<http://www.ubcic.bc.ca/chapter11.htm>> (last accessed 8 September 2003).

<sup>166</sup> The Sarawak Biodiversity (Access, Collection and Research) Regulations, 1998).

<sup>167</sup> Sabah Biodiversity Bill 2000.

did not include indigenous communities or compensated for the use of indigenous knowledge.<sup>168</sup> Even having the rights and responsibilities stipulated in legislation, for example Philippines, may work quite differently in practice. For example the PIC form that has to be signed in the Philippines, only says that indigenous communities have been notified of a research proposal, not that they agreed to it.

A current example of a stakeholder situation in New Zealand is the private arrangement between Waikato University and Ngai Tuhoe who are working together on a project researching the traditional medicinal flora of Ngai Tuhoe. Under this arrangement benefits will be shared if any new drugs or treatments are developed and commercialised. The Tuhoe representative body will receive 40 percent and another 40 percent will be awarded to the trust board for New Zealand Maori. Waikato University will receive the remaining 20 percent. Tuhoe also have substantial involvement in any decisions relating to the resources.<sup>169</sup>

This type of contract has advantages for both parties, as the research institution establishes a relationship with Maori, which can ensure the ability to conduct future research. This agreement shows some interesting New Zealand developments in creating stakeholder roles for Maori as Ngai Tuhoe have been able to protect the ownership of the knowledge, practical use and development and control the process through consultation.<sup>170</sup> However the research agreement is still in its early stages and as no benefits have been derived to date, it still has to be tested.

There are difficulties with taking a contractual approach, particularly in New Zealand. This is because a contractual approach relies on an ability to assert ownership or a property right. This may not always be appropriate for use in New

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<sup>168</sup> Christopher J Hunter "Sustainable Bioprospecting: Using Private Contracts and International Legal Principles and Policies to Conserve Raw Medicinal Materials" (1997) 25 B.C. Envtl.Aff.L.Rev. 129, 158.

<sup>169</sup> United Nations Educational, Scientific and Cultural Organisation Innovative Measures Required to Protect Indigenous Knowledge <<http://www.unesco.org/bpi/eng/unescopress/2002/02-56e.shtml>>(last accessed 9 March 2003).

<sup>170</sup> United Nations Educational, Scientific and Cultural Organisation Innovative Measures Required to Protect Indigenous Knowledge <<http://www.unesco.org/bpi/eng/unescopress/2002/02-56e.shtml>> (last accessed 9 March 2003).



Zealand given the outstanding issues of ownership of biological resources under the Wai 262 claim.<sup>171</sup> In the Tuhoe and Waikato example, Tuhoe could assert ownership over the resource as the research involved specifically looking at indigenous flora and fauna to the Tuhoe people. However, using contracts may incur a situation where any individual iwi, which may even play a minor kaitiaki role over a particular resource could enter into an agreement independently and effectively preclude the exercise of rights, and opportunities of other kaitiaki over the same resource or knowledge.<sup>172</sup> There are also difficulties where more than one single hapu or iwi may have an interest in a particular resource, for example where a certain native plant is found throughout the country.<sup>173</sup> Ensuring that sufficient consultation takes place can also seem particularly daunting for a foreign institution that is unsure of whom to contact and it can be an expensive exercise, which may be too much for the smaller private research institution.<sup>174</sup>

There are also general concerns internationally about the inequality of bargaining power between international companies and indigenous communities and to the exact nature of agreements that have been negotiated. It is difficult to assess these when they are mostly kept secret and therefore cannot be independently assessed.

## **VI A BIOPROSPECTING FRAMEWORK IN NEW ZEALAND**

The government has put forward three options for consideration to ensure that New Zealand can achieve a more comprehensive position on bioprospecting. These do not necessarily need to be mutually exclusive.<sup>175</sup> The options are to issue a government policy statement, establish a government co-ordinating authority

<sup>171</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 28.

<sup>172</sup> Te Iwi o Te Roroa and the Waipoua Forest Trust (submission to Ministry of Economic Development, 2003).

<sup>173</sup> Te Runanga o Ngai Tahu Discussing the Options- Bioprospecting in New Zealand (submission to Ministry of Economic Development, 2003).

<sup>174</sup> MED Website <<http://www.med.govt.nz/ers/nat-res/bioprospecting/submissions/summary/index.html>> (last accessed 7 July 2003).

