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# **Discursive Dissection**

**This thesis questions the links between  
animal use in the West, genetic engineering  
and the patenting of living organisms**

**A thesis presented in partial fulfilment  
of the requirements  
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**I would like to thank all the people that  
helped me carry out this work.**

**I dedicate this thesis to all the  
millions of laboratory animals that suffer in the  
cruel deception that is vivisection.**

**DISCURSIVE DISSECTION :  
THIS THESIS QUESTIONS THE LINKS BETWEEN ANIMAL USE IN THE WEST,  
GENETIC ENGINEERING AND THE PATENTING OF LIVING ORGANISMS**

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## **Abstract**

Is another paradigm possible? A 21<sup>st</sup> Century praxis where values are not based primarily on economics, but on the wider spiritual values that sustain and nurture all creatures and the natural world. Can we stop the commodification of everything, even the essence of life itself, the DNA, the cell-lines, stem cells, our genes and the genetic makeup of all life-forms? I wish to bring an eco-feminist analysis to these discussions which will provide the standpoint from which to critique patriarchy's oppression and perceptions of women, non-human animals and the environment. The patriarchal construction of knowledge is examined as it is situated in the colonial and post-colonial periods in Aotearoa New Zealand. Included also, is a critique of capitalism as the pervading global neo-liberal economic system, incorporating historic events such as colonisation, the Industrial Revolution and the rise of western reductionist science. This is positioned against the historical epistemological backdrop of the main prevailing attitudes to the natural world (the environment) and our relationships with other non-human animal species on earth. Included are the relevant aspects of the worldviews of indigenous peoples including Maori, the religious standpoints of Christian, Muslim, Hindu, and Buddhist. The ideological discourses of neo-liberal capitalism, western reductionist science, modernist development and spiritual eco-feminism are also examined.

## Introduction

The world is on an ideological collision course with globalisation as the propellant of this juggernaut. The more powerful industrialised nations of the North are driving the Free Trade agenda, promoting genetic engineering and pushing the implementation of the TRIPS Agreement. This issue will be considered in the context of our geographical location and specific history, being an island nation in the South Pacific that has a colonial history, and a legally binding Treaty signed in 1840 with the original occupants, the tangata whenua of this land, Te Tiriti o Waitangi. As a nation, we have embraced neo-liberal trade liberalisation with vigour since 1984, being one of the 23 mainly industrialised countries who were the original signatories to the General Agreement on Trade and Tariffs (GATT) in 1947.

My endeavour is to position this research in relation to the contradictions and the sites of conflict that are arising between indigenous peoples here and overseas and the grass-roots animal rights, GE-Free and TRIPS activists. I will analyse and critique the arguments put forward by the proponents of Free Trade agreements such as the TRIPS agreement, which paves the way for patenting and subsequent ownership of life forms, which up until now, has only been available for intellectual property pertaining to inanimate objects. This is in the face of major opposition from many sectors and the proponents of this seemingly dominant world view are largely ignoring the many and varied voices of dissent. A large part of this work will explore the discourses surrounding the issue of the various ways in which we treat animals and can thus (in the West) consider the ownership of living organisms as proposed by the TRIPS agreement. This discussion will take place within the context and framework of the global neo-liberal free trade capitalist (and patriarchal) agenda of the western world. The notion of development is included as a forum for contextualising genetic engineering, use of animals and the TRIPS agreement as part of the broader issue of who defines the current 'development model'.

To explore this topic, my thesis will comprise an introduction, four main chapters, followed by a discussion and a conclusion. Chapter one will discuss the world from differing ideological perspectives by exploring the historical epistemological basis of the various attitudes to the natural world. The construction of knowledge, and in particular 'scientific' knowledge will be examined from within the patriarchal capitalist economic paradigm. The hegemony of the dominant paradigm in society that supports and maintains the positions of power that create, construct and control knowledge will be challenged.

Chapter two will look at the relationship between the ideology of Free Trade and the implementation and contents of the current TRIPS agreement. The focus of my discussion will be on the concept of patenting and owning living organisms. This will link in with the roles of other international organisations such as World Intellectual Property Organisation (WIPO), the World Trade Organisation (WTO) and various other United Nations (UN) bodies, treaties and conventions that relate to the protection of biodiversity. The role of the trans-national corporations and pharmaceutical companies will be examined and the subsequent links to 'development' will be explored. The history of the implementation of the TRIPS agreement here in Aotearoa will be given, examining both those government agencies and ministries involved and the processes they have used. Human patents will also be explored. The sites of resistance to the concept of ownership over living organisms will be discussed and an analysis of the competing discourses will be given. Aspects of democracy and human rights will be considered in relation to the TRIPS agreement. .

Genetic Engineering will be analysed in Chapter three. A brief overview of the science involved will be given. The notion of 'science as a public good' will also be critiqued. Both the notions of technological and genetic determination will be explored. The role of the global pharmaceutical and agri-chemical companies will be analysed and the links to some of the issues around the notion of 'development' will be explored. The sites of resistance to genetic engineering both locally and globally will be explained, along with the competing discourses engaged in this debate. The standpoints of Maori, the Churches, pro-democracy and human rights activists will also form part of this discussion. The Royal Commission of Inquiry into Genetic Modification and the notion of bioethics will be discursively evaluated. The Human Genome Project will be briefly touched on.

Chapter four will look at the history of the commercial use of animals in research, testing and farming both here in Aotearoa and overseas. The key arguments that drive the debates around anti-vivisection, animal rights and animal welfare will be included. This will provide the framework for a discursive analysis of those attempting to stop animal research and abolish vivisection. The discourse of western reductionist science will be critiqued and the links to 'Aid and Development', genetic engineering and TRIPs will be explored. The role of the trans-national pharmaceutical companies in both using and promoting animal research will be analysed. Oncomouse, a genetically engineered mouse susceptible to cancer, created by Harvard University and patented in 1988 by the University and Du Pont as Patent Number '4736866' will be introduced.

Chapter five will be where the competing discourses will be discussed, compared and contrasted. A critical dialogue that seeks to understand the hegemony of the dominant discourses will be analysed alongside the sites of power and the sites of resistance. Who the actors are and the location of the stages where these debates are occurring will be discussed.

Chapter six will present conclusions reached by weaving the strands of this work together and will attempt to provide some alternative patterns and ideas as a way forward. The use of discursive analysis as a tool for those engaged in the debates, critiquing the dominant paradigms, thus providing a mechanism for contesting these development models. Exploring how this work can be a part of the struggle to realise a new vision for the world, a tapestry of the many and varied world-views, reframed in such a way that can incorporate a 21<sup>st</sup> Century praxis.

All in all, this thesis engages with the global regimes of free trade agreements, with the drive towards patenting, and thereby instituting ownership of life forms. Analysis of the effects of these global neo-liberal agreements is interpreted through ways in which these are played out locally in the context of Aotearoa, with specific reference to impacts on indigenous people, whose interests should be safeguarded by the Treaty of Waitangi. Feminist theory will provide an approach of personal positioning in relation to these concerns.



## **Chapter 1. Theoretical Analysis of Human relationships**

As a pakeha feminist researcher I will use standpoint theory to position myself within these debates. My standpoint will be that of eco-feminist. From this position I will analyse the ideologies of eco-feminism, neo-liberalism, and the discourses of western reductionist science and modernist development theory. The worldviews of Maori and Indigenous peoples in general, together with the major religions of the world, Buddhism, Christianity, Hinduism and Islam will be examined in relation to their specific perspectives regarding their relationship to the natural world, the environment, the concept of ownership and their relationships with non-human animals.

### **1.1 Discourse Analysis**

Discourse analysis is situated within the wider social construction of knowledge to include not only culture, but economics and politics as well. This is why both the historical and cultural epistemological basis of western science requires serious consideration in relation to the questions and concerns surrounding the genetic manipulation and patenting and subsequent ownership of life forms. This thesis explores the use of animals in the western world for a range of commercial uses, from food to entertainment, research, testing and live dissection (vivisection). The continuation of this use of animals is explored within aspects of biotechnology, specifically genetic engineering (GE), including cloning and xenotransplantation and finally when considering the issue of patenting and owning life forms.

The context in which these discussions take place is important to consider when framing this discourse analysis. The negotiating table at which much of the discussion occurs globally, particularly regarding genetic engineering and intellectual property rights, is situated predominantly within the Northern dominated trade rounds of the World Trade Organization (WTO), regional trade blocs and various bi-lateral trade agreements. The power positions and the language of the various players and the agency subsequently given or refuted to these differing voices is examined. The various situated meanings and the cultural context of these discussions is crucial as discourse analysis acknowledges that words have different meanings to different people in different situations and contexts. (Gee, 1999: p. 41)

Knowledge availability and transferability are important as these factors can depend greatly on the social structure of a society and the advantages that a monopoly in some forms of knowledge can confer, the use of specialised language such as 'jargon', and the subsequent creation of 'experts'.

Access to codified, epistemic knowledge is also sharply restricted by such markers as wealth, gender, social position, and region in developed countries as well. The difference is that, in principle, in developed societies, the secrets of medicine, science, engineering, ecology, and so on are open secrets, available to all to use and modify. (Scott, 1998)<sup>1</sup>

The widening gaps between rich and poor in the western world is acknowledged. Class, gender and race have boundaries around them in terms of access to information. The role of the media, along with its ownership is also of concern regarding information equity, and the digital divide with new tools such as the Internet brings it's own set of access and equity issues. The Internet, however, is another thesis in itself.

The scrutiny of any given 'ideology', as a set of related ideas, notions and suppositions is required in order to examine the global economic paradigms in question. The role of religion in shaping how societies think and work from an ethical and moral standpoint is considered. It is a commonly held view that how people think and what people do depends on what they believe and that further to this, widely shared beliefs are often more powerful than government edicts. (Veitch, 1996:p.5) Given that this thesis sets out to explore the epistemological roots of attitudes towards women, the natural world, non-human animals and the environment in general, animal use in the west, genetic engineering and the patenting of life-forms are issues where discursive epistemological inquiry is crucial.

Consideration is required to define 'the environment', ecology and 'nature'. Ecology is derived from the Greek word, Oikos, meaning 'household' or 'home' and refers to the study of the interrelated web of life that links us to the world, our environment. An ecological system includes the soil, plants, trees, forests, waterways, oceans, sunlight and the ozone layer, which are all essential to the sustainability of all forms of life on earth. Nature refers to the essential qualities and creative power in the physical world. The word 'nature' is often thought to comprise three elements – essential qualities,

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<sup>1</sup> In 'Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed', James Scott talks of 'metis', practical knowledge based on traditional local customs, that are often ignored, over-ridden or annihilated through processes of colonisation and modernist scientifically based systems of agriculture.

creative power and the physical world itself and thus nature becomes of interest to religious discourses. (Veitch, 1996: p.7)

The language used within a discourse is of interest as there are “socially accepted associations among ways of using language, of thinking, valuing, acting, and interacting in the “right” places and at the right times with the “right” objects.” (Gee, 1999: p. 17). Therefore, within any given discourse, there is an “appropriate way” to behave, speak and engage. A discourse is in itself usually embedded in a medley of social institutions and can involve many different beliefs, symbols, tools and props such as books, papers and journals, classrooms, laboratories. For an example of how the academic and scientific worlds advance their specific discourses, both in an active enacting way as well as the passive yet important aspect of the recognition of those involved and acting within any given discourse. (Gee, 1999: p.18)

In a cross-cultural international spoken and unspoken dialogue there are a myriad of assumptions that can be made. Just one example is the problem of people talking past each other. This can be easily identified and understood when we use discourse analysis to assist with the deconstruction of any given problem or ideological crisis.<sup>2</sup> Actors in the debates this thesis addresses, are coming from many different cultural contexts. One very clear and simple example that occurs frequently within Aotearoa during dialogue between Maori (indigenous peoples) and Pakeha (colonial settler descendants) is that of the meaning of silence. For Pakeha, silence is perceived as consent, whereas for Maori, silence is dissent. Many Pakeha don't know this (despite 160 years of colonisation) and often misconstrue outcomes of meetings based on one simple cultural difference – the interpretation of “Silence”. (Metge & Kinloch, 1978: p. 20)

The discursive framing of these issues by the scientific community, the Government, government agencies, regulatory authorities and multi-national pharmaceutical companies is seemingly ‘expert-based’ and largely exclusive to the ordinary citizen. Many commentators are critical and argue that just because the majority of people are not able to articulate their worldview in scientific or academic terms does not and should not preclude nor negate the validity of their cultural, ethical, spiritual or moral viewpoint. The language of varied dissent is about the environment, democracy,

human rights, food safety - knowledge of the actual contents of the consumer's grocery bag and fears relating to future food availability for generations as yet unborn - referred to as the notion of 'food security'. So too, religious and ethical questioning is not respected by the scientists or politicians as valid discourse. It is these social power relations that this discourse analysis sets out to explore.

## **1.2 Epistemological relationships between humans, animals and their environment.**

This section is included to create a 'snapshot' of the various worldviews and to create a space where the spiritual, cultural, moral and ethical standpoints of the wider global communities can be heard. It is necessary, in my view, to widen the framework of the current discussions by enabling an analysis of controversial scientific and technological developments from the standpoints of the multiplicity of lived human experiences, social and cultural contexts. It is acknowledged that these worldviews as presented, limited by space are a small glimpse of the various viewpoints. Maori, as tangata whenua of this land, are given primacy in my work

### **1.2.1 Maori Worldview**

"In terms of the Maori worldview, people and the natural world are in a state of balanced equilibrium towards each other. However, the natural world has its own set of *tapu* which people must respect. It is the power of *karakia*, or ritual chant, that enables the *tapu* of natural things to be negotiated, and natural products made available to humans. The natural world, no less than humans themselves, proceeded from the spiritual. Both the human person and all created things have material and spiritual aspects." (Henare, 1996: p. 204)

Maori position themselves in a natural order of all things in the physical world. Inanimate objects are included and are said to contain '*mauri*' the life force. Their cosmology sees the world being created by the one 'supreme being', *atua*, with several levels of heavens and many gods and goddesses creating and governing the major natural phenomena such as the sea, the forests, the sun and moon, the wind and so forth. Ancestors are worshipped and conversed with in many cultural forms and forums. The

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<sup>2</sup> In 'Talking past each other: Problems of cross-cultural communication', Joan Metge and Patricia Kinloch set out a range of examples whereby cross-cultural communication is thwarted by misunderstandings based on interpretations of

Earth is perceived as female, *papatuanuku*, and it is from her and to her that all beings belong. The Earth, and the land, *whenua*, is seen as integral to life. People's relationships and spiritual ties to the land, to the rivers, lakes, forests and to the mountains are paramount. The system of lineage known as *whakapapa* defines this relationship for the '*tangata whenua*', as the people of the land.

Maori consider themselves to be '*kaitiaki*' carers of the land. The land is not owned in the European sense of the word, and collectivised systems of land ownership persist to today, albeit over a tiny percent of land since the British invasion and subsequent colonisation that began in the early 1800's. The western notion of the individual is problematic for many Maori as tribal and sub-tribal and smaller family groupings (*iwi*, *hapu*, *whanau*) based on kinship relationships-genealogy *whakapapa* persist to today and the collectivised way of living contrasts to the individual pursuit of material wealth as promoted by the western colonial project.

According to Manuka Henare, "Maori tradition instils in contemporary Maori a sense of the immanence of the natural world. It is influencing resource management policy and practices of central government and local bodies. Certain key Maori principles are acknowledged in legislation, which makes possible more Maori involvement in planning and administration. Key concepts ... ensure that economics, science and technology are subject to other kinds of scrutiny. These concepts represent an indigenous peoples' moral, ethical and religious dimension to the public culture of Aotearoa, but also to the world." (Henare, 1996). The holistic regard of these relationships is not only the domain of Maori. "With *matauranga* Maori, as with the knowledge frameworks of indigenous peoples elsewhere in the world, it is often difficult to separate environmental information from its spiritual, cultural and social contexts." (PCE, 2003: p. 50)<sup>3</sup>

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body language, gestures and other subtle aspects of communicating across cultures.