<sup>175</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 22.

and to develop benefit sharing to capture benefits at the national level and share benefits with Māori.<sup>176</sup>

#### *A Government Policy Statement*

A government policy statement would provide guidance to the various agencies in how to discharge their functions in relation to bioprospecting.<sup>177</sup> The policy statement should advocate the need for access and benefit sharing regimes that will facilitate bioprospecting activity. It could provide an overarching framework for bioprospecting activities, clarifying a number of policy objectives. This is important, particularly for foreign investors and both foreign and New Zealand researchers (and other interested parties) the Government's position on bioprospecting, i.e., "to take advantage of economic development opportunities and other benefits whilst safeguarding environmental, social and cultural values".<sup>178</sup> It could also provide a list of guiding principles for Crown-managers of biological resources and place the policy in context to other policy, for example Oceans Policy and the Wai 262 Claim. The aim of any proposed framework is to establish a consistent policy framework, which "precludes duplication, restrictive legislative requirements and prohibitive costs from discouraging bioprospecting and thereby minimising the benefits that bioprospecting could bring to New Zealand."<sup>179</sup>

The advantage of this approach is that it provides clarity and requires minimal intervention. However, the difficulty with a policy statement is that it can be implemented differently by the various agencies involved. This is the problem with the current regime to date due to the various agencies are implementing different management regimes. Therefore, there is a requirement for further policy development to ensure that any access and benefit sharing regimes will facilitate bioprospecting. There are two options either to introduce specific legislation to regulate access and benefit sharing regimes for bioprospecting activities or to review and improving the existing legislation to facilitate access and benefit sharing.

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<sup>176</sup> Ministry of Economic Development, above, 6.

<sup>177</sup> Ministry of Economic Development, above, 22.

<sup>178</sup> Ministry of Economic Development, above, 21.

<sup>179</sup> Ministry of Economic Development, above, 21.

## **B**     *A Legislative Approach*

The introduction of specific legislation to implement the obligations under the CBD, is an option taken by some countries, including Australia, Philippines, Costa Rica and the Andean Pact. Brazil and Peru have got bills currently under deliberation.<sup>180</sup> The Philippines were the first country to legislate in May 1995. The Presidential Executive Order No. 247 sets out a very strict regulatory framework, which asserts sovereign rights over biological resources.<sup>181</sup> The order lays down three essential conditions for bioprospectors in the Philippines. Prospectors have to negotiate a commercial or academic research agreement with the Government,<sup>182</sup> seek prior informed consent of both the Government and indigenous cultural communities<sup>183</sup> and share benefits with local communities and indigenous peoples, including ownership of intellectual property and material. The Order also establishes an institutional structure to act as the Competent National Authority on these matters.<sup>184</sup>

There are two types of research agreements, the Commercial Research Agreement (CRA) which you must get if you are a private person, corporation, foreign or international entity, and the Academic Research Agreement (ARA) which you can be granted if you are a researcher with a governmental or inter-governmental agency.<sup>185</sup> If the academic research has commercial potential, or should you wish to transfer the collected materials to a third party, your ARA must be upgraded to the CRA category.<sup>186</sup> The access permit requires the applicant to

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<sup>180</sup> Kiichiro Hayashi *The International Environment for Access to Genetic Resources especially for monetary benefit-sharing matter: Convention on Biological Diversity* (Mitsubishi Research Institute INC and Ministry of Agriculture, Forestry and Fisheries of Japan, 2000) 19.

<sup>181</sup> Philippines Presidential Executive Order 247 1995 "Prescribing Guidelines and Establishing a Regulatory Framework for the Prospecting of Biological and Genetic Resources, their By-Products and Derivatives, for Scientific and Commercial Purposes, and for other Purposes." *The Philippines: A Bridle on Bioprospecting?* Grain <<http://grain.org/publications/jun972-en.cfm>> (last accessed 7 August 2003).

<sup>182</sup> Philippines Presidential Executive Order 247, section 5.

<sup>183</sup> Philippines Presidential Executive Order 247, section 2.

<sup>184</sup> Philippines Presidential Executive Order 247, sections 6 and 7.

<sup>185</sup> *The Philippines: A Bridle on Bioprospecting?* Grain <<http://grain.org/publications/jun972-en.cfm>> (last accessed 7 August 2003).