<sup>3</sup> Illuminated or blinded by science? A discussion paper on the role of science in environmental decision-making. This paper, from the Office of the Parliamentary Commissioner for the Environment (PCE) was released in July 2003 and

### 1.2.2 Indigenous Peoples' Worldviews

There are 300 million people throughout the world who would consider themselves to be members of indigenous peoples. It is important that their interests are effectively protected and that they are able to participate in the decision making processes of the states in which they live. (MFAT, 2003: p.5)

In words attributed to Chief Seattle ...

"You must teach your children that the ground beneath their feet is the ashes of their grandfathers. So they will respect the land, tell your children that the earth is rich with the lives of our kin.

Teach your children, that the earth is our mother.

The earth does not belong to man; man belongs to the earth. This we know.

All things are connected.

Whatever befalls the earth befalls the sons of the earth.

Man did not weave the web of life, he is merely a strand of it.

Whatever he does to the web, he does to himself.

It is problematic to attempt to define Indigenous peoples' spiritual dimension in such a small space. Suffice it to say, the relationship between indigenous peoples and their environment is one of closeness, interconnectedness and dependency. The concept of the earth and that the land is the life giving source for sustenance and survival is central to all indigenous philosophy. There is usually a 'Creator' and the earth is usually female. Given the decimation of indigenous peoples, their traditions, cultures, languages and their native homelands, their voices are seldom heard. Native American Indian spirituality is probably the best known in the west. Even then, there are many tribes who have developed their living systems in relation to the place they occupy. Aboriginal Australians are another indigenous people that we are slowly coming to know as they struggle against mines and other environmental atrocities in their native homelands.

Chris Jocks in his article 'Webs of relationship' states "The establishment and maintenance of a system of relationship that extends beyond the human into the extra-human realm of nature – thus the natural image of the web – is the most urgent concern of all native peoples. They have sought to absorb as much as possible, its rhythms, patterns and textures, and these they have enshrined in language, everyday and ceremonial aesthetic forms, even systems of social organisation. Contemporary technological life seems based on productivity, experimentation and pleasure; it as if nothing ultimately matters. For traditional native elders, however, life is a sacred work." (Jocks, 1996: p. 186)

Indigenous women from the Pacific have highlighted the issue of women and the environment, including: greenhouse emissions; genetically engineered and modified food sources; intellectual property rights; land and water degradation; neo-colonialism; and corporate possession of traditional land resulting in the erosion of spiritual connections to the land. (IWGIA, 2000: p. 189)

### **1.2.3 Christian Worldview**

The Genesis story of creation portrays God as saying to the humans that were created by him: Be fruitful and multiply, and fill the earth. Modern Christian thinkers purport that if the devotion and love that is currently offered to "heavenly God" were to be transferred to the care of the earth, with a great deal of zeal, then Christianity could go some way to help offset the current ecological crisis. (Geering, 1996: p. 266). The notion of 'stewardship' is referred to by Christians as describing their role in relation to the environment.

Many interpretations of the Bible have been made. For example, "The earth is merely a temporary way station on the road to eternal life. It is unimportant except as a place of testing to get into heaven. In this evil and dangerous world, one's duty is to pass through unspotted by the surrounding corruption. The earth was put here by the Lord for his [sic] people to subdue and to use for profitable purposes on the way to the hereafter." James Gaius Watt, a convinced Christian and Ronald Reagan's secretary of the Interior, quoted from Lloyd Geering (1996) "The Greening of Creation" in *Can Humanity Survive*

St Francis of Assisi (1182-1226) was an exception to the usual Christian attitude in his regard to animals. He was one of the few lone voices affirming a more positive attitude to the earth and to the animals, even going as far as referring to “Mother Earth”. “He found all nature friendly and beautiful. He regarded all animals and birds as his kith and kin ... he called even the sun, moon, wind, water and fire his brothers.” (Geering, 1996: p. 266)

The witch burnings of the middle-ages in Europe and Britain are also important to consider in relation to Women, who were the majority of those burnt, killed and tortured to death by the Christian patriarchy of the times. The *Malleus Maleficarum* was the second document to roll off the printing press in 1486 after the Bible. It was the “authoritative” work of demonology (The Hammer of the Witches) that stated that ‘maleficarum’ is the feminine form of the word for evil doer/witch. The printing press enabled the reproduction and dissemination of information that “reinforced an evolving hierarchy based upon a developing technology and upon controlled access to officially acknowledged learning.”(Daly, 1981: p. 190) that saw the discourse of the powerful patriarch and Christian church moving hand in hand to murder the millions of women that perished during these times.

The issue of having a soul or not is also very important from within the Christian paradigm. Women were perceived, alongside animals and non-white people to have not possessed a soul and were therefore regarded as savages and were subjected to all manner of ill treatment. Possession and concepts of ownership and control over other people, such as women and children, ‘slaves’ and animals, land and natural resources is undergoing critique from within Christianity but is beyond the scope of this work. Biblical scholars Ian Blaicklock and Phyllis Tribble among others have engaged the theological establishment in this debate.



#### 1.2.4 Muslim (Islam) Worldview

“For the Muslim, mankind’s [sic] role on earth is that of a ‘khilafah, vice regent or trustee of God. We are God’s stewards and agents on earth. We are not masters of this earth; it does not belong to us to do what we wish. It belongs to God and He has entrusted us with its safekeeping. Our function as vice regents, ‘khilafah’ of God, is only to oversee the trust. The ‘khilafah’ is answerable for his/her actions, for the way in which he/she uses or abuses the trust of God.” (The Muslim Declaration on Nature, Assisi)

According to Muzammil H. Siddiqi in “Everything in the Universe is Muslim”, Islam is a way of life and its teachings cover every aspect of life. In relation to the environment, both animate and inanimate objects of nature, humans have the most unique place but the purpose of their lives is to “serve God, live with each other in peace and harmony and enjoy God’s creation in nature with gratitude, care and responsibility according to the rules laid down by God.” (Siddiqi, 1996: p. 231) “God created the natural world and it is humans who depend on the resources of nature. The whole universe will survive even if all human beings perish, but humans cannot survive for a moment without many of the resources of nature. The human body is also connected with the biotic and abiotic parts of this ecosystem in which we live. ... Water is a source of purity so it has to be kept pure. Air also has to be kept clean and un-polluted because it is essential for healthy living. Killing animals for sport is not allowed.”

The essence of all that the Creator created is “ ‘muslim’, be it the sun, the moon, the earth and all other heavenly bodies .... So is the case with air, water, heat, stones, trees and animals.” Further to this, “Human responsibility is, then, to appreciate and enjoy this beautiful nature in all its variety, not to spoil it and to be thankful to the Creator who gave all these gifts.” Allah also produced humans from the earth, and it is to the earth that all humans will ultimately return. One must not only feed the poor but also avoid polluting running water, not indulge in extravagance, avoid corruption and destruction, remember other members of the biosphere share this planet with them, they must remember the future generations who will also need these resources, feed the poor, be kind to one’s parents, to plant trees, and treat animals gently and with kindness. “The Qurán and Sunnah have placed a special emphasis on at least five important resources of our biosphere: The earth, air, water, plants and animals.

The Qurán makes reference to the *earth* four hundred and sixty one times. In relation to eating animals, “Muslims are permitted to eat meat, but they must mention the name of God before slaughtering the animal. This rule is to remind a person that no life should be taken, even the life of an animal, without acknowledging clearly that it came from God and it is being taken only because God has allowed it.” (Siddiqi, 1996:p. 239)

### 1.2.5 Hindu Worldview

Hinduism is a diverse set of traditions that has no founder, no single creed and has spanned thousands of years. In essence, Indian religions have consistently taught that spiritual progress requires that one live in a state of balance with the environment. (Sax, 1996: p. 52). The idea that there is a distinction between humanity and nature is considered false, so too the notion that there is no great difference between natural law and human law. “Natural law cannot be undone because it is not a human creation, but human laws are constantly being created and modified. ... There is only one kind of law and it regulates both the natural and the moral realms.” (Sax, 1996: p55)

There exists within Hinduism the traditional theory of the five elements (earth, water, fire, wind and space) permeating all aspects of Indian thinking and this was integrated into all the major systems of philosophy. All objects and beings in the phenomenal world are made up of *purusha* (principle of spirit, of order and structure, fundamentally passive) and *prakriti* (complementary female principle associated with undifferentiated matter and activity), spirit and matter. There can be no life without the presence of both; both are present in all beings. (Sax, 1996: p. 63) Water is extremely important to later Hinduism with rivers as objects of worship and the purity associated with bathing. The Ganges is a holy river and is regarded as an incarnate goddess often referred to as ‘mother’. Failing to clean up excrement or pollute rivers are referred to in old texts as punishable acts. Diseases that result from such pollution are deemed to be both mental and physical, as this is seen as getting out of balance with the environment. The physical environment should be healthy and pure. Trees are also held in high regard, called the ‘lords of the forests’, with concern expressed about damaging them when they were chopped down. Plants formed the elaborate Indian pharmacopoeia and myths formed around these plants with some plants being personified, sometimes as gods but more often as goddesses. (Sax, 1996: p. 54)

Animals are considered to be part of the natural world, a hierarchically ordered food chain, where the strong eat the weak. Distinctions are made between domesticated and wild animals. Abstention from eating meat has become a criterion of purity for those practising the higher orders of Hinduism. They recognise the number of ways humans can be “involved in the eating of animals – from the butcher to the cook to the actual consumer – as guilty. In addition, the feeding of animals, and especially cows, is considered an act of piety.” (Sax, 1996: p. 59) Supposedly compassionate people treat insects, lice, reptiles and other obnoxious creatures as they would treat themselves. Some animals are worshipped, usually related to a deity: Shiva’s bull, Vishnu’s eagle, Durga’s tiger. The cow has been venerated for centuries and is associated with mothers. In the main living creatures are not considered to be equal to humans, but are however expressions of their potential to be divine and some are thus accorded special treatment.

#### **1.2.6 Buddhist Worldview**

Toni Huber, in his article ‘Overcoming Degradation’, positions Buddhism and the environment within the wider frame of the socially constructed view of nature and environmental practices, acknowledging the cultural diversity of Buddhist practice. Buddhism, as a ‘ism’, is a new term, coined by Europeans during their colonial encounter with Asian societies. Dharma is the term to describe Buddhist teachings that have existed for over 2,500 years.

Buddhists tend to renounce material life and withdraw from society to engage in solitary contemplation or various ascetic practices. “Time and space are considered to be endless; that long cycles of creation and destruction continue to follow one another; that life is a form of cyclic existence (samsara) involving the continual rebirth of all sentient beings; that there is an impersonal moral law of cause and effect (karma) which binds all beings in cyclic existence and determines their particular rebirth; and that there is a possible liberation or lasting peace (nirvana) from the endless round of rebirth.” (Huber, 1996: p. 24). According to the dharma there are three main aspects that characterise all existence: impermanence; suffering; and illusion. These also apply to all non-human life and the physical world. There are six different hierarchical life realms in which one can be reborn as a result of karma. The top three realms are where the heavenly beings, demigods and humans inhabit, while the lower three realms are the animal world, the hungry ghosts and the different hells.

Humans and animal life are located in the middle, with humans as superior. The Buddha envisaged rebirth in the human form to be an excellent position from which to set about seeking liberation from samsara. Thus, human individuals tend to be viewed as ultimate authors of their own destiny, as well as their possible liberation. Motivation or intention is highly personal and externally unknowable, as it is considered a product of the human conscience. (Huber, 1996: p. 27). Buddhists attempt to live by the Noble Eight-fold Path, “... right action means abstaining from three bodily wrong misdeeds: taking life, taking what is not given, and sexual misconduct ... Right livelihood is abstention from occupations that harm living beings – for example, selling weapons, liquor, poison, slaves, or livestock; butchering, hunting, fishing; soldiering; fraud, soothsaying; and usury. Right intention is marked by dispassion, benevolence, and aversion to injuring others.” (Huber, 1996: p. 28)

Huber asserts that the world view of different local cultural contexts play a large role in determining people’s beliefs about their natural environments. Most of the Asian societies that accepted Buddhism also maintained their own animistic beliefs and local worship cults. There are often large and sophisticated pantheons of spirits of trees, animals, the earth and natural phenomena that have been thus incorporated into Buddhist practice. For ordinary lay people, all living things that inhabit the mountains, insects, wild game and birds and even some human inhabitants are considered to be the embodiments in natural form of the deities. Plants, water, soils and stones are all believed to be sanctified or empowered in some way as they are a part of this divine landscape on earth. (Huber, 1996: p. 32) Often animals are represented as if they are human and are accorded a value in their own right.

To conclude “man’s control of his environment is a precondition to his existence; he himself is ultimately responsible for the world he occupies.”(Aris in Huber, 1996: p. 30)

### 1.2.7 Eco-Feminist Worldview

There is a body of knowledge that encapsulates these concerns from within western feminist thinking. The ‘feminism’ we are most familiar with here in Aotearoa New Zealand is of course ‘liberal feminism’, based on the notion of ‘equality’. It is thanks to these feminists that we women have the vote (1897), can go to University (1930’s) of which I am appreciative and of course can now do such things as fly fighter jets and drop bombs on other people, which I abhor.

However, there are many other strands of feminism that do not simply demand equality with the patriarchy. They seek a different gendered power relationship, not a simple reversal, but a levelling of the hierarchies of power and dominance. In the growth of this discourse there are now two main strands, that of spiritual eco-feminism and political eco-feminism. As an anarchist-feminist, I have found the discourse of spiritual eco-feminism to be the most compelling.

Spiritual eco-feminism was borne in the seventies from linking ecological concerns to the role of women in society. This thinking is based on the positioning by the patriarch of women and nature as wild and unruly, in need of male ‘control and domination’. Spiritual eco-feminism has many parallels with indigenous ways of thinking about the earth and the relationships between all living things and includes inanimate objects as well – such as rivers, mountains and minerals. Spiritual eco-feminists, third world feminists and indigenous thinkers alike share several similar views that intersect with the anti-vivisection – animal rights, GE and TRIPS debates. The most crucial is the strong critique of western reductionist science which sets out to deconstruct, fragment, dissect and separate all things down to their most miniscule parts. This is juxtaposed against philosophies of wholeness, well-ness and integrated complex fragile ecological systems that sustain all life. All these epistemological worldviews proclaim that you can’t own life, that knowledge belongs to all peoples and that all things are interconnected and interrelated

Political eco-feminism seeks a more structural analysis of systems of oppression of women, critiquing capitalism and promoting more women-centred social systems. Socialism and collectivised community-based systems of living bring about a more equitable society based on relationships that are less exploitative and acknowledge the

inter-connectedness of people and the planet. It too positions the collective before the individual. Many third world feminists also offer a view of the world that is not dissimilar to both spiritual and political eco-feminist thought. The existence of matriarchical societies is also acknowledged and discussed as an alternative to the patriarchy.

Eco-feminism is similar to anarcho-feminism in that they both position capitalism and patriarchy as inextricably linked to oppress and exploit women, children, the Earth and animals in the pursuit of individual profit by corporations. We often talk of the commodification of everything by capitalism as the dominant economic system that we live under in this country. This view is reinforced by the impending TRIPS agreement that the proponents of Free Trade are advancing by way of the GATT and the WTO. Anarchists see governance as an activity that all people can engage in without the need of an actual Government to make laws to oppress certain sectors of society while advancing the position of others within the same society.

### **1.2.8 Western Reductionist Scientific Worldview**

Western reductionist science is a relatively new ideology in comparison to indigenous and other people's knowledge base, worldview and epistemology, which for some peoples goes back untold millennia. The idea that we can reduce all that can be seen and known, down to the smallest piece, such as DNA sequences, cell lines and so forth is in direct contrast to a holistic view of diverse, complex and inter-connected natural systems.

According to the Parliamentary Commissioner for the Environment, 'Science' is described as a system of knowledge and a method of inquiry, organised in a particular way. Science seeks to understand things such as natural phenomena, their causes and effects. It does so through a process of putting forward a supposition (hypothesis) for how something works, then gathering evidence (via experiments) that seeks to falsify the hypothesis. Scientific knowledge is the outcome of social processes that certify it as legitimate. In the context of environmental sciences, systems are extremely complex, cause and effect can be difficult to determine, and outcomes can vary according to history and circumstances. (PCE, 2003: pgs. 20-21). Science socially constructs knowledge.

There have been many examples of western scientific projects that have not worked in their application in both developing nations and in western nations such as the problems associated with thalidomide. Developing nations have had the lived experience of the rise of mono-cropping in the name of economic development. A specific example is the Green Revolution where western science was applied to traditional systems of agriculture. “Soil and seeds were used as raw materials and inputs for the Green Revolution and industrial agriculture. The result was to create waterlogged or salinized wastelands, and pest and disease infested crops.”(Shiva, 1992: pg. 213)

### **1.2.9 Neo-Liberal Economic Worldview**

Neo-liberal ideology is based on the neo-classical model of economics. This ideology has dominance in the western capitalist world and is driving the Free Trade agenda at an international level. This ideology manifests globally through the GATT (General Agreement on Tariffs and Trade, now metamorphosed into the WTO (World Trade Organisation) and is instrumental in advancing and enforcing agreements such as the GATS (General Agreement on Trade in Services) and the TRIPS agreement.

The need to measure and quantify multiple aspects of a society, have taken on new dimensions within this discourse. The rise of the statistician, bringing with it the implementation of economic measurements, such as Gross National Product (GNP), that which is traded in the global ‘market’, a country’s exports minus its imports, Gross Domestic Product (GDP), that which is traded internally, inflation rates, consumer price indexes and so on and so forth. Everything now needs to be quantified. “Society must be remade before it can be the object of quantification. Categories of people and things must be defined, measures must be interchangeable; land and commodities must be conceived as represented by an equivalent in money.” (Porter, in Scott, 1998: pg. 114)

When related to maintaining human health and the ‘value’ of a human life, state institutions such as Pharmac (New Zealand Drug Purchasing Agency) use estimated values in ascertaining the relative costs of expensive drugs that keep people alive in many severe illnesses. A human life is currently estimated to be worth \$2 million

dollars at April 1 1990 prices (Miller and Guria, 1991) Adding a further 2.5% for inflation to 1997 gives a 'value of statistical life' in 1997 prices of \$2.2 million.<sup>4</sup>

The notion of homo-economicus, being the unfettered rights of individuals to pursue personal economic gains is a relatively new neo-liberal project that has taken a strong hold in the western world. The neo-classical school of economic thought has pervaded many aspects of government institutions and the basis of their thesis is the notion of the individual and the right of the individual to accumulate material wealth with no regard for the cost to others. This thinking is exported to developing nations through various mechanisms, such as multi-lateral financial institutions like the IMF (International Monetary Fund) and the World Bank. This lack of concern extends to the Earth, in the cases of resource depletion, climate change, water pollution and species extinction and other current environmental concerns.

Edward Goldsmith, in his essay 'Development as Colonialism' talks of the new corporate colonialism whereby "The new colonial powers have neither responsibility for, nor accountability to anybody but their shareholders. They are little more than machines geared to the single goal of increasing their immediate profitability. What is more TNC's (Trans National Corporations) will now have the power to force national governments to defend corporate interests whenever such interests are in conflict with those of the people whose interest the governments have been elected to protect." (Goldsmith, 1996: p. 266)

### **1.2.10 Modernist Development Worldview**

The theory of modernity that underpins the notion of 'Aid and Development', the vehicle used by the west to project it's economic ideologies on developing nations, is included as necessary to understand how the technology agenda is advanced and promoted in the developing world. 'Development' is founded in the notion of modernism, inferring progress through technological advancement. The road to economic success and higher standards of living is based on a blind faith in modernism. Within this discourse lies the notion of technological determinism: because we have the

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<sup>4</sup> These figures are taken from the publication 'What Price does NZ place on Value of Life?' in LifeBlood: The newsletter of the Leukemia and Blood Foundation of New Zealand, July 2002, outlining the processes used to weigh up the purchase of expensive drugs.



technology capability, be it nuclear power, the combustion engine, or genetic engineering, then we should unquestionably proceed. Rather than allowing humans, peoples or nations the right to determine whether or not to utilise a technology, the technological determinists would assert that the technology determines our behaviour.

James C Scott in 'Seeing like a State' discusses what he terms 'Modernist faith', in terms of monoculture and polyculture systems of agriculture in West Africa. "Nothing better illustrates the myopic credo of high modernist agriculture, originating in high temperate zones and brought to the tropics, than its nearly unshakable faith in the superiority of monoculture over the practice of polyculture found in much of the third world ... the visual effect, to westerners eyes, was one of sloppiness and disorder ... the apparent disorder of the crops was a symptom of backward techniques; it failed the visual test of scientific agriculture. Campaigns to replace polyculture with pure-stand [mono-cropping] planting were pushed with equal fervour by colonial officials and, after independence, by their local successors." (Scott: p. 273) It was deemed unscientific as there were too many variables, and therefore too hard to set up scientific 'controls'. This project has continued with the development project, seed companies and chemical companies, (herbicides and pesticides as necessary 'inputs') fertilisers versus fertility.

This new imperial knowledge, the way in which "soil deficiencies" could be remedied, was part of the "High modernist institutionalised agriculture" development project of the west, regarding the farmers as mere peasants, requiring loans to buy seeds and fertilisers, and not 'expert' in their field of agriculture. Commercial and political monopolies required the purchase of hybrid seeds, that when saved did not breed true. Scott asserts that various forms of poly-cropping were the norm in 80% of West African farmland. Scott refers to Rachel Carson's "Silent Spring" in regard to the high chemical inputs needed with the imposed systems of mono-cropping. The Green Revolution that introduced chemical agriculture in Northern India in the 1960's is another example. (Shiva, 2002)

Given that 'Aid and Development' are a western project, the religious underpinnings are Christian. The civilising mission of the early colonialists is continued through the development agenda of the west by positioning western notions of development as progressive, inherently good and desirable, while positioning indigenous peoples', third world countries and developing nations as traditional, meaning 'backward' and in need of 'help'. Traditional belief systems are discounted, discredited and in some cases destroyed by the western capitalist and patriarchal development project. With globalisation there is a blurring of these lines as TNC's originating from the West are setting up shop in developing nations and behaving this way internally, co-opting people from within.

Some critics such as eco-feminist philosopher, Vandana Shiva assert that modern development with its patriarchal industrial capitalist paradigm is a neo-colonial project that is inherently violent, exploitative of women and children, the poor and the environment. "The organizing principle of economic development based on capital accumulation and economic growth renders valueless all properties and process of nature and society that are not priced in the market and are not inputs to commodity production."(Shiva, 1992: p. 216)

To summarise the basic oppositional discursive cultural standpoints from this chapter, that of indigenous versus western scientific worldviews, "It is a feature of western science that it pretends to exist outside of a cultural framework and is divorced from political and economic considerations. This is one of the western world's greatest myths. Western science feeds the values and aspirations of the free market imperialism and has developed the ultimate global factory to provide new commodities for trade, ... To negate the complexity of any life form by isolating and reducing it to its minute parts, western science and technologies diminish its identity as a precious and unique life form and alter its relationship in the natural order. ... Scientists assert that they pursue this work for the sake of humanity." (Mead, 1996: p. 48)

In this chapter, several theoretical approaches, including feminist theory, discourse analysis, ecology have enabled the discussion to cross disciplinary boundaries and work from a broad scope. A central theme of this chapter, of the significance of worldviews as a way of accounting for cultural differences in approaches to knowledge and ethics, is the undergirding of theme here. In my view, it is imperative to uphold ethical

principles for safeguarding 'life' that respect regeneration far beyond humanity's knowledge or capacity to 'manage' life or own life-forms. The attempt to reduce 'life' to matters of ownership present the gravest danger to the viability of future generations and to 'life' itself. In the next two chapters I will move from the big brush approach of this chapter to focus specifically on Aotearoa-New Zealand, first, on the impact of the TRIPS agreement in chapter 2, and following that in chapter 3, to focus on Genetic Engineering and the regulatory systems for this field of science in New Zealand.

## **Chapter 2. TRIPS and Free Trade**

### **2.1 Overview of Free Trade and the TRIPS Agreement**

In this chapter I will introduce the notion of globalisation and critique the impacts of it on women, the environment and animals generally. A detailed analysis will be given of the TRIPS agreement in relation to Aotearoa New Zealand and our existing Patent Laws: Te Tiriti o Waitangi; the WAI262 claim currently at the Waitangi Tribunal; Bio-prosopecting; the relevant recommendations of The Royal Commission of Inquiry into Genetically Modified Organisms (RCGM) and the formation of the Bioethics Council. I will then situate this alongside the work of Indigenous Peoples internationally and their use of international organs and instruments to protect their traditional knowledge, cultures and biodiversity. The relationship between the ideology of Free Trade and the implementation and contents of the current TRIPS Agreement will be explored with a focus on the concept of patenting and owning living organisms. The role of the transnational corporations and pharmaceutical companies will be examined and the subsequent links to ‘development’ will be explored. Human patents will also be discussed. The sites of resistance to the concept of ownership over living organisms will be discussed and an analysis of the competing discourses will be given. The discourse of the free market will be explored and the physical and economic state sanctioned violence associated with the advancing of free trade will also be critiqued, alongside notions of democracy and governance.

The Trade-Related Aspects of Intellectual Property Systems (TRIPS) agreement sets out to establish minimum domestic and international standards for the protection and enforcement of intellectual property rights. As part of the World Trade Organisation (WTO) policy behind TRIPS is to support the trade principles of the WTO, which can be briefly defined as free trade and the removal of trade barriers. As a member country of the WTO, New Zealand is bound by the TRIPS agreement, which was ratified in 1995 following the GATT Uruguay Round negotiations. Failure to adhere to the provisions of TRIPS can result in trade sanctions against the offending country. Failure to implement domestic legislation in compliance with TRIPS can result in action being taken through the WTO’s dispute resolution procedures, and can also result in trade sanctions. This type of punitive approach is unprecedented in the field of international intellectual property (Henkels, 2002).

Very broadly, intellectual property means the legal rights that result from intellectual activity in the industrial, scientific, literary and artistic fields. There are two main reasons why countries have laws to protect intellectual property. One is to give statutory expression to the moral and economic rights of creators in their creations and the rights of the public to access those creations. The second is to promote, as a deliberate act of government policy, creativity and the dissemination and application of its results and to encourage fair-trading, which would contribute to economic and social development. (WIPO, 1997).

	<b>Copyrights</b>	<b>Patents</b>	<b>Plant Breeders' Rights</b>	<b>Trade Secrets</b>	<b>Trademarks</b>
<b>Ownership</b>	Creator	Inventor	Breeder	Holder of Information	Company / producer with which brand is associated
<b>Criteria</b>	Original and in material form	New, useful and non-obvious	New Plant Variety	Undisclosed and confidential	Distinguishes the goods or services of one person from those of another person
<b>Scope</b>	Original artistic works	New products and processes	New variety Plant	Product and technological secrets, business information and data	Sign capable of being represented graphically; must be a name or a signature or invented word
<b>Duration</b>	Lifetime of Artist + 50 years	20 years	23 years	Unlimited	Indefinite if renewed perpetually
<b>Nature</b>	Distinct and exclusive	Exclusive rights to use and sell	Exclusive rights to multiply and distribute seeds and plants	Rights to use information	Exclusive right to use

**Table 1. Showing the different types of Intellectual Property Rights (IPRs)**  
(Source of data: Henkels: 2002)

Intellectual property is traditionally divided into two branches: industrial property and copyright. There are patents and related concepts and patents for invention. Over 140 countries grant patents that provide legal protection for inventions. Not all inventions are patentable. Generally, the invention must be new, it must involve an inventive step, (or it must be non-obvious) and it must be industry-applicable. It is customary to distinguish between patent products and patent processes. (WIPO, 1997) The history of patents saw, almost simultaneously France in 1791 and the US in 1790, adopt patent laws.

Patenting and the protection of intellectual property became related to Trade occurred during the Uruguay round of the GATT in January 1995, whereby in relation to Intellectual Property Rights “ The corporations and their governments turned to the WTO because of the slow progress in getting a comprehensive agreement through ... WIPO. ... Supporters of TRIPS insisted that adding the words ‘trade related’ made intellectual property a legitimate part of the Uruguay Round – ignoring the glaring contradiction that intellectual property rights break the golden rule of the free market model, because they guarantee monopoly rights.” (Kelsey, 2003: p. 31) Further to this, the agreement was shaped and promoted by the very industries that stood to gain the most from a global enforceable intellectual property rights regime. “One key influence was the US [United States] corporate coalition called the Intellectual Property Committee (IPC) made up of Bristol Myers, Du Pont, General Electric, General Motors, Hewlett Packard, IBM, Johnson & Johnson, Merck, Monsanto, Pfizer, Rockwell and Warner.” (Kelsey, 2003: p. 32)

Bio-prospecting is exploration for biological material for as yet undiscovered biological substances and applications. Bio-prospecting of both human and other natural biological materials is being strongly condemned and challenged by indigenous and third world peoples alike. The Human Genome Diversity Project (HGDP) dubbed the ‘Vampire Project’ targeting human genes and cell lines is seen as opening the door for widespread commercialization and potential misuse of the samples and data gathered. Branded as a neo-colonial project, well funded and equipped, who have their eyes on appropriating the natural resources of indigenous peoples to benefit those in the developed world. (Harry, 1996) Here in Aotearoa, the Department of Conservation (DOC) has placed a moratorium on bio-prospecting of flora and fauna on DOC land. This policy was triggered by the WAI262 claim. There are currently no direct controls on bio-prospecting on private land.

## Aotearoa New Zealand

The Ministry of Economic Development is the Government Agency implementing the TRIPS agreement. This work so far has involved a review of our old patenting laws with a view to bringing them in line with the international project of our commitment to the various free trade agreements. The PVR, (1956) Plant Varieties Act has been updated. This work is carried out quietly by the Ministry who produce discussion documents for stakeholders from time to time.