<sup>186</sup> *The Philippines: A Bridle on Bioprospecting?* Grain <<http://grain.org/publications/jun972-en.cfm>> last accessed 7 August 2003).

enter into a benefit-sharing contract. It also requires the applicant to leave any duplicates of samples with local agencies. Since the legislation, the Philippine government has approved only 2 out of 37 applications for access to genetic resources by commercial and academic interests.<sup>187</sup>

Some developing countries have tackled this issue as a region. This is referred to as the Andean Pact; these countries are Bolivia, Columbia, Peru, and Venezuela. The participating countries contracted a regional agreement called the Cartagena Decision 391 on the issues relating to genetic resources, access and benefit sharing. This Decision requires the Andean Pact countries to have domestic laws relating to genetic resources.

Many of the developing countries are the first to implement controls over bioprospecting. This is because prior to the CBD, these countries had unregulated access to genetic resources, which they are now attempting to rectify with new legislation. This differs from the situation in New Zealand where there is existing access legislation, albeit that they were not specifically designed to comply with the goals of the CBD. New Zealand's situation is similar to Australia as we both have access regimes in place, although in an ad hoc fashion and not for the purpose of bioprospecting. However, Australia have recently implemented a regulatory framework under their Environmental Protection and Biodiversity Conservation Act 1999 which will provide for an access and benefit sharing contract scheme to biological resources in Commonwealth areas.<sup>188</sup> This was particularly in response to concerns over their ad hoc legislative framework acting as a disincentive to bioprospecting.<sup>189</sup>

More recently Australian States have also begun examining access and benefit sharing regimes. The Queensland government have released a draft

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<sup>187</sup> Environmental Policies Studies Workshop *Access to Genetic Resources: an Evaluation of the Development and Implementation of the Recent Regulation and Access Agreements* (School of International and Public Affairs, Columbia University, 1999) 31.

<sup>188</sup> Environment Australia *Access to Biological Resources in Commonwealth Areas: Commonwealth Public Inquiry* (Australia, 2000).

<sup>189</sup> Environment Australia *Access to Biological Resources in Commonwealth Areas: Commonwealth Public Inquiry* (Australia, 2000).

Biodiscovery Bill 2003. The Bill seeks to facilitate sustainable access, protect native biodiversity, encourage value adding, and ensure benefits are shared (by all) through benefit sharing agreements.<sup>190</sup> The Queensland's draft Bill, sets out a very comprehensive statutory process, although to a lesser extent than in the Philippines. Applicants require a "Biodiscovery Collection Authority before they can bioprospect."<sup>191</sup> This allows a company site-specific access to native biological resources. This access would be monitored by the Environmental Protection Agency to ensure environmental sustainability.

The regulatory framework will also implement a "mandatory commercial benefit sharing agreement" with the Queensland Government whereby a royalty would be paid to the State for any commercial product developed using Queensland's resources.<sup>192</sup> Companies will also have to adhere to a Code of Ethical Practice for Biotechnology in Queensland.<sup>193</sup> There are penalties, up to \$750,000,<sup>194</sup> for those who illegally bioprospect, do not enter into a benefit sharing agreement and for those who give false or misleading information.<sup>195</sup>

There are differences between Australia and New Zealand, which suggests that New Zealand may not necessarily come to the same conclusion by implementing a specific piece of legislation. Australia and its States have researched and evaluated the extent of bioprospecting activity being undertaken in their country. New Zealand is currently unsure as to the extent of the activity, what is reported is suggests it is a relatively small amount. New Zealand does have an issue with the lack of reporting facilities. Australia also asserts ownership over their genetic resources. Ownership over biological resources is an unresolved issue in New Zealand. There is a risk that if New Zealand were to impose new legislation it could be challenged as pre-judicial to the Crown's response to the Wai 262 claim, once the

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<sup>190</sup> Draft Queensland Biodiscovery Bill 2003 Explanatory Notes.

<sup>191</sup> Draft Biodiscovery Bill 2003 (Qld), cl 10.

<sup>192</sup> Draft Queensland Biodiscovery Bill 2003 Explanatory Notes.

<sup>193</sup> Queensland Government "Biodiscovery to Deliver Smart State Dividends to Taxpayers" 23 June 2003 <<http://statements.cabinet.qld.gov.au/cgi-bin/display-statementp12id-13053@db-media>> (last accessed 8 July 2003).

<sup>194</sup> A fine for a corporation who enter land or water and collect for biodiscovery without a BCA.

<sup>195</sup> Draft Biodiscovery Bill 2003 (Qld), cl 51 and 52.

Tribunal has reported. There are also other factors to take into account such as the time involved to introduce specific legislation.