### 2.2 Domestic Law

Some Patent Law Reform proposals have stemmed from the RCGM as a way to seek a balance between the investors in biotechnology and the interests of communities and stakeholders. These include: Recommendation 10.3, *That a Maori Consultative Committee be established by Intellectual Property Office of NZ (IPONZ) to develop procedures for assessing applications, and to facilitate consultation with the Maori community where appropriate;* Recommendation 10.4 *That New Zealand be proactive in pursuing cultural and intellectual property rights for indigenous peoples internationally;* Recommendation 10.5, *That New Zealand pursue the amendment of the WTO TRIPs agreement and associated conventions to include a reference to the avoidance of cultural offence as a specific ground for exclusion or reservation;* Recommendation 10.6, *That all parties concerned work to resolve the WAI 262 claim currently before the Waitangi Tribunal as soon as possible;* Recommendation 14.2, *That Government establish Toi te Taiao: the Bioethics Council to: Act as an advisory body on ethical, social and cultural matters in the use of biotechnology in New Zealand Assess and provide guidelines on biotechnological issues involving significant social, ethical and cultural dimensions Provide an open and transparent consultation process to enable public participation in the Council's activities.*

These recommendations are slowly being progressed. However, there are many assumptions held by those controlling these processes. Regarding ethical and environmental concerns with the patenting of life-forms, the Ministry of Commerce's 1999 paper discussing Maori concerns, accorded a one-dimensional view in that the concerns were based on the premise that the problems were associated with the development and use of genetically altered life forms and not the concern that

intellectual property rights, acknowledged as private property rights, are an inappropriate commodification of life itself. (Henkels, 2000: p. 15). Aroha Mead aligns these property rights with slavery that saw people paying money for their slaves and being awarded exclusive property rights over them. “The slaves were theirs to do with as they wished and no one else could interfere. Slavery wasn’t considered a human rights issue at first, it was seen as a commercial transaction. It took generations of protest and resistance, and the sacrifice of thousands of lives to overturn and criminalize property rights over humans. Now property rights over human genes are being legalised.” (Mead, 1996: p. 46)

The Green Party is the only political party in New Zealand that opposes the patenting of living organisms, and this is stated in their Science and Research Policy. The International NGO GreenPeace is opposed to the patenting of living organisms and Friends of the Earth has also voiced opposition as well.

### 2.2.1 Te Tiriti o Waitangi Implications

Tino Rangatiratanga was guaranteed to Maori by Article II of the Treaty of Waitangi. Tino Rangatiratanga reflects the status of Maori as tangata whenua and gives rise to the right to exercise control/guardianship, or kaitiakitanga, over taonga. According to some, this includes associated intellectual property rights. In addition to this, the Crown is under a fiduciary duty<sup>5</sup> to ensure an active protection of Maori knowledge and interests. This obviously includes the requirement of *acceptable* consultation processes with Maori with regard to any matters of significance. With respect to matauranga Maori<sup>6</sup>, the Crown has not established any clear processes for assigning ownership or any mechanisms for protection. (Henkels, 2002)

Maori and Intellectual Property Rights (IPRs) gives rise to the proposition that existing intellectual property frameworks cannot meet Maori concerns in relation to protection of traditional cultural and intellectual ‘property’. Indeed, the expression ‘intellectual property rights’ reinforces the notion that property and rights are products of individual

<sup>5</sup> A fiduciary relationship is a special legal relationship whereby the ‘stronger’ party must exercise a high standard of care in promoting and protecting the interests of the ‘weaker’ party.

<sup>6</sup> ‘Matauranga Maori in a traditional context means the knowledge, comprehension or understanding of everything visible or invisible that exists across the universe. This meaning is sometimes related to the modern context as Maori research, science and technology principles and practices.’ C. Mohi, Kaumatua Committee 1991, advice to Minister of Crown Research Institutes; (Williams, WAI 262 Report, p18)



minds. The Western / Pakeha conception of 'ownership ' and property rights system is seen as incompatible with Maori views about resources and traditional knowledge. Intellectual property rights relating to indigenous knowledge that are relevant to the New Zealand context are in the areas of patents and trademarks.

Maori and patenting creates the existence of theoretical problems and inherent philosophical conflicts as the patent system is based in individual private economic rights, an assumption which is intrinsically in conflict with collective guardianship and kaitiakitanga. Opposition to incorporating Maori cultural knowledge into the existing intellectual property rights system comes from both Maori and proponents of the existing system such as IPONZ. There exist several particular issues with regard to Maori and the patenting of biotechnological inventions, especially the concern that Maori could potentially lose control over indigenous knowledge and genetic resources.

Tino Rangatiratanga incorporates rights to make decisions in accordance with Maori cultural values: while patent law imposes Pakeha constructions of property ownership and 'rights'. There is concern regarding the inability of intellectual property laws to protect Maori knowledge and interests in indigenous flora and fauna, whilst the same laws provide multinational biotechnology corporations with the tools to increase their profits. In many instances the commercial exploitation of traditional knowledge is culturally offensive.

Crown policies on patenting to date and the Plant Variety Rights Act 1987 have denied Maori rights inherent in the exercise of tino rangatiratanga. For example, a variety of pohutukawa has been granted a Plant Variety Right. In addition to this, patent applicants are not obliged to disclose the source of any traditional knowledge used in 'inventions' – there exist no mechanisms for informed consent.

The issue of Maori and the morality of life patenting sees divergent views within Maoridom lie in several different viewpoints raised with respect to patenting of genetic material. Some of these arguments are obviously contradictory in that they seek economic advantage for Maori while the first argument rejects completely the concept of economic rights over nature.

*1. It is immoral to patent any life forms at all*

The rationale for this standpoint is that ownership rights over nature are repugnant from a spiritual or ethical position.

*2. It is immoral for non-Maori to patent products containing indigenous genetic material or relying on Maori traditional knowledge*

The rationale behind this is that traditional knowledge is tapu. Secret knowledge contradicts the whole rationale of the patent system, which allows knowledge to revert to the public domain.

*3. It is immoral for foreign individuals or corporations to patent products containing indigenous genetic material or relying on Maori traditional knowledge.*

This argument seeks to retain the economic benefits in New Zealand so as to benefit both Maori and non-Maori. A serious impediment to this approach is conflict with provisions in TRIPs.

*4. It is immoral to patent products containing indigenous genetic material or relying on Maori traditional knowledge without Maori compensation*

This approach recognises the prior labour of Maori in identifying, for example, uses of native plants. Under this model anyone successful in gaining a patent would be granted it on condition they made suitable licensing or royalty arrangements with Maori. Under TRIPs, any restrictions would have to be “reasonable”.

*5. It is immoral to patent products containing indigenous genetic material or relying on Maori traditional knowledge without Maori consultation*

This would require consultation by IPONZ (Intellectual Property Office NZ) in accordance with the Crown’s obligations under the Treaty of Waitangi. The proposed Maori Consultative Committee could operate within this area. (Henkels, 2002)

There are a number of practical problems with existing patent law. The grant of a patent requires full disclosure of all procedure and knowledge. A lot of matauranga Maori is sacred, ritual based knowledge, protected by karakia. Disclosure would undermine its integrity; The grant of a patent is only valid for 20 years – it is more appropriate for Maori knowledge to be protected in perpetuity; Joint ‘ownership’, proposed as a possible reform of patent law, is not akin to community custodianship; An application to patent traditional Maori knowledge may not pass the ‘novelty’ test; Based on the past use of the ‘morality’ provision in the Patents Act, it is unlikely that this section could be effectively used to meet Maori concerns. (Henkels, 2002)

The Wai262 claim currently at the Waitangi Tribunal seeks to protect for all New Zealanders, the flora and fauna of Aotearoa New Zealand. The passage of this claim is very slow, and it has been identified as problematic in relation to the implementation of the TRIPS agreement here. This claim is founded in Maori spiritual beliefs relating to the cosmos and the creation myths of the tangata whenua, the people of the land.

The Treaty of Waitangi could, if honoured, afford all of us protection in this increasingly globalised world that threatens all peoples' sovereign rights on an ever-increasing range of levels. It is because of the Treaty of Waitangi that we, tauiwi, pakeha can live in this country and it is because of the Treaty that some of us can stand beside Maoridom on issues of culture, ethics, morals and spirituality. It is my view that we as a culture, now the dominant culture in Aotearoa New Zealand, struggle to claim our historical culture. It is the continued challenges by Maoridom, in my view, that some Pakeha are now beginning to think harder on these issues and to look back to our own genealogies, pre-Christian to Pagan, Nordic and other ways of thinking and knowing that are buried deep within our psyches.

It is also living amidst another rich survival culture that challenges the pre-dominant worldviews of white colonials and the history of fragmentation and destruction that this has brought. Aroha Mead states further that "It is difficult to articulate the degree to which indigenous and western scientific philosophies differ on such a fundamental point. The difference rests in an understanding of the origin of life and humanity, the role of and responsibilities to sacredness, and the commitment to provide a heritage for future generations."(Mead, 1996, p. 48)

## **2.3 International Situation Report**

### **2.3.1 Organs & Instruments**

The role of intellectual property in cultural, economic and technological development and the interaction between industrial property offices and the various users of the intellectual property system will be outlined in this section. There are other international instruments and organs that the New Zealand government has involvement with in relation to intellectual property rights and the rights of indigenous peoples in relation to the protection of biodiversity. The World Intellectual Property Organization (WIPO) is an intergovernmental organization with a membership of 157 states as of 1 July 1996. It is a specialised agency of the United Nations system of organisations.

WIPO is responsible for the promotion of the protection of intellectual property throughout the world through cooperation among member states. It is also responsible for the administration of various multilateral treaties dealing with legal and administrative aspects of intellectual property.

The Cartagena Protocol and the International Convention on the protection of Biodiversity are two other international instruments currently gaining agency against both unfettered bio-prospecting and the trans-national movement in organisms that threaten biodiversity such as genetically engineering organisms.

## 2.4 Indigenous Peoples Work

“... the heart of indigenous opinion comes from a world view that is so radically different to a western world view that norms and standards which westerners accept with ease, such as scientific objectivity, are rejected by indigenous peoples. A growing number of non-indigenous peoples are also beginning to challenge the assumptions behind these values.”(Mead, 1996, p. 48)

The Draft Declaration on Indigenous People’s Rights (DDRIP), saw the Working Group on Indigenous Peoples starting to draft the Declaration in 1985. The Declaration contains a broad set of fundamental rights, including the right to self determination<sup>7</sup>, as articulated in the International Covenants on Human Rights; as well as the specific right to maintain indigenous systems while retaining participation in the non-indigenous systems of the state. In relation to intellectual property and bio-prospecting, the relevant provisions are:

Article 29:

*Indigenous peoples are entitled to the recognition of the full ownership, control and protection of their cultural and intellectual property.*

*They have the right to special measures to control, develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, seeds, medicines, knowledge of properties of flora and fauna, oral traditions, literatures, designs and visual and performing arts.*

<sup>7</sup> The right to self-determination has been the subject of much debate in international law. Although international law recognises indigenous people’s “inherent” right of self-determination, states, concerned with maintenance of their sovereignty and territorial integrity, have attempted to fetter the right through custom. The right of self-determination has thus been interpreted by state practice since 1960 as a right of decolonisation, with the effect of excluding minorities within states from exercising the right. Obviously not all indigenous peoples wish to secede from the state in which

#### Article 30:

*Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands, territories and other resources, including the right to require that States obtain their free and informed consent prior to the approval of any project affecting their lands, territories and other resources, particularly in connection with the development, utilisation or exploitation of mineral, water or other resources. Pursuant to agreement with the indigenous peoples concerned, just and fair compensation shall be provided for any such activities and measures taken to mitigate adverse environmental, economic, social, cultural or spiritual impact.*

### **2.5 Links to Uses of Animals in the West**

The links between TRIPS and the use of animals in the west are largely philosophical in regard to our human viewpoints regarding what we do to animals. To be able to entertain the notion of patenting and subsequent ownership rights over living organisms requires that a whole set of behaviours is normalised and socially accepted. To think otherwise about animals is considered somehow on the margins, with debates on ethics morals and animal welfare occurring on the periphery. The role of capitalism in determining relations between all aspects of society ensures that the pursuit of economic goals is paramount and that generation of profit can be done and the consequences to non-human animals is of little importance.

### **2.6 Sites of resistance to TRIPS**

Internationally, The Campaign to Ban the Patenting of Life Forms is working to educate people in western countries about these issues. There is a Moratorium on GE Biotechnology and No to Patents on Life campaign. During the 1997 State of the World Forum (November 4-9) in San Francisco the following statement was drafted.

“Life is an intimate web of relations that evolves in its own right, interfacing and integrating its myriad diverse elements. The complexity and interdependence of all forms of life have the consequence that the process of evolution cannot be controlled, though it can be influenced. It involves an unpredictable creative unfolding that calls for sensitive participation from all players, particularly from the youngest, most recent arrivals, human beings. Life must not be treated as a commodity that can be owned, in whole or in part, by anyone, including those who wish to manipulate it in order to design new life forms for human convenience and profit. There should be no patents on organisms or their parts. We must also recognise the potential dangers of genetic engineering to health and biodiversity, and the ethical problems it poses for our responsibilities to life. We propose a moratorium on commercial releases of genetically engineered products and a comprehensive public enquiry into the legitimate and safe uses of genetic engineering. This enquiry should take account of the precautionary principle as a criterion of sensitive participation in living processes. Species should be respected for their intrinsic natures and valued for their unique qualities, on which the whole intricate network of life depends. We recognise the validity of the different ways of knowing that have been developed in different cultures, and the equivalent value of the knowledge gained within these traditions. These add substantially to the set of alternative technologies that can be used for sustainable use of natural resources that will allow us to preserve the diversity of species and to pass the precious gift of life in all its beauty and creativity to our children and their children, to the next century and beyond.

## **2.7 Links to Aid and Development**

"History has many records of crimes against humanity, which were also justified by dominant commercial interests and governments of the day... Today, patenting of life forms and the genetic engineering which it stimulates, is being justified on the grounds that it will benefit society, especially the poor, by providing better and more food and medicine. But in fact, by monopolising the 'raw' biological materials, the development of other options is deliberately blocked. Farmers therefore, become totally dependent on the corporations for seeds". Prof. Wangari Mathai of the Green Belt Movement Kenya

Developing nations are also encouraged to embrace the neo-liberal Free Trade agenda in order to continue their Aid programmes. TRIPs rhetoric is positioned as mainly about developing nations access to western pharmaceuticals as opposed to developing nations opening themselves up for unfettered bio-prospecting. For developing nations the major symbolic battle inside the TRIPs debate involves the right of these governments to meet their urgent public health needs through 'compulsory licensing' and 'parallel

importing' of medicines that are covered by patents. Current patent laws allow patents to last for twenty years. This can be construed as a human rights issue especially as it relates to HIV/AIDS.

"The issue came to a head when drug transnationals began using TRIPS aggressively to protect their patents on anti-retroviral medicines, such as AZT, against use of genetic medicines to treat HIV/AIDS." (Kelsey, 2003: p. 33) Kelsey states further in relation to 'Trips and Public Health' that "According to the World Health Organisation (WHO), Southern nations carry 90% of the world's disease burden, but only have access to 10% of the resources available for health. (ibid) Further to this, with structural adjustment and loan debt repayments, public health spending is constantly eroded by cash strapped governments making cuts to social spending.

The global question of who decides which diseases will get the research money allocated to them is critical in terms of development and health. The World Health Organisation states that many people could be saved from Malaria deaths if more research was done into new strains, however this research money is not forthcoming.

The neo-liberal dominant paradigm operating in the market driven free trade arena views the profit motive as an incentive in the production of vital pharmaceutical products. This ensures that the lucrative markets are not there for the financial returns that shareholders of multi-national drug companies would expect and therefore does not produce the drugs. There are some activists that would assert that the market for pharmaceutical companies is in selling their drugs to healthy people in the first world as supplements and preventative drugs, rather than do the work to eliminate diseases in the third world.

Whether or not democracy has anything to do with development is difficult to ascertain when considering international free trade agreements such as TRIPS. Western governments would assert that democracy is part of the 'Aid and Development' project. New Zealand certainly claims this to be true in its 'Good Governance' programmes for donor countries. How this is reconciled with the signing up to international treaties that do not need to be debated in the 'House of Representatives' due to their 'confidential' nature, merely needing Cabinet approval is interesting to try and reconcile (Kelsey, 2003: p.69).