Australia's legislation at the federal level and Queensland's draft Bill implement a comprehensive process, which makes it difficult to access the biological resources. This creates a situation where instead of facilitating bioprospecting it discourages interest and investment. Restrictions on bioprospecting will mean that bioprospecting activity is more likely to occur illegally or privately owned land will be used more than publicly owned land, especially with the complicated concessions regime under the Conservation Act. Additional layers of regulation associated with the use of public lands for bioprospecting will only have the effect of increasing this trend. However, public land can have generally a higher degree of biodiversity than domestic land so it is more valuable to bioprospectors.<sup>196</sup> Currently there are no controls over private land in New Zealand. Other countries have used the PIC regime, although it is difficult to enforce. If New Zealand put in place a regime over private land then it would probably have to be part of the process under the RMA.

Making any bioprospecting framework too difficult may also affect New Zealand's access to other countries biological resources and knowledge gained from those resources. New Zealand has to take into account our international obligations, which may differ from other countries. For example, Brazil, who is still in the process of implementing its legislation,<sup>197</sup> only allows research if it is conducted in conjunction with recognised Brazilian researchers.<sup>198</sup> It has been suggested that a similar approach be taken as Brazil, where any research undertaken in New Zealand is in partner with a New Zealand research agency.<sup>199</sup> Although it may be appropriate to require that research be undertaken with or by New Zealand research institutions it raises potential market-access and or national treatment issues. While this

<sup>196</sup> Landcare *Bioprospecting in New Zealand: Discussing the Options* (submission to Ministry of Economic Development, 2003).

<sup>197</sup> Senator Osmar Dias' Bill No. 306/95.

<sup>198</sup> Brazil Sees Promise in Jungle Plants, but Tribes See Peril

<<http://forests.org/archive/brazil/brseesp2.htm>> (last accessed 9 September 2003).

<sup>199</sup> Ministry of Economic Development: Overview of Major Issues raised by Stakeholder groups. <http://www.med.govt.nz/ers/nat-res/bioprospecting/submissions/summary/summary-02.html> (last accessed 4 August 2003).

requirement would not conflict with the General Agreement on Trade in Services, it would raise potential issues for the Protocol on Trade in Services to the Australia New Zealand Closer Economic Relations Trade Agreement (the Services Protocol).

Under the Services Protocol, New Zealand must allow Australians and Australian Service Providers market access rights no less favourable than those allowed to New Zealanders and New Zealand Service Providers. Although New Zealand has exempted two service areas from the provisions of the Services Protocol, neither exemption includes research services. If New Zealand were to require bioprospectors to prefer New Zealand research institutions, Australian research institutions would not be getting the same market access as their New Zealand counterparts. This amounts to a breach of the Services Protocol. Therefore implementing a system that gave preferential treatment could be considered inappropriate.

### *C Review Existing Regimes*

In order to achieve clarity, and taking into account the shortcomings of a specific legislative approach for New Zealand at this stage, the preferred approach may be review the existing legislation and develop a set of proposals, which will simplify access to biological resources.<sup>200</sup> This approach could address the problems with the existing access regimes, which are too complicated. Simplified procedures would avoid any unnecessary compliance and administrative costs that a new regime would create.

A review would ensure that respective agencies collect statistics on the extent of bioprospecting activities being undertaken. It may prove that more is happening than currently evident which may suggest new legislation is required. At the moment the division of responsibility for granting access to different environments is appropriate. Different considerations apply when granting access to land or the marine environment.

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<sup>200</sup> Landcare *Bioprospecting in New Zealand: Discussing the Options* (submission to Ministry of Economic Development, 2003).

This approach can also compliment a government policy statement. Both these approaches would ensure that the government recognises other policy processes and the Wai 262 claim but does not prejudice them.

However the Conservation Act access regime does have the following advantages in that it provides a framework for environmental impacts, the opportunity for benefit sharing (condition of consent) and a monitoring framework to collect statistical information about bioprospecting activity.<sup>201</sup> The RMA also has the ability to consider contracts for benefit sharing and environmental impacts. The RMA has the advantage of wider appeal rights and greater public involvement in the consent process as well as the process for preparing plans/policy statements than under the Conservation Act.

There is an argument that any bioprospecting policy should wait until the Wai 262 claim is resolved,<sup>202</sup> however it is highly unlikely that this will happen anytime soon. In the meantime there is no protection over New Zealand's biological resources. Implementing a government policy statement and reviewing the legislation would ensure that a bioprospecting framework does not assert ownership over biological resources, as any specific legislation may prejudice the outcome of the claim.<sup>203</sup> It would also support the Government's position that any development of a bioprospecting framework will not address the issues raised by Wai 262, such as the ownership of indigenous flora and fauna, or the suitability of New Zealand's intellectual property system for the protection of indigenous knowledge.<sup>204</sup>

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<sup>201</sup> Caron Mounsey-Smith *Issues for Access to Biological Resources on Land for the Purposes of Bioprospecting* (Ministry of Economic Development, Working Draft, 2003).