In my view, it is the continual questioning and challenging of the validity of the dominant paradigms that drive the TRIPS agenda that are paramount to these debates. Western reductionist science and those spheres within the development agenda that it influences dominates and predetermines the discourses, thus marginalizing the dissenting viewpoints of Maori, indigenous, women, churches and all that are regarded as 'other' by the patriarchal drivers of the global industrial machine.

Having presented the above critique of western science, an analysis of the debates on Genetically Modified Organisms in New Zealand is the focus of Chapter 3. The regulatory regimes of course reflect the various political interests, and behind that, the imperatives of international agreements to which governments are bound. It is necessary to provide some background material on Genetic Modification and Genetic Engineering, as support for the statutory provisions that have been formulated, and the reasoning in respect of biotechnology that lies behind them.



### **3. Genetic Engineering**

#### **3.1 Overview of Genetic Engineering**

This chapter will briefly outline ERMA, the regulatory regime in place in Aotearoa New Zealand and the Royal Commission of Inquiry into Genetic Modification (RCGM) as a major consultation process. The sites of resistance to Genetic Engineering (GE) and the creation of Genetically Modified Organisms (GMO's) will be explored. A brief mention will be made of the Trade Related Aspects of Intellectual Property Systems (TRIPS) Agreement, which allows for the patenting and ownership of living organisms by way of proposed changes to the Patenting Laws in this country. The TRIPS agreement sets up the economic basis of biotechnology. A look at human rights', the notion of bio-ethics and the democratic processes and issues of governance regarding how the decisions are being made regarding genetic engineering will also be explored. The role of the media in relation to encouraging informed public debate will be touched on.

The Labour government is very clear in its pro GE standpoint. In seeking a free trade agreement with the USA, the lifting of the moratorium was considered by the USA as a prerequisite to any such agreement. (Kedgley, S. 2002, pers com). This stance is further reinforced by the neo-liberal proponents of GE in Aotearoa, who assert that the advent of the biotechnology industry is a necessary economic development, if we are to remain competitive and not get left behind in the global market place. Life Sciences Network in 2002 advertising stated "New Zealand is in a very good position to be the world leader in GE technology. Scientists have been studying the safety and potential of crops since the first field trials at Lincoln in 1988 but we risk losing our place in the knowledge wave by not allowing continued research. People need to be able to make choices about the food they eat, by being informed with accurate information ..." <sup>8</sup>

The construct of the Knowledge Economy is significant to biotechnology in general and GE and TRIPS specifically.

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<sup>8</sup> Quoted in Motion and "A Discourse Perspective for Critical Public Relations Research: Life Sciences Network and the Battle for 'Truth'" 2003 Research Paper discursively exploring the mythmaking around GE/GM in Aotearoa New Zealand by focussing on the Life Sciences Network and how they sought to disqualify anti-GM discourses and knowledge and sanction pro-GM knowledge .

According to Allen<sup>9</sup>, the term refers to three features that characterise the current age “and distinguish it from the earlier industrial era. First, intellectual property now makes up a greater part of industrial capital. Raw materials and machinery have given way to skills and knowledge as the primary source of sustainable long-term competitive advantage. Secondly, more research and development funding is originating in the private sector while public funding of research is dwindling. ... Thirdly, new technologies have emerged which challenge the accepted notions about intellectual property: it is clear that the invention of a new gene cannot be handled in the same way as a gearbox” (Allen, 2002: p. 365). According to Motion and Weaver, the shift from the environment to the economy was central to ensuring the public relations work could continue to push the pro-GE agenda. “The issue of GM was disarticulated from the scientific and environmental discourse domains and rearticulated as an economic discourse ...”(Motion & Weaver, 2003: p. 26).

Genetic Engineering (GE) is defined as the manipulating of genetic material in the laboratory. It includes isolating, copying, and multiplying genes, recombining genes or DNA from different species, and transferring genes from one species to another, bypassing the reproductive process. Genetic engineering draws on the notion of genetic determinism that has its historical roots in eugenics and in the view of Mae-Won Ho’s is very dangerous. The idea that genes are not affected by their environment is to present a very narrow scientific view of genetics. Dr Mae-Wan Ho defines determinism as the doctrine that all acts, choices and events are the inevitable consequence of antecedent sufficient causes. Genetic determinism is the doctrine that the organism is the inevitable consequence of its genetic makeup, or the sum of its genes and is not affected by any external conditions such as environmental or social factors. (Ho, 2002)

### **3.1.1 Aotearoa Situation Report**

Here in Aotearoa New Zealand, the general public has been involved in a very critical debate about the biotechnology industry and the alleged economic developments this will bring to our country under the guise of “The Knowledge Economy”. However, there are many people who are opposing these advances by highlighting the risks of Genetic Engineering and the recent expiry of the moratorium on the commercial release of GMO’s brought to the fore some of these areas of dissenting viewpoints.

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<sup>9</sup> Allen’s article ‘Biotechnology, Research and Intellectual Property Law, published in the Canterbury Law Review, 2002 is a broad based look at how intellectual property, biotechnology, particularly genetic engineering are intersected

Positioning Aotearoa in the global arena it is widely held that New Zealand is considered a good place to carry out GE and GM research and development work as an island nation in the South Pacific, a population that is predominantly well educated and skilled together with a reasonable standard of living and a democratic system of government. If a genetic engineering biotechnology disaster were to occur, our country is easy to quarantine and there would be minor impacts on other world players as we are totally bordered by oceans. Currently there are no commercial releases of GE crops, only controlled field trials. Attempts to maintain a zero tolerance to GE in the environment have been largely successful, however imported GE food is available in supermarkets. A labelling regime for these products has yet to be finalised.

There is 'in containment' research using human genes in animals, sheep and cattle, and we have many laboratory experiments ongoing. Despite the RCGM recommending that farm animals not be used, PPL Therapeutics have bred up a transgenic flock of approximately 3,500 sheep, with their application to ERMA allowing for 10,000. However, the clinical trials, in conjunction with Bayer pharmaceuticals, of the hAAT human Alpha Atrypsin protein failed in the UK. Given that the alleged benefits for humanity of this work was the reason the local Maori relented on their concerns, it is disturbing for all, especially the local mana whenua, that nothing has been done about the 3,500 transgenic sheep. PPL is currently trying to sell these sheep and the property in Whakamaru, central North Island. AgResearch in Ruakura have historically carried out trials using myelin and casein expression in cows milk. These experiments were not very successful and AgResearch has moved onto experimenting with human, mice, goat rabbits and deer genes in cows. This is furthering the idea that animals can be bio-reactors.

The Hazardous Substances and New Organisms Act (HSNO) passed into law in June 1996. This Act created the Environmental Risk Management Authority (ERMA) which came into being in July 1996. This government regulatory authority is responsible for classifying substances and applying controls necessary to safely manage all hazardous substances throughout their life cycle. ERMA is a quasi-judicial body of experts who make decisions on applications under the HSNO Act. The Minister for the Environment chooses the members of this Authority and funds ERMA \$4.5 million annually. These funds are intended to support 'public good' activities and the transition

phase of the HSNO Act's implementation. Prior to ERMA, a voluntary regime existed whereby research institutions already engaged in Genetic Engineering were not obliged to disclose their work to 'The Interim Assessment Group'.

"A cornerstone of the HSNO Act is the public right to be heard in regard to the notified applications under the Act. People are able to have their say and talk directly to the Authority. This brings with it the responsibility to ensure the information is relevant and of good quality." (ERMA Quick Guide no 9. March 1999). ERMA refers to all interested parties as 'Stakeholders'. ERMA is also directed under sections 6(d) and 8 of the HSNO Act to assess "the nature and significance of risks to Maori interested by particular applications" and under section (8) "taking into account the principles of the Treaty." To do this ERMA has established Nga Kaihautu Tikanga Taiao to ensure the interests and concerns of Maori are included in ERMA's decision-making processes. However this is in an advisory capacity only and the final decisions rest with the 'Authority'.

Risk management plays a major role in ERMA's decision making processes. Risk management requires high levels of trust. In ERMA's publication 'Perspectives', an article entitled 'The Three Rs' written by a researcher at the Wellington School of Medicine Summer School, Janet Gough talks of the Three R's – risk perception, risk acceptability and risk communication. Gough suggests that "Risk regulators, analysts and promoters need to promote ways of building and maintaining trust by demonstrating that risks have been fully examined and reduced to as low a level as possible. They need to show that the benefits are in the public interest and that appropriate emergency response procedures have been established and are working. ... The key message is that unless trust can be established between all parties involved it is unlikely that an enforceable solution will be reached. Trust is hard won and easily lost." (Gough, 1999)

Consumer rights, human health and food safety are campaign angles adopted by GreenPeace, GE Free New Zealand (in food and environment) and more recently MAdGE. Mothers Against genetic Engineering. MAdGE argue that they do not want their children used as human guinea pigs in an uncontrolled experiment, which they perceive GE in the human food chain to be. Article 10 of the Bill of Rights Act states that humans cannot be used for experimentation. The new 'Take 5 Campaign' kicked

off in September 2003 with a “Rug Rat or Lab Rat” poster and letter writing campaign just prior to the lifting of the moratorium on October 29 2003.

The broader question of the acceptability of GMOs from moral, ethical, cultural or spiritual standpoints is not catered for within the HSNO Act. “A decision regarding acceptability of GMOs in general would need to be made by Parliament, and implemented by an amendment to the Act” ERMA Bulletin No.4, November 1998: p.4). This has been remedied with the creation of the bio-Ethics Council and the current nationwide focus groups that are to be discussing the ethical issues surrounding biotechnology throughout 2004. However, to date ERMA has never turned down a single application.

The New Organism & Other Matters (NOOM) Bill has recently passed into Law, October 2003, allowing for the conditional release’ of Genetically Modified Organisms (GMO’s) by way of ‘field trials’. There is an application for Genetically Engineered herbicide resistant onions currently under consideration by ERMA. The applicant is a Crown Research Institute in collaboration with an unknown Trans National Corporation, whose identity remains undisclosed due to ‘commercial sensitivity.’ However activists have traced some patent applications that would indicate that the TNC in question is Monsanto.

### **3.1.2 International Situation Report**

Many other countries around the world are also engaged in a resistance struggle against GE food crops. In the UK in 1999, activists who pulled out GE crops in broad daylight got off criminal charges, citing “prevention of human harm” as their reason for carrying out the action. In India, Monsanto’s offices have been burnt to the ground, so too many GE crops. The very recent (September 2002) USAID attempts to push GE food crops onto famine stricken countries met with international condemnation as the US said “beggars can’t be choosers” when it comes to food for famine victims. This is discussed in more depth in the Links to Aid and Development section.

An early 2003 pro GM worldview news feature from C. James, Global Status of Commercialised Transgenic Crops: (Preview); [www.isaaa.org/kc](http://www.isaaa.org/kc) situates GM globally.

“Today, just four countries account for 99% of the world’s commercially grown transgenic crops. But that is changing – policies are being thrashed out, laws drawn up and seeds sown. Here we show GM is taking root. **North America.** The United States is the world’s leading GM nation, ... GM crops are everywhere, ... **Mexico** Transgenic cotton grows in Mexico’s fields and despite regulations to the contrary, it seems probable that some GM maize grows there too .... **South America** Brazil has in recent weeks approved the planting of GM soya beans for this year’s growing season .... **Africa** South Africa is the only African country with a developed commercial sector – 80% of its cotton, 20% of its maize and 11% of its soya is genetically modified. ... **Australasia** GM cotton in Australia is set to boom. ... In New Zealand, a moratorium on the commercial planting of GM crops will be lifted on 29 October. But no one expects a rush of commercial planting, ... **India** As the world’s largest cotton-growing nation, India could become a huge market for transgenic cotton. ... More generally, attitudes towards GM crops are influenced by national pride, with opposition focused on the products of foreign multinational companies, rather than home-grown technologies. ... **Asia** The Phillippines became the first Asian country to approve a transgenic version of a staple food .... China was ploughing ahead with transgenic agriculture until 2000, when its government suddenly backed away from the commercial approval of GM crops. ... Japan has made agricultural biotechnology a focus of its science budget, although GM enthusiasts are having to fight hard to overcome strong public opposition. ... **Europe** After a five-year hiatus, The European Union (EU) is expected to resume approving commercial plantings of genetically modified (GM) crops within the next few months. Ever since the last approval in October 1998, France, Italy, Denmark, Greece and Luxembourg banded together to say ‘no’ to GM crops..”

Contrast this to Steve Abel, anti-GE Campaigner for Greenpeace’s international report of January 2003. “Two countries (the United States and Argentina) account for 90% of GMO’s in the world. ... One company (Monsanto) dominates almost exclusively the market for commercial GMO’s. ... and accounted for 91% of the total area sown to GMO’s. Only three companies account for virtually all the GMO’s currently commercially grown : Monsanto (now Pharmacia), Syngenta (formerly Novartis) and Aventis CropScience (recently acquired by Bayer)” (Abel, 2003)

Labelling continues to be fought in the international arena regarding GE. USA is maintaining that labelling of GE food products is a trade barrier and that the WTO should enforce sanctions against countries who are attempting to bring about labelling regimes to protect their consumers. This battle is ongoing with the European Union being the main proponent of labelling internationally. The UK with its recent experience of BSE, Mad Cow Disease was initially strong on labelling but has more recently backed down. However it has positioned itself with the EU trading block.

### 3.2 Science for Public Good or Private Gain?

The privatisation agenda within the neo-liberal project of Free Trade positions research and development as a service. This has been applied to New Zealand Government Research Institutes and consequently the scientists. The negative affects this has had range from increased competition in a previously state-funded sector, to the questionable science resulting as scientists are eager to continue to get their private sector contracts renewed. Consequently it is asserted by some commentators that the scientists may lose some of their objectivity, and the notion of the public good gets diminished by the economic considerations of the private funders.

Capitalist expansion in the global sense sees TRIPs including the ability to patent life forms as the ultimate in commodification; by moving intellectual property rights into the domain of the environment and nature. As capitalism constantly needs new products and new markets to avoid the cycles of boom and bust, the potential cures of the diseases of the west are opening up new markets for pharmaceutical companies. Cancer, asthma, diabetes, heart disease, obesity and mental conditions are creating huge new markets for drugs.

Some activists see parallels to the industrial revolution in Europe in the late 1700's. At that time the crafts peoples' skills were taken and applied to machines to create the factories that produced these goods in mass. The seizing of the common lands saw peasants reduced to labourers, who had to trade their labour for money to buy food as the land had been taken away from them. The production of synthetic drugs from naturally derived products, emulating nature and natural processes and the subsequent patenting of these products is not dissimilar.

The Life Sciences Network is a pro GE lobby group set up in 1999, that as at September 2002 had 21 members: Agcarm, AgResearch, Arable Food Industry Council, Auckland Uniservices Ltd, Avcare, Biotenz, Crop & Food Research, Federated Farmers, Fonterra, Forest Research, Grocery Marketers Association, HortResearch, Institute of Molecular Biosciences, Malaghan Institute, Meat Industry Association, Meat NZ, NZ Biotechnology Assn, NZ Feed Manufacturers, NZ Vegetable and Potato Growers, NZ Veterinary Association, Otago University, Wools of NZ. Concerns have been raised

about conflicts of interest over membership to this organisation by some partially funded Crown Research Institutions such as Crop & Food, AgResearch, HortResearch, Forest Research and Otago University and Auckland Uniservices Ltd . Discourse analysis could this group renamed ‘The Death Corporates Network’.”