<sup>202</sup> Submissions to Ministry of Economic Development, 2003.

<sup>203</sup> Ministry of Economic Development < <http://www.med.govt.nz/ers/natures/bioprospecting/bioprospecting-qa.html> > (last accessed 25 June 2003).

<sup>204</sup> Ministry of Economic Development *Bioprospecting in New Zealand: Discussion Paper* (Wellington, 2002) 29.



#### **D Co-ordinating Authority**

A co-ordinating authority could provide a one-stop shop for bioprospecting, given the number of agencies involved in managing access to biological resources. The authority could act as a clearinghouse for applications and collect information.<sup>205</sup> It could also provide one contact for both New Zealand and foreign researchers or investors. This is similar to the experience in Costa Rica with INBio. However, in comparison New Zealand has a much higher level of scientific infrastructure and capacity of collaborating institutions to add value to genetic resources through technology and knowledge. New Zealand should be able to utilise and protect our biodiversity with a greater level of autonomy. Another major difference between the two countries is that the areas that INBio collects natural products are devoid of indigenous people. Therefore there are none of the contentious issues that New Zealand must address in respect to ownership and compensation for indigenous knowledge.

Under the CBD, there is a requirement that Parties obtain prior informed consent before undertaking any research activities with another Parties biological resources. It would make it easier if New Zealand established an official 'Competent Authority,' providing one point of contact to obtain that consent. It could be very difficult for overseas governments to find the correct agency, and even then, currently there is no agency or Minister that is formally mandated to give such permission.<sup>206</sup> This could cause delay, minimising the risk that foreign researchers or investors will go elsewhere.

The presence of such an authority is essential to effectively regulate access to biological resources. Effectively controlling access to resources will be the best way to marshal any benefits that can accrue to New Zealand from foreign research. However, there is a question as to whether there is a genuine need for a

<sup>205</sup> Ministry of Economic Development, above, 23.

<sup>206</sup> Ministry of Economic Development, above, 29.

bioprospecting co-ordinating authority in a country as small as New Zealand, given that it is not currently known how much bioprospecting activity is being undertaken. In the Costa Rican model, INBio was set up because of the large amounts of bioprospecting and the fact that Costa Rica is one of the richest biological regions in the world, containing nearly four percent of all the world's terrestrial species half a million species.<sup>207</sup> New Zealand does not have the same level of interest from overseas researchers, at least not in the terrestrial environment. A co-ordinating authority may be appropriate if a review reveals a substantial amount of bioprospecting activity.

### *E Voluntary or Mandatory Frameworks for Benefit Sharing*

A benefit-sharing framework could impose either a voluntary or mandatory obligations on bioprospectors. Australia has opted for a voluntary scheme in regards to contracts for benefit sharing in commonwealth areas. They have provided a series of model contracts.<sup>208</sup> However, many countries have made benefit-sharing arrangements mandatory as a condition to obtaining access to the resource, including Queensland. A mandatory regime would ensure that benefits were being obtained for New Zealand rather than a voluntary arrangement. However, once again they can act as a disincentive. Any benefit sharing arrangement would need to ensure flexibility so that different types of benefits could be determined on the particular project. A voluntary contract system with clear benefits as an incentive to participation and with an authority to help parties develop the contract.

There are difficulties involved with how benefits and what benefits are shared. There needs to be a separation between direct sharing that relates to genetic resources access and development activities and indirect sharing that indirectly relates to an individual project.

<sup>207</sup> Ana Sittenfeld and Renata Villers "Exploring and Preserving Biodiversity in the Tropics: The Costa Rican Case" (1993) 4 *Curr. Opinion in Biotechnology* 280, 281.

<sup>208</sup> Environment Australia *Access to Biological Resources in Commonwealth Areas: Commonwealth Public Inquiry* (Australia, 2000).

## **F Information**

Any bioprospecting policy should ensure that information is available for both New Zealand and foreign researchers, which could help facilitate bioprospecting. There is also a requirement that information is needed on the extent of bioprospecting activity in New Zealand to justify any greater degree of intervention or changes to the existing regulatory framework.

It is important to collect and share accurate information on the use of biological resources. A country cannot track the use of its genetic resources, or assess the efficacy of benefit sharing measures unless it is clear what, where and how activities are taking place. Accurate information also facilitates further research and investment and allows monitoring of how genetic resources (and benefits derived from their use) are moving between countries.

A single database would be very valuable both to revisit previous hits in the light of new knowledge and avoid duplication of effort. However, the management of the intellectual property in bringing this collection together will not be straightforward. This is something that could be implemented into the existing legislation. A better system can promote increased knowledge of the activities that are occurring in relation to our indigenous flora and fauna. To do this efficiently it will need to maintain a database of current research and development. However, maintaining a database is problematic and would require access to be readily available to researchers and environmental protection agencies. The logistics of this could be very difficult, especially when dealing with sensitive information. There are also obligations under the CBD to catalogue our biodiversity.

## **G Māori and Bioprospecting**

In light of resolving the Wai 262 there is a requirement to address Māori issues under any bioprospecting regime and implement a framework that ensures Māori are consulted with in regard to any bioprospecting activity and that ensures that benefits can be shared with Māori from any activity and use of traditional

knowledge.<sup>209</sup> An authority or panel could assess the extent to which Māori has traditional knowledge in the particular area, either geographic or scientific. There may be a need to distinguish knowledge of, for example biotechnological applications of a plant from knowledge that the plant exists. This group would ensure on going consultation with Maori on these issues which is particularly important due to the unresolved status of the Wai 262 claim

One proposal is to establish a Māori reference group. This group could provide guidance during policy development on possible benefit-sharing arrangements as well as options for providing greater recognition of the principles of the Treaty of Waitangi. This group could look at the possibilities of a Māori register or bringing together information that has already been done in this area to one place. Ensure prior informed consent is obtained, that the particular iwi or hapu can be identified. This group could be drawn from specialists in issues relating to traditional knowledge and genetic resources. It would also support the number of submissions, which emphasised the importance of consultation and involvement of Māori in the decision-making process.<sup>210</sup>

The ability to use traditional knowledge to develop new products has the potential to create new businesses in New Zealand. This knowledge can, therefore be of commercial value. An initiative that may go some way to addressing the issue within New Zealand is the establishment of the Māori Consultative Committee under the Patents Act 1953. This committee will advise the Commissioner of Patents whether an invention claimed in a patent application is derived from or appears to be derived from traditional knowledge, indigenous plants and animals or whether the commercial exploitation of such inventions is, or likely to be, contrary to Māori values. Further complementary mechanisms will be required, however, to fully address Māori concerns in this area. Officials are actively engaged in work underway internationally in the CBD and WIPO to identify possible mechanisms to provide this degree of protection.

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<sup>209</sup> Convention on Biological Diversity (5 June 1992) 31 I.L.M 954, art 8(j).

### *1 A registry of indigenous Māori knowledge*

A mechanism governing access to genetic resources and benefit sharing might include a register, which records knowledge of botanical species, their use and prior informed consent by Maori. This could potentially help in regard to the ownership issues over genetic resources. There are such projects being undertaken in an ad hoc way by Crown Research Institutes, Universities and Iwis to record and compile knowledge of biological resources and their use by Maori. There is such a project in India coordinated by the Centre for Ecological Sciences of the Indian Institute of Science (IISc) to create People's Biodiversity Registers.

A central agency will enable potential bioprospectors to identify which iwi or hapu could have a particular interest in a biological resource. Maori would have better control over the access of these resources and therefore ensure their role in a benefit sharing arrangement. It would enable access to information on the products that they are currently manufacturing in terms of the potential relevant indigenous knowledge. Information on the traditional uses of a product often adds value in the market place.<sup>211</sup>

However, it is unlikely that such a centralised system could occur given that some Māori do have concerns over the public disclosure of traditional knowledge in this way. Knowledge is considered by some to be sacred and therefore may not agree to it being quantified or categorised.<sup>212</sup> The sheer logistics of sourcing, compiling, verifying and networking the knowledge may not be justified in terms of the benefits that Māori may receive from the database.

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<sup>210</sup> Interview with Caron Mounsey-Smith, Senior Policy Analyst (the author, Wellington, 8 September, 2003).

<sup>211</sup> David Downes "How Intellectual Property can be a Tool to Protect Traditional Knowledge" (2000) *Colum. J. Envtl. L.* 253, 278.

<sup>212</sup> Catherine Davis "Te Matauranga Maori I Te Taha O Te Matauranga" 1997 (LLM Research Paper, VUW).