Ethical concerns have arisen regarding genetic engineering, resulting in the formation of an ethics committee. Some might argue that the fact that ethics committees exist would therefore imply that Genetic Engineering is unethical. The Government set up the Independent Biotechnology Advisory Council (IBAC) in 1996 as a public education tool and has since set up the Bioethics Council as a recommendation of the RCGM. This has recently occurred but it is simply an advisory body with no capacity to stop GE on moral, spiritual or ethical concerns, merely advise the government of these concerns.

### **3.2.1 Public Private Developments**

Internationally trends are emerging across both research and academic institutions. Here in New Zealand, Crown Research Institutes’ (CRIs) operating in a neo-liberal environment are increasingly competing for research contracts within the private sector. They are also setting up private companies as spin off businesses to the state-funded Research Institutions. Academic Institutions too, are increasingly looking for private sector funding as government funding is slowly eroded and increasingly contestable. Most New Zealand Universities now have commercial arms related to animal/genetic research. This has ramifications for the type of research that is being released and the quality of the peer review systems. As Dr Mae-Wan Ho suggests there is “good science and bad science” and the corporate capture of a once ‘neutral’ aspect of society is worrying to many, including the scientists themselves. (Ho, 2002)

Biotechnology is not science when we consider that science is theoretically about the ‘public good’ which means making advances in connected knowledge of earth’s sentient beings’ survival and value; consideration of the future of all beings; careful monitoring, scrutiny and peer review, with a duty of care, incorporating such ideas as ‘the precautionary principle’ acknowledging the concerns of the wider public and engaging in open and informed debate. Some anti-GE activists assert that a small sector of the biotech industry (Genetic Engineering makes up three percent) is masquerading as science to advance a neo-liberal free trade agenda based on corporate control of the



food chain which will ensure the continued inequitable distribution of wealth on a global scale; to advance control and ownership over life forms (TRIPS) and to validate unethical, unpredictable and untested experimentation. Further to this, with the concept of public-private partnerships, industry has captured some scientists in a bid to validate GE, control the public debate on GE by dictating who can and cannot participate in this debate and using the media to advantage as the biotechnology industry has access to and backing from corporate and government funding. Motion and s refer to this as the ‘Battle over Truth’, that is the manufacture of consent and Life Sciences Network have spent \$1.7 million trying to get their points across to the general public. However, much of this money was tax-payers, coming from the membership fees of the government owned Crown Research Institutes.

### **3.3 The Royal Commission (RCGM) into Genetically Modification**

In April 2000, the Government announced the long-awaited royal commission of inquiry. This inquiry met the 1999 election commitment from the Greens and recognises the wishes of the 92,000 people who signed a Green petition. A voluntary moratorium against the commercial release of GMO’s was put in place. The experiments with human genes in sheep and cattle were not restricted. There were some exclusions from inquiry “But We declare that you are not, under this Our Commission, to inquire into the generation of organisms or products using modern standard breeding techniques (including cloning, mutagenesis, protoplast fusions, controlled pollination, hybridisation, hybridomas and monoclonal antibodies): The Warrant of the Commission was: To receive representations upon, inquire into, investigate, and report upon the following matters: the strategic options available to New Zealand to address, now and in the future, genetic modification, genetically modified organisms, and products; and any changes considered desirable to the current legislative, regulatory, policy, or institutional arrangements for addressing, in New Zealand, genetic modification, genetically modified organisms, and products” (RCGM Warrant, 2000). It is an interesting point to note that no scientific investigation or research into genetic modification itself was required.

“Consultation and procedures: to consult with the public in a way that allows people to express clearly their views, including ethical, cultural, environmental, and scientific

perspectives, on the use, in New Zealand, of genetic modification, genetically modified organisms, and products; and to consult and engage with Maori in a manner that specifically provides for their needs; ..." (RCGM Warrant, 2000). Moana Jackson's critique of the Royal Commission of Inquiry into Genetically Modified Organisms, "An exquisite Politeness" sets up some very serious criticisms of the processes engaged in by the Crown in relation to consultation with Maori over this issue. "For what the Commission has done is use the Treaty to reduce our people to just another voice in the community that expressed "predominant" opposition to GM" (Jackson, M. 2001)

More than 10,000 written submissions from the general public were received by the closing date of 5.00pm, 1 December 2000. On July 27 2001, the Royal Commission on Genetic Modification (RCGM) delivered its recommendations to the New Zealand Government. However, despite the fact that 92% of all submissions to the commission were against GE, The Royal Commission chose to dismiss their concerns. To some, the government and the commission would appear to be acting on behalf of the proponents of GE. In the view of Chris Wheeler, "because there was such wide public opposition to GE (in various polls over the past two years a majority of New Zealanders have demanded controls over GE) and because there was such significant and vocal opposition to its employment by the NZ Green Party, Greenpeace, food safety and organics lobbies, the NZ Government HAD TO mount a cosmetic exercise which would give the APPEARANCE of proper public consultation, but would deliver a verdict comprehensively in favour of genetic engineering.(Wheeler, C. 2001)

Peter Wills describes the outcome of the RCGM as having "left established power relationships in place while the concerns of the non-expert public, whom the RCGM was supposed to serve, were set aside." (Wills, 2003: p. 6) He further asserts that the RCGM, "By being concerned mainly with rules and procedures rather than the consequences of human behaviour in the real world, the RCGM set up the islands of New Zealand to become just another country where agriculture would be gradually invaded by the products of genetic engineering." (Wills, 2003: p. 14) Rogers-Hayden and Hindmarsh in their discourse analysis of the RCGM argue that industrial society is now engaged in a crisis of perception with regard to society-technology-nature-relationships. They assert that science has become entrenched in the discourse of public life in official and government contexts and this has led to a differing in the value-positions and the differing ideologies and ethics. In relation to the RCGM, they

assert “In a short and inadequate summation, the RCGM discussed Te ao Maori – the traditional Maori worldview, the ecological worldview, and the Judaeo-Christian worldview. Moreover, the RCGM neglected to discuss its own operational worldview, the dominant one of progress and modern science and technology otherwise known as the ‘technocratic metadiscourse’ (the discourse of modernity).” (Rogers-Hayden & Hindmarsh, 2003: p. 11) They assert that the RCGM fundamentally seeks compromises and represents an incrementalist approach that does not challenge the dominant worldview and that the ‘problem’ can be managed within the boundaries of rational planning set by the ‘system’.

### **3.4 Links to TRIPS and Free Trade**

The links between TRIPS and genetic engineering centre on the historical fact that patent law did not anticipate developments in the field of biotechnology, because creating new or novel living organisms was historically considered to be outside the scope of technology. Patents are not granted to life forms as they naturally occur, it is the way in which they are changed from their original state that is patentable. Thus, genes and organisms are not patentable in their natural state and the central issue here is around the development of biotechnological ‘inventions’ (Henkels, 2002). Discussions also focus around the notion of cell lines, genetically modified or engineered organisms, DNA and the actual biological processes, being “outside” of the original life form. Getting their products to market is the idea and patenting is an integral part of both attracting the research money and ensuring corporations will financially benefit from their investments in the long term.

The impacts of a neo-liberal agenda since 1984 has seen New Zealand advance a free market model of economic governance when Labour MP Roger Douglas began his series of neo-liberal economic reforms now known as ‘Rogernomics’. This set up the ideological framework for successive New Zealand governments, both Labour and National, to essentially self-impose a structural adjustment programme comprising privatisation, competition, cuts to social services, user pays and deregulation of the economy. The sale of state assets such as railways, telecommunications and power companies was a major goal, so too large funding cuts to previously state-financed and subsidised agencies such as our science and technology research institutions, universities and other government-owned and funded institutions. The imposition of

business models on these types of institutions forced them out into the private sector, competing for funds and research dollars to ensure their survival in the new deregulated environment. Many Crown Research Institutions have since closed down or been brought outright by private corporations as is the case of the 75 year old Dairy Research Institute (DRI) purchased by the private dairy company Fonterra in April 2002.

Positioned against this backdrop the Trans National Corporations (TNCs) have moved into New Zealand pushing their biotechnology agenda of genetic engineering. The western reductionist scientific worldview is the discourse of 'Science' in the west. The epistemological basis of this form of science encapsulates the notion that in order to control, understand and know about things we must reduce them to their tiniest pieces. It is a process of mechanisation, fragmentation, dissection and separation. This discursive analysis and worldview advances gene technology by way of genetic engineering and the creation of genetically modified organisms, gene therapy in humans and now the production of nutraceutical and pharmaceutical products that contain proteins that are allegedly beneficial to humans, generated or expressed through other animals, insects or food crops.

### **3.5 Links to Animal use in the West**

Save Animals from Exploitation (SAFE) has taken an interest in GE from an animal welfare standpoint. AVA, the newly formed Anti-Vivisection Association, is opposed fundamentally to the use of animals in research. Under ERMA the Ministry of Agriculture and Forestry (MAF) is responsible for the welfare of these Genetically Modified animals. As recently as January 2002, NAWAC the National Animal Welfare Advisory Committee had to develop new guidelines for GM animals used in research.

The Society for the Prevention of Cruelty to Animals (SPCA) is involved with enforcement of animal welfare codes and is maintaining a watching brief on the associated animal welfare issues, particularly regarding mammalian cloning and xenotransplantation.

Animal Rights groups are looking at the individuals involved in the GE Projects and educating the public on the overlaps of animal research and testing into the GE experimentation being carried out on animals. These people are also advocating that

other GE-Free groups do not advocate for testing on animals of GE foodstuffs as a way 'to prove safety for human consumption'. At present the notion of substantial equivalence, granted by the Food & Drug Administration (FDA) in the USA has meant that animal testing is not required. The animal experiments (testing food containing GMO's) carried out to date are documented in the next chapter.

From a discourse analysis standpoint, it is the arguments that the scientific community uses that are questionable. Once again the cures for awful human conditions are heralded as forthcoming from Genetic engineering. Cystic fibrosis, multiple sclerosis, and cancer are the main diseases targeted in the promotional material of the proponents of Genetic Engineering. MAgDE, Mother's Against Genetic Engineering, managed to get AgResearch to state under oath in the High Court, that the work they intended to carry out at Ruakura would have no direct benefit to people with multiple sclerosis. However, ERMA continues to assert this in its literature.

The scientific community is engaged in emotional blackmail, just as they do for animal research. Dr Mae-Wan Ho states that approximately 5% of cancers in human have a genetic predisposition, yet 95% of the research money for cancer is now going to GE research. Cancer Society literature, in answer to the question "Where does Cancer come from?" states that Cancer starts in our genes. (Cancer Society, 2001). This genetic determinist approach negates other causal factors such as the environment, or and social factors such as stress. As a result cancer research and the associated funding is currently dominated by gene research.

The issue of mammals with human genes is of major concern here. New Zealand was chosen by Pharmaceutical Proteins Limited (PPL) to carry out their work as we are Scrapie, Foot and Mouth and BSE Bovine Spongiforma Encephalytus free. Overseas companies like PPL are also able to purchase land in New Zealand. "New Zealand is extremely attractive to overseas investors as it has an internationally recognised science capability, has relatively low costs of research, and is free of unwanted disease such as BSE and foot and mouth. (Steele, K. 2001) PPL have set up a joint venture with Celentis, a New Zealand Government Research company based at four Government Research Institutions: Ruakura in Hamilton, Grasslands in Palmerston North, Wallaceville in Upper Hutt and at Invermay in Dunedin. This joint venture will see Celentis funding "research on the first three products .... Beyond that, the cost will be

split equally between the two partners” (Source: <http://www.guardian.co.uk/business/story> 15 December 2000)

Specific Maori concerns have been raised about the offal pits where carcasses are disposed off. Horizontal Gene Transfer is now accepted by the scientific community as a reality and a risk and the idea of lining these offal pits with an impervious material has been suggested as a way past this obstacle. The human genes that are to be inserted into the cows are also of concern to Maori. AgResearch has cited that the Human genetic material will be sourced from USA to allay Maori concerns. This of course is not satisfactory to Maori at all. This application was approved with controls on October 1 2002. One of the controls is that the Human DNA material must be sourced from overseas gene banks. (ERMA, 2002)

Oncomouse is a clear link between animal research and genetic engineering, having been genetically engineered with the ‘oncogene’ as an animal model for both animal research into cancer in humans and for testing substances for cancer causing properties in humans. Another genetically engineered mouse, ‘Upjohn’s Hairless Mouse’ was created as a model to test hair restorative products and wool production techniques. (Rowland & Scarlett, 2003)

### **3.6 The sites of resistance to Genetic Engineering in Aotearoa/New Zealand**

Further to the political resistance coming also from the Alliance and the Green Party of Aotearoa New Zealand, there are many grass-roots groups, non-government organisations (NGO’s) and members of civil society who are working in opposition to these biotech advances. There are many issues that are being worked on from public liability, environmental contamination, safe food, human health, animal welfare, scientific accountability, The Treaty of Waitangi and GE, ethics, through to globalisation, free trade and intellectual property rights.

Contrasting discourse analysis by third world feminists such as Vandana Shiva positions biotechnology as extremely dangerous in our globalised world, a third wave of colonisation seeking out the interior spaces of women, plants and animals. (Shiva, 1997) In Aotearoa, the Maori worldview also positions the advances of genetic engineering as a form of neo-colonialism. In the opinion of Nga Wahine Tiaki o te Ao, in their

submission to the Royal Commission of Inquiry, “the only people who will be advantaged by the use of GM technology are trans-national and multi-national companies looking to exploit Aotearoa for their own profit” (Nga Wahine Tiaki o te Ao, 2001). The moving of genes across the species barrier is considered abhorrent to Maori spiritual, cultural, ethical and moral belief systems. Jessica Hutchings, in her article *Molecular Kaitiakitanga*, cites many areas of concern for Maoridom regarding the genetic modification of life forms. They relate to wairua (spirit), mauri (lifeforce) Kaitiakitanga (guardianship) and whakapapa (genealogy).

Some Christians perceive that the biotechnology industry is in fact attempting to ‘Play God’. The idea of crossing the species barrier from a genetic manipulation standpoint runs counter to the Christian beliefs and values systems. The Interfaith Commission, in their submission to the Royal Commission of Inquiry highlighted several concerns, of which “The fear that as a result of manipulating the human genome we may come to see ourselves as commodities able to be manufactured to requirements rather than unique beings whose creation involves a certain mystery; The knowledge that we are co-dependent and bound together not only with other members of the human race but with other organisms in the biosphere; The recognition that self-interest is a driving force in much of what we do, including in the use of GM, this includes the human propensity to do what is less than good for reasons which the church has called sin” (Interfaith Commission, 2001). The United Future Party, based on Christian values states “There are many ... serious ethical, moral and spiritual concerns regarding [GE] the subject. As a party we have indicated that we wish to proceed with the utmost caution ...” (Baldock, L. 2002)

Jewish concerns about Genetically Modified food surround their very strict food regimes. The New Zealand Jewish Community (NZJC) in their submission to the RCI stated that “Judaism includes a moral and ethical code of beliefs with a unique set of laws and cultural customs, which Jews have practised for 4000 years. Of specific note are the rules and guidelines for the handling and treatment of animals and the handling and eating of foods and medicines. Following *kashrut* (Jewish dietary laws) is central to observant Judaism.” (NZJC, 2001)

Maori Resistance to Genetic Engineering has led to the situation where some Maori have declared war on Genetic Engineering. Biotechnology is seen as a neo-colonial

project in their view and threatens their very existence. “The debate regarding GM raises not only the issues of protecting the mauri (life force) by the kaitiaki (guardians) but also the issues of globalisation, free trade, intellectual property rights and the plundering of our global commons of which we are all kaitiaki. If we as Maori are to reject GM then we must make the connection and strongly reject globalisation and free trade on the Maori lands of New Zealand: biotechnology is a new global wave of colonisation”(Hutchins, 2001).

The scientific community is beginning to divide on this issue. Internationally, Physicians and Scientists for Responsible Application of Science & Technology (PSRAST), “is a global scientific organization without any political, ideological or commercial ties. Our purpose is to assess the safety of new technologies in an impartial and objective way. We find our mission important as a considerable part of scientists today in applied research fields are dependent on or benefit importantly from industrial interests. This includes scientists in biotechnology and related fields like molecular biology, genetics and agriculture. This dependence is making it difficult or risky for them to express a fully impartial and unbiased opinion. ... We find that commercial application today of genetic engineering for production of foods as well as for other purposes cannot be scientifically justified and carries with it unpredictable and potentially serious consequences. This includes plants, trees, bacteria, insects and animals. The knowledge about DNA is very incomplete. Therefore it is impossible to predict the consequences of genetic engineering. The artificial insertion of a set of genetic material into DNA, as done in GE, represents a profound intervention that may interfere with many different aspects of cellular functioning. It cannot be excluded that this intervention may cause harmful complications in ways that cannot presently be imagined”. Source (<http://www.psrast.org/intropage.htm>).

Here in Aotearoa we have Physicians and Scientists for Responsible Genetics (PSRG) who define “Biotechnology as the techniques of genetic engineering” as “one of the fastest growing industries in the world. By changing genetic make-up and moving genes between species it is changing the shape of our world. It is a heavily contested area, dominated by Northern corporations and governments who want to gain a foothold in a profitable industry. This is often at the expense of the third world peoples and their environments. The rich world has plundered the poor one for its genetic resources and turned them into profit. The people and countries from which these materials come see



few of the benefits - or cash - derived from their use.” (source <http://www.psrg.org.nz/index.htm>) PSRG “support organic, sustainable agriculture as the preferred path for New Zealand. This group follows countries such as Denmark in not only seeing the trade advantages, but as a protection of New Zealand’s biodiversity. Biotechnology goes hand in hand with intensive monoculture, using single crops grown in huge fields. Biotechnology will reduce the world’s - and New Zealand’s - biodiversity by promoting certain species above others. At present, of the world’s 220 000 plant species, only 150 are grown commercially and just 20 provide over 90% of our world’s dietary needs. We are already massively over-dependent on a fraction of the world’s available species. Genetically engineered and trans-nationally controlled seeds will reduce this active stock even further.”

As recently as May 2003, the launch of the International Science Panel in the UK is another attempt by the scientific community to counter the Genetic Modification of Science itself “The concerted campaign to suppress and misinform over GM science continues. Will the scientific establishment dare to debate the scientific evidence in public, in terms that the public can understand?” Dr Mae Wan Ho writes: “Many are prominent scientists of international repute, with a string of peer reviewed scientific publications to their name. They span the relevant disciplines .... this amounts to open scientific rebellion, possibly unprecedented in history.” (Drace, 2003: p. 238)

In Aotearoa, the notion of democracy has come under question with the expiry of the moratorium. Huge demonstrations were held simultaneously in all the major cities leading up to the expiration date. According to polls, and there were many, 68% of the population wanted the moratorium extended. Despite this clear and visible majority in a Westminster system of parliamentary governance, the moratorium was lifted. On the 28<sup>th</sup> of October 2003, the ‘People’s Moratorium’ was launched and a sister group the People’s Moratorium Enforcement Agency has begun running non violent direct action workshops to teach people how to pull-up genetically engineered crops.

### 3.7 Links to Aid & Development

Proponents of GE use starving people as a justification using “GE will feed the world” and “GE crops will result in the use of less herbicides and pesticides” as the two main arguments for GE that we repeatedly hear. However, both these arguments have come under heavy attack.

“GE won’t feed the world - The United Nations Food and Agricultural Organisation says we are already producing one and a half times the amount of food needed in the world to provide everyone with an adequate and nutritious diet yet one in seven people is suffering from hunger. Poverty exists because of economic and political structures that work against equal distribution of food and resources. GE cannot solve these problems. Commercial interests drive the biotechnology industry rather than alleviate hunger, GE will very likely exacerbate it because farmers have to purchase seeds and supplies every year from GE companies to grow their crop” (GreenPeace, 2002).

The advent of genetic engineering in relation to animal research, the notion of development, and the neo-liberal free trade agenda, brings to our shores as a developing nation a form of development that Goulet defines “As attendant social, cultural, ecological and human costs become more evident, however, it is increasingly viewed as a two-edged sword, simultaneously creating and destroying values. It brings material and technological gains and new freedoms, but also breeds injustice, destroys cultures, damages environments and generalises *anomie*.” (Goulet, 1992: p. 467). The project of genetic engineering is also discussed in relation to the TRIPS agenda, within the globalisation agenda of intellectual property rights, extending to life forms.

Western reductionist science as the dominant paradigm, does not critique itself. However there are a few dissenting voices emerging and global groupings of scientist challenging the corporate control of science. The positioning of western science as superior to all other knowledge systems is considered a form of cultural imperialism. Their ‘unfettered right of discovery’ is considered extremely problematic expressly in opposition to indigenous peoples rights to protect their biodiversity, traditional knowledge and cultural practices. (Hutchings, 2001) There is a large growing body of international scientists and physicians, from both the ‘North’ and the ‘South’ who are critical of a science that is so invasive and blatantly profit driven as opposed to pursuing

the notion of 'the public good'. "In the Ngati Kahungunu submission [to the Royal Commission of Inquiry] it was argued that a Maori intellectual approach that saw little need for GM did not suggest Western science is inherently bad, but rather as Mae-Wan Ho recognises "there can be bad science that ill-serves humanity" (Jackson, M. 2001). Hugh Campbell asserts that "In a form of *laissez-faire* development, private industry has become the driving force of GM development. The contribution of state funded science or science operating in the public good is pitiful compared to the enormous research programmes funded by industry on a global scale and the direct benefits accruing to industry from these technologies." (Campbell, 2000, p.38)

Parallels can be drawn to the Green Revolution in as much as scientifically derived practices of GE are being positioned as superior to the traditional systems of agriculture. The same increased yields are promised, however in regard to inputs such as herbicides and pesticides, the Agri-Chemical Trans National Corporations (TNCs) are advocating that the farmers will require less of these. The need to purchase the seeds off the TNCs is the same. However saving seed for the next years' crop and the ability of the Agri-Chemical countries to trace GM markers is a difference and therefore getting caught seed saving is a very real fear and the penalties are punitive for peasant farmers in countries like India where their profit margins are not very large.

The corporate project that the proponents of genetic engineering, who blatantly seek control of the world's major food staples, in my view, really do discursively present as neo-colonial attempts at colonizing the interior, the new western scientific frontiers of humans, animals and plants.

## Chapter 4. Uses of Animals in the West

**“A day will come when the world will look upon today’s  
vivisection in the name of science the way  
we look upon the witch hunts in the name of religion.”**

Henry J. Bigelow<sup>10</sup>

The ability to treat animals in a myriad of ways, without regard for them as sentient creatures with rights, in my view, underpins many of the cultural values, or lack thereof, that provide the bedrock for the continued use and abuse of animals. The scientific community, commercial protein producers and the like that operate within a capitalist framework in western industrialised nations are considered. This chapter seeks to illustrate, inform and discursively place these activities into the broader framework of this thesis that considers genetic engineering and ownership of life forms as normal activities to be carried out on non-human animals.

### 4.1 Overview of Animal Research, Testing and Farming.

Animals are used for a myriad of purposes in the West. Animal research and testing are referred to as ‘Vivisection’, the use of live animals in experiments, falling into three main categories. A varying degree of ‘suffering’ is experienced during the course of the experimentation. Animal testing refers to the use of animal models to ascertain the toxicity of drugs and substances and general efficacy of cosmetics, drugs and chemicals destined for use or consumption by humans. Animal research is the attempt to recreate human diseases in animals in order to study it. The third area is the use of animals in education and training, beginning in high schools through to Universities. Farming of animals is commonplace worldwide. The development of intensive factory farming is becoming more widespread globally.

#### 4.1 1 Aotearoa/New Zealand Animal uses situation report

Animal Research is funded by the Government through VOTE Research, Science and Technology, together with private research contracts and public donations as their primary sources of money. The Royal Society of New Zealand is a major proponent of

such research. It is a quasi governmental organization that umbrellas major scientific institutions and individual scientists. It is responsible for administering some government research grants. “In the seventeenth century the Royal Society [UK] required confirmation of any remarkable finding by qualified members before it could be recorded as fact.” (Allen, 2002: p. 381) Aotearoa has a special historical link to the British Royal Society. They partially funded Captain Cook’s first voyage of ‘discovery’ in order that the transit of Venus could be observed in Tahiti. (Smith, 1999)

Commercial interests in animal research and testing regimes rests in the fact it is a lucrative industry. Research takes a long time so funding is required for long periods of time. The incidence of the diseases that attract the most research dollars are increasing: Cancer, HIV/Aids, Diabetes, Heart conditions to name just a few. Charitable Trusts have become commonplace to solicit funds from the general public. The Cancer Society, the Heart Foundation, the Malaghan Institute and the newer CANTEEN (for Teenagers with Cancer) are now household names, all holding regular Street Appeals to attract public money. The government’s Lotteries Commission for community projects also has \$2 million available annually as contestable funds for Science and Research.

Every year over 260,000 animals are used for research in New Zealand. Half are killed, and many thousands are subjected to severe or very severe suffering. “Most animal research is aimed at increasing the profits of the meat and dairy industries. 35 percent of the animals used in 2002 were used by commercial researchers, 35 percent were used by government departments and Crown Research Institutes. The remaining 30 percent were used in experiments at Universities. Only 11.5 percent were used in medical research.” (CAV, 2003: p. 4)<sup>11</sup>, where there is an alleged ‘benefit’ for humans. This scientific inquiry is referred to as animal research, where animals models are used to develop human treatments. Dogs are commonly used for heart research, transgenic mice for cancer research and there are others. This ‘research’ is carried out in Medical Schools, Universities and in several private commercial institutions.

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<sup>10</sup> Formerly Professor of Physiology, Harvard University. Quoted in the foreword of *Slaughter of the Innocent* by Hans Reusch

<sup>11</sup> CAV – Coalition Against Vivisection report “Lifting the veil of secrecy on live animal experiments’ August 2003, produced by SAFE, Save Animals from Exploitation, ARA Animal Rights Alliance, NAVC, National Anti Vivisection Coalition and ARLAN, Animal Rights Legal Advocacy Network is a useful situation report on the state of Vivisection in Aotearoa New Zealand.

The remaining animal research carried out in Aotearoa is based around animals in primary production. This 'research' is mostly carried out by 'AgResearch' and the Meat Research Industry (MRI) in Crown Research Institute (CRI) facilities. It is aimed at increasing the profits of factory farming and other primary production farming industries. The CRIs form a nationwide network of research centres comprising Ruakura, Wallaceville, Lincoln, Massey University and Invermay. They are tax-payer funded and are becoming increasingly commercial as funding constraints force them to compete for commercial contracts. A number of specific commercial relationships exist such as the Massey University Cat and Dog Food animal testing laboratory, a partnership with the pet food company 'Whiskas'. The breeding of animals for use by laboratories is also a source of revenue for institutions. Massey University has a cat-breeding unit. The discourse of the animal researchers includes the notion of 'The Three R's' – meaning; Reduce the numbers of animals used; Refine the techniques (i.e. reduced suffering); and Replace with alternatives (such as computer modelling). The Three R's are promoted by the animal research community as the friendly, acceptable and co-optable way of appearing to oppose their work. This is similar to the environment destroying companies who appear to be green, referred to as 'greenwash'. The animal researchers all promote the Three R's and say that they support it, but that is because the policy is designed to be totally ineffective. Therefore the Three Rs policy doesn't have any effect in achieving the stated aims. "Australia New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART) notes that the number of animals used will not necessarily fall. It says the ethical application of the three R's is "the use of the appropriate number of animals to achieve meaningful results. This may, or may not, involve a decrease in animal numbers. Indeed, in certain circumstances, more animals may be needed.'" (Bone, 2002)

Challenges to the value of and the commitment to the Three R's, from Sue Kedgley, spokesperson for Animal Welfare from the Green Party, do however, seem to be having some effect. She has also challenged the secrecy aspect of animal research in Aotearoa and is generally critical of the dismal animal welfare practices within the research institutions themselves. Sue Kedgley, together with other Animal Welfare and Animal Rights groups are beginning to gain agency in tackling these problems. Dialogue with the main regulatory authority, ANZCCART, the Australia New Zealand Council for the Care of Animals in Research and Training, is at least getting these challenges through to the vivisectioners themselves. In an article by Simon Collins in the Auckland Herald 29<sup>th</sup>

January 2004 “Scientists say they are willing to disclose some animal experiments to try to win over public opinion. They told MP’s in a pre-Christmas meeting that they were willing to; Publish a plain language summary of all research projects approved by animal ethics committees; Publish more detail on the types of animal experiments that cause specific degrees of animal suffering; Consider having animal ethics committees chaired by independent lay people” (Collins, 2004).

#### **4.1.2 International Situation Report**

Use of animals for animal research is carried out predominantly in the west. The uses are growing and many commentators attribute this to experimentation around various GE techniques, mammalian cloning and xenotransplantation. There is a commonly held view that cloning has serious implications from a animal welfare standpoint. Malaghan Institute in Wellington uses imported genetically engineered mice from overseas for cancer research. These mice have a genetic predisposition to a particular cancer. These genetically engineered and patented mice are referred to as Oncomouse. These mice are used to test both toxicity of carcinogenic substances and cures for cancer.

Mammalian cloning has been going on for more than 30 years in New Zealand whereby Lincoln University was carrying out experiments in the 1970’s. This is now being linked with genetic engineering to not only exactly reproduce by cloning, but enable genetic modification of mammals as well. Dolly the sheep, created by the Roslin Institute in Scotland is an example of this cloning work. Here in Aotearoa New Zealand, AgResearch in Ruakura is furthering this type of work inserting human, deer, goat, pig and mice genes into cows. The more recent animal research of Xenotransplantation, involves organs being transplanted across mammalian species barriers. The most notable example of this type of work is Novartis’s attempts to transplant pigs organs (heart and livers) into baboons. This work was carried out in the UK and the results have been disappointing for them. Many animal welfare groups have exposed the levels of animal suffering to the wider public.

## 4.2 Sites of resistance to Animal Research and Testing

There are two main arguments used by the groups, organisations and individuals who are working to abolish animal research. The first set of arguments is based around the ethics of subjecting non-human animals to pain, trauma and mutilation, and also on the animal welfare aspects of this work. The notion of science frames the second set of arguments. It is alleged that animal research is fraudulent science due to the erroneous premise of using animals to prove anything of use to humans, either as medical models or as valid testing regimes.