## 2 *Certificates of origin*

Certificates of origin are one way of protecting traditional knowledge and identifying use of genetic resources. These have been proposed by a Peruvian non-governmental organisation to make patent law more compatible with provisions in the CBD. This system could be achieved through implementing an international certification system. It would require countries of origin to issue the certificates indicating all that all obligations under the CBD had been fulfilled such as PIC, equitable benefit sharing and perhaps other conditions imposing limitations on the use of genetic material or knowledge. Patent applications would then need to include these certificates without which they would automatically be rejected. The system would not affect indigenous communities' right to veto access to and use of their knowledge or resources.<sup>213</sup> Implementing this system would definitely add to the compliance costs and would require the necessary co-ordination of departments.

## 3 *Trade secrets*

A trade secret is where valuable information is protected by virtue of its being known only to the firm using it. This could potentially be one way of protecting the intellectual property of indigenous peoples. If the traditional knowledge could be defined as a trade secret and then one could use MTAs to establish the conditions on benefit sharing.<sup>214</sup>

### ***H Limitations of a Bioprospecting Regime***

The implementation of any bioprospecting regime does not necessarily resolve all the issues associated with bioprospecting. There are practical limitations as to how extensively the government can monitor a bioprospecting regime. Relevant agencies cannot inspect everyone visiting their respective management areas and check to see if the benefit partners were meeting the conditions of there

<sup>213</sup> Graham Dutfield Chapter 11: Rights, Resources and Responses  
<http://www.ubcic.bc.ca/chapter11.htm> (last accessed 5 September 2003).

<sup>214</sup> Graham Dutfield Chapter 11: Rights, Resources and Responses <<http://www.ubcic.bc.ca/Chapter11.htm>> (last accessed 15 July 2003).

sharing arrangement. There are difficulties, particularly if a foreign partner were involved. Is it simpler to allocate access rights, perhaps charge fees and let private sector contracts deal with the balance of benefit sharing problems?

It is also almost impossible to control the illegal transfer of genetic material. Micro-organisms can be cultured from much less than a handful of soil, and genes and can easily fit into an airmail envelope. It can be difficult to distinguish the country of origin from examining an organism, and even more so if it has been manipulated in some way.<sup>215</sup> Authorised access permits, as mechanisms to create and control regulatory systems are important tools but not enough to guarantee good bioprospecting practices. It is never going to be easy to determine where someone applying for a patent got their original idea. In this context, other measures such as promoting the use of Certificates of Origin from source countries as a requirement for patent applications may help to track down sources of biological and genetic material. However, no system, legislative or otherwise is necessarily going to prevent biopiracy.

Legislation cannot be retrospective, and therefore there may be issues in regard to bioprospecting, which is being undertaken under the current regime. For example, when Costa Rica implemented its Biodiversity Law, in 1998<sup>216</sup> there were already six contracts with transnational companies, which had been signed.<sup>217</sup> The new legislation introduced a system whereby prior informed consent from indigenous authorities was required where bioprospecting takes place on their lands.<sup>218</sup> This was not required under the previous system and has resulted in a number of

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<sup>215</sup> G Tamayo, A Sittenfield, and W Nader "Biodiversity for the Bioindustries" in B.V Ford-Lloyd, H J Newbury and J A Callow (eds) *Biotechnology and Plant Genetic Resource: Conservation and Use* (CAB International, Oxon, UK, 1996) 38.

<sup>216</sup> Biodiversity Law, The Legislative Assembly of the Republic of Costa Rica (1998).

<sup>217</sup> Vivianne Solis Rivera and Patricia Madrigal Cordero "Costa Rica's Biodiversity Law: Sharing the Process" (1999) *J. Int'l Wildlife L. & Pol'y*, Vol 2, No.2 260 <<http://www.jiwlw.com/contents/Crarticle.pdf>> (last accessed 9 September 2003).

<sup>218</sup> Vivianne Solis Rivera and Patricia Madrigal Cordero "Costa Rica's Biodiversity Law: Sharing the Process" (1999) *J. Int'l Wildlife L. & Pol'y*, Vol 2, No.2 260 <<http://www.jiwlw.com/contents/Crarticle.pdf>> (last accessed 9 September 2003).

issues with those who already have activities underway seeking to avoid regulation under the new Biodiversity Law.<sup>219</sup>

Uncertainty over legislative requirements or disruption can also have a negative effect on bioprospecting. An example is a situation where a bioprospecting project covering Brazil, Mexico and Venezuela was halted in the year 2000. This was because a newly elected government said that Mexico's bioprospecting legislation needed reviewing.<sup>220</sup> This frustrated the pharmaceutical companies and researchers who turned their attention to other countries.<sup>221</sup> An effect of over legislating can also make legal bioprospecting too hard and therefore it continues without adhering to any benefit sharing arrangements.