### 4.2.1 Ethical Arguments

The ethical arguments centre on animals as fellow non-human animals: as sentient, feeling beings with a central nervous system enabling them to feel pain and suffer just as humans do. Some Animal Rights activists argue that further to this, animals have the right not to be property, not to be owned, factory farmed, genetically engineered or patented. Those working with primates are working on an international set of rights for primates based on the fact that gorilla's can communicate with humans using sign language. (Masson, 1994) Other animal rights activists argue that allowing humans certain sets of behaviours towards non-human animals to be condoned in a society actually enables harsher inter-human treatment. Some peace activists take this reasoning further into the study of violent criminals and war situations where they argue that the ability to perceive other humans as 'animals' and thus accord them a different set of rights assists in inflicting violence, such as killing and torturing against other humans. (Tibet Torture Victims, pers coms 1989)

	Animal Rights	Animal Welfare	Anti-specieism	Anti-vivisection / Ethical
<b>Arguments</b>	That animals have rights That animals are sentient beings That animals have a right to be GE Free	Ethical concerns re animal welfare That animals are sentient beings That animals should be able to display normal behaviours	That humans do not have power over non-human animals That humans should not own non-human animals	That animals should not be subjected to cruel and inhumane practices
<b>Organisations</b>	Animal Action NAVC ARLAN	Animal Action SPCA SAFE	Animal Action NAVC	ARLAN NZAVS NAVC



From Marjorie Spiegel's 'The Dreaded Comparison: Human and Animal Slavery'.<sup>12</sup>, she compares this notion quite specifically regarding vivisection in the following quotes: "They administered beating to dogs with perfect indifference, and made fun of those who pitied the creatures as if they felt pain. They said the animals were clocks; that the cries they emitted when struck, were only the noise of a little string that had been touched, but that the whole body was without feeling. They nailed poor animals up on boards by their four paws to vivisect them and see the circulation of the blood which was a great subject of controversy. Nicholas Fontaine, *Memoires pour servir a l'histoire de Port-Royal*, 1738. And "Negroes ... are void of sensibility to a surprising degree. They are not subject to nervous diseases. They sleep sound in every disease, nor does any mental disturbance ever keep them awake. They bear chirurgical operations much better than white people, and what would be the cause of unsupportable pain to a white man, a Negro would almost disregard. – Dr Mosely, *Treatise on Tropical Diseases*, 1787.

Marjorie Spiegel defines Speciesism (1. a belief that different species of animals are significantly different from one another in their capacities to feel pleasure and pain and live an autonomous existence, usually involving the ideas that one's own species has the right to rule and use others. (2. a policy of enforcing such asserted right. (3. a system of government and society based upon it. – *spe cies ist*, n., adj

Using humans for experimentation is no longer legal in most countries except for the UK and Holland. America used black people for syphilis studies funded by the U.S. Public Health Service in the 1930's (Speigel, 1996: p. 70). The Doctors in the Nazi death camp Auschwitz carried out medical research and experiments on their captives. (Daly, 1979: p. 302) United Nations Declarations on Human Rights, specifically the optional protocol on Civil and Political Rights, specifically excludes humans from scientific experimentation. In New Zealand, this has been enshrined in domestic law through the Bill of Rights, Article 10.

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<sup>12</sup> In *The Dreaded Comparison*, Marjorie Spiegel explores many aspects of slavery and directly compares them to the enslavement of animals.

#### 4.2.2 Scientific Arguments

The results of animal experiments cannot be extrapolated to humans, ‘animal experimentation invariably leads to human experimentation’ are the negative side effects to humans of animal testing and research. Anti-vivisectionists argue that animal testing is simply an alibi used by the pharmaceutical companies to overcome issues surrounding liability when their drugs cause adverse side effects in humans that were not found through the animal testing regimes. (Fano, 1998) Another argument that flows on from the invalid model is that animal testing invariably leads to human testing. This is because the animal model proves nothing, therefore once a drug or substance reaches the clinical trial phase, it is in effect being tested on humans. The numbers of drugs that are recalled once released continues to grow annually, so too the side effects and numbers of deaths. “In 2001 it was revealed that of 10 medications recently withdrawn from the US market, eight had serious side effects – primarily in women. Men tolerated the medication but women died. If a man cannot predict what a drug will do to a woman, how on earth can we expect a monkey or a mouse to predict it?” (Greek, 2003: p.3)

Dissenting views among the scientists themselves also exist and have for some time now. These are based around the scientific argument of ‘extrapolation’ of the validity of the results of animal testing when applied to human beings. Similar dissent now exists around the use of animal models for research that will ultimately need to be carried out on humans. Not only do they run the risk of producing misleading results, in the case of adverse effects in animals, remedies that may well be fine for humans get thrown out during early animals trials. The contradictory nature of how humans use these animals is illogical. The blurring of the lines between the ethical and scientific arguments illustrates this. Some claim that the use of animals in medical experiments and product testing is a logical contradiction; as we deem it acceptable to subject animals to painful experiments we would not inflict on humans because the animals are not like us, but we consider such procedures scientifically valid because they are like us.

The majority of the western reductionist scientists, from within the dominant hegemony of their position, do not see any problems with the way they operate. Any attempts by their kind to expose the scientific fraud are met with huge opposition, ridicule and exclusion. The experience of Putzai and his rats is discussed in Jeffrey Smith’s recent book *Hard To Swallow*. This work clearly illustrates the way in which this industry

protects themselves and each other (Smith, 2003). The issue of security based on fear of the supposed violent ALF Animal Liberation Front, an anonymous non-violent organisation that liberates laboratory animals (mainly in the UK, Europe and USA), fuels the regulatory authorities claims that their work needs to be kept secret.

The idea that we ‘sacrifice’ these animals to the altar of higher learning, human advancement and potential of finding cures to incurable diseases has obvious Christian roots. This sense of ‘doing good’ for humanity has been used to convince other cultures of the necessity of this type of work. It is also informing GE discussions with dissenting peoples. For example, Maori have been moved to accept the idea that animal experimentation and more recently, genetic engineering, is beneficial to humankind and should therefore be allowed to proceed.

#### 4.3 Links to Genetic Engineering

Animal testing of genetically modified organisms has been carried out. The following table shows these tests. All this data is from Jeffrey M. Smith’s 2003 book ‘Hard to Swallow: The Dangers of GE food – an International Expose’.

Year	Author	GMO	Animal	Results
1980’s	Micheal Hanson 2000	Horizontal Gene Transfer (HGT) of DNA	Mice	DNA travelled via placenta into unborn mice
2002	John Vidal 2002	HGT of DNA	Humans	DNA survived the passage through the small intestine
2002	Pusztai	CaMV Viral Promoter	Rats	Stomach lesions and thickened intestine walls
1985	Monsanto	rgBH recombinant growth Bovine Hormone	Rats	28 day trial proved safety
1990	Monsanto	rgBh	Rats	90 day trial – rats injected showed significant changes, those fed did not. This proved that the hormone was safe to eat
1990’s	Calgene	FlavrSavr Tomato FDA approval given 1994	Rats (three feeding studies)	Seven out of 40 females rats had stomach lesions Seven out of 40 rats died within two weeks
2000	Joe Cummins	Cry1Ac Bt Toxin	Mice (three feeding studies)	Bt toxins triggered an antibody response and boosts immune response
1996	BBC News 2002	T-25 Maize (corn) Approved in 1996	Chickens	Twice as many chickens died when fed the GM maize
1999	Cornwall University	Bt corn pollen	Monarch butterfly caterpillars	44% of the caterpillars died. None of those exposed to non-GM pollen died.

**Table 2: Animal research into effects of GMO’s**

Note: “A report by the Washington Post revealed that in 1975, while investigating the safety of PCBs, Monsanto’s “company study found that PCBs caused tumours in rats. They ordered its conclusion changed from ‘slightly tumorigenic’ to ‘does not appear to be carcinogenic.’” (Smith, 2003: p. 147)

Other use of animals for GE purposes centres on the notion that we can use animals, especially milk-expressing mammalian ones, like sheep and cattle to express other genetic material, proteins or even spider’s silk in their milk. They refer to these animals as bio-reactors. The idea that we can genetically engineer animals to produce organs that may be of use to humans is also within this scientific project. Both these uses of animals further diminish their rights as their use to humans is paramount.

A discursive framework to discuss these issues is useful as much contradictory information is used by the animal research industry. Use of emotional blackmail regarding the supposed ‘choices’ that humanity faces when doing research into terminal diseases such as Cancer is found in the “your baby or the rat” comments. Therefore the issue is contested on an emotional level in the public domain. Any criticism of animal research from a scientific standpoint is quickly manipulated to be ‘animal rights nutters, the ALF, or people who have no idea of the real scientific issues’. Here a parallel can be drawn to the invalidating and marginalising critiques of opponents to genetic engineering by members of the pro-GE scientific community. Many like Dr. Deborah Goldsmith, in her article *Animal Experimentation and Human Medicine* assert that the issues are deliberately being confused. “Vivisection is a human health issue. It is not an “animal-rights” issue. Vivisection must be abolished because of the harm it does to people. ... vivisectors make the public believe there are no scientific challenges to vivisection.”(Goldsmith, 1995: p. 16)

#### **4.4 Links to TRIP’s and Free Trade**

The neo-liberal economic project sees all facets of animal research within the frame of ‘Research and Development’ in the biotechnology field. The capitalist industrial project enabling the ability to patent and own processes and products created using living organisms is heralded as necessary to ensure technological innovation and the economic success of research and development in the scientific arena. This is deemed necessary for economic growth and is constructed as good commerce.

Opponents argue that animal testing serves as an alibi to allow transnationals, particularly pharmaceutical companies a legal avenue for escaping liability when drugs tested on animals have adverse effects on humans. This is widely documented by Alix Fano, Hans Reusch, Bette Overell and other researchers who have written extensively on this subject. The classic case is Thalidomide. "After the human damage caused by Thalidomide could no longer be concealed [more than 10,000 birth defects in the United Kingdom] Thalidomide's manufacturer, the West German company Chemie Grunenthal, was put on trial. It resulted in a two and one-half year criminal trial, the longest in German history. ... The basis of their sworn testimonies was that generally accepted animal tests could never accurately predict human reactions to drugs. Incredibly, Chemie Grunenthal was found not guilty and was not held liable for any damages."(Goldsmith, 1995: p.15)

Another critique of the regulatory authority links to corporations, who benefit from the current regime, is referred to as the revolving door syndrome. This too, is well documented and widely known. Discursive framing also enables the links to media to be illustrated. The proponents of animal testing regimes, mainly the large pharmaceutical companies, advertise using vast amounts of money and threaten to withdraw their budgets if the opposing views get anywhere near the mainstream media. The regulatory authorities condoning these regimes stem primarily from the FDA in the USA and have managed to infiltrate all the way to the OECD. They now permeate the multi-lateral and bi-lateral free trade arena. Alix Fano states "because of its enormous political and economic power, the United States has the ability to shape research agendas, not only in developing countries, but in industrialised Europe and Asia; it does this through organisations in which it is a major participant and financial supporter, such as the Organisation for Economic Cooperation (OECD), the United Nations which includes the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the World Health Organisation (WHO), and the International Agency for the Research on Cancer (IARC), and the USA's own National Institute for Environmental Health Sciences (NIEHS) which funds one third of all toxicology studies worldwide." (Fano, 1997: p. viii).

Many people around the world, including Indigenous peoples, don't know that this animal experimentation exists, due to the secrecy and have far more pressing social justice and basic survival issues to engage with. All too often this issue gets sidelined and presented in the media as animal rights versus human rights arguments, as opposed to scientific arguments. However, indigenous peoples' recent exposure to the western scientific and medical community through the Human Genome Diversity Project (HGDP) has caused them to question the validity of western scientific inquiry. "Tow years ago, the Human Genome Diversity Project, which aimed to compare DNA from dozens of indigenous peoples around the world, collapsed after political activists accused scientists of exploiting vulnerable populations" (The Times, 2003)

#### **4.5 Links to Aid and Development**

One of the main assertions of animal based researchers vivisectors is that through their 'good work' they claim to have eradicated diseases such as cholera and typhus in the developed world. However, critics argue that it was the introduction of sanitary measures like sewerage systems and hot running water that actually brought about the decline in these diseases. Many activists in developing nations assert that through the provision of similar sanitary infrastructure they would also enjoy a huge reduction in the incidence of these same diseases. (Hardoy and Satterthwaite, 1989). In relation to cholera "the best way to control the disease is by improving water supplies and sanitation. This is how it was eradicated in most developing countries before a vaccine was available." (New Scientist, May 20, 1982, quoted in Overell, 1996: p. 72)

Dumping of pharmaceuticals on the third world is a reasonably common occurrence, often included in disaster relief packages. These pharmaceuticals have been banned in the first world, usually because of unforeseen adverse side-effects. According to Goldsmith "Pharmaceuticals are often sold in Second-and Third-World nations after being banned in their country of origin. Having poorer record keeping and haphazard distribution of pharmaceuticals, many being sold over the counter – the deaths and other problems often go unrecorded in those nations." (Goldsmith, 1995: p. 5) Depo-provera is an example whereby third world women were actually used to trial this contraceptive drug prior to release in the first world. Depo-provera was illegal in the US until 1992, with restricted use in Sweden, UK and Germany. This fits with the assertion that animal testing invariably leads to human testing, given that you cannot extrapolate the

results, therefore it is in the clinical trial phase that any real testing of a drug is actually done. According to Bette Overelle, the Tuberculosis (TB) vaccine BCG, tested on guinea pigs in laboratories, and on humans in India by the World Health Organisation (WHO), results published in New Scientist November 1979, caused more cases of TB in the trial group than occurred in the placebo control group. (Overell, 1993: p. 93)

A more recent example is that of Diatranz. In 2002, Diatranz, a New Zealand diabetes insulin producer attempting to trial in humans a new genetically engineered version of Pig Insulin “offered the Cook Islands government a share in Diatranz’s profits if the treatment is shown to work and then marketed globally. ... Several Western experts have criticised the plan, saying ethical supervision of such a trial would be inadequate in a developing country, and the facilities to monitor patients for infection do not exist.”(Black, 2002) The trial has been banned in New Zealand for three years and in many other Western countries due to the dangers of pig viruses crossing the species barrier into humans through the injection of live pig cells. Diatranz was unsuccessful in getting the Cook Islands to go ahead with the trial and has headed offshore to the United States, Australia and Singapore to take the potential treatment to its next stage of commercialisation. “Jim Watson who heads the country’s [New Zealand’s] biggest listed biotech company Genesis Research & Development says Diatranz’s departure will hurt the growing biotech sector. He say it could also make it harder for the industry to attract investors.” (Newsroom Agency Story 4<sup>th</sup> April 2002)

The introduction of western drugs can undermine local traditional healing systems and disempower local communities and local health initiatives. The unfettered right of western scientific ‘discovery’ and validation of what is scientifically factual and true, thus creating new knowledge, is also called into criticism by many third world feminists. The push to using milk formula rather than breast feeding of babies is a case in point.

The western attitudes to animals, especially related to protein production through factory farming are beginning to infiltrate aid and development projects. Factory farming of pigs is taking off in China and more recently in Poland. Other problems occur with environmental pollution occurring from concentrations of effluent and the health issue of Antibiotic Microbial Resistance in humans from consuming meat from factory farmed animals fed foods containing antibiotics. Oxfam encourages small caged

chicken and rabbit raising projects in donor countries such as Papua New Guinea. These animals are fed on imported grain feeds. India has recently set up laboratories to carry out commercial animal testing.

Eco-feminist opposition to the use of animals in these ways, as an extension of the violence of capitalism and patriarchy, considered part of the western development project by many anti-development feminist theorists including Vandana Shiva. Other exploitative uses of animals such as factory farming have long been critiqued from this stand-point. The military uses of animals is another area of concern, especially as critics such as Vandana Shiva and Maria Mies see the military closely linked to the capitalist industrial project.



## Chapter 5 Discussion

“If the facts – that is, the behaviour of living human beings – are recalcitrant to such an experiment, the experimenter becomes annoyed and tries to alter the facts to fit the theory, which, in practice, means a kind of vivisection of societies until they become what the theory originally declared that the experiment should have caused them to be.”  
– Isaiah Berlin, “*On Political Judgement*” (Scott, 1998: p. 347)

Post-industrial revolution western capitalist economic imperialist expansionist tendencies have positioned the Earth as a mechanistic infinite resource, supplying raw materials to the industrial machine at no cost to the producer other than that of extraction. The capitalist notion of surplus value abounds in this equation. Post-industrial revolution western ecological