## VII CONCLUSION

Bioprospecting is a controversial area and such agreements have generally failed to acknowledge the source of the materials, information and there is the frequent absence of equitable benefit sharing agreements. The CBD is attempting to address this issue by encouraging parties to set up access and equitable benefit sharing arrangements, which must also take into account indigenous communities. However, it is up to individual nations to implement their own access and benefit sharing arrangements and consider other legislative reforms, for example intellectual property to ensure that they meet their obligations under the CBD.

It is evident, in New Zealand's case, that the special nature of genetic materials means that existing legislative structures are inappropriate. The access regimes are complicated, each has a different approach to managing bioprospecting and there is often no central point of contact. There are also no statutory

<sup>219</sup> Vivianne Solis Rivera and Patricia Madrigal Cordero "Costa Rica's Biodiversity Law: Sharing the Process" (1999) *J. Int'l Wildlife L. & Pol'y*, Vol 2, No.2 260 <<http://www.jiwlw.com/contents/Crarticle.pdf>> (last accessed 9 September 2003).

<sup>220</sup> Diego Cevallos "The Curtain Falls" *Bioprospecting' Agreements Abandoned*, <<http://www.tierramerica.net/2000/1015/article.html>> (last accessed 9 September 2003) 685.

<sup>221</sup> Diego Cevallos "The Curtain Falls" *Bioprospecting' Agreements Abandoned*, <<http://www.tierramerica.net/2000/1015/article.html>> (last accessed 9 September 2003) 685.



requirements for bioprospectors to share information, technology, or other benefits with New Zealand.

There are a number of overseas models that New Zealand could potentially adopt, however also has the added complication of the unresolved Wai 262 claim on the ownership of flora and fauna, amongst other things. This makes it difficult to adopt any overseas bioprospecting models and potentially creates a barrier for foreign investment in the bioprospecting industry in New Zealand. The outcomes of the Wai 262 claim have important implications for the management and control of indigenous biological resources and for the sharing of benefits from their utilisation.

There is a need to define and allocate ownership interests in biological materials, including genetic materials and determine the extent to which these interests can be transferred. Determine how ownership and access controls interact; define duties and obligations of bioprospectors and clarify how benefits from bioprospecting can be allocated to the potential beneficiaries.

Bioprospecting contains a number of complex issues, particularly in New Zealand's case and therefore there is not one solution to resolving the existing uncertainty within the current policy framework. There are a number of policy options that can be implemented to address these issues. Firstly, the government should present a policy statement providing guidance to the various agencies on how to discharge their functions in relation to bioprospecting. This would be able to clearly signal New Zealand's position on bioprospecting.

Secondly, a review of existing access regimes should be undertaken which includes the development of proposals to simplify access, facilitate benefit sharing and improve the collection of statistics, and provide information which can assist those who are undertaking bioprospecting activities. Introducing new legislation may be required at a later stage if it is proven that enough bioprospecting activity is being undertaken or the current proposals are not working effectively to encourage further activity. Finally, more information needs to be supplied to those who wish to undertake bioprospecting activity in New Zealand.

The advantages of these approaches are that they require minimal intervention, avoid compliance and administrative costs and will also reduce the barriers of the existing regimes. It also recognises but does not prejudice related government processes, Oceans Policy and the Government's response to findings of the Waitangi Tribunal Wai 262 claim. Information can also be gathered to find out whether there is justification for a specific piece of legislation for bioprospecting. These options also reflect the intentions of articles 3 and 15 of the CBD as it seeks to safeguard environmental, social and cultural values and establish mechanisms to facilitate the capture of benefits.

Any national measures will also need to be consistent with other obligations under the CBD, including the preserving the knowledge of and ensuring equitable benefit sharing with indigenous and local communities, and with New Zealand's obligations under bi-lateral and multilateral trade agreements. In particular a bioprospecting policy must give careful consideration of Maori interests and uphold the principles of the Treaty. What is also evident from this research is that bioprospecting contains a number of complex and controversial issues. The future development of these resources is potentially an important and high profile industry creating a wide range of benefits for New Zealand. Therefore New Zealand's resources require protection through regulating access. There is also a need to develop further internationally agreed principles to guide countries on access and benefit sharing arrangements.

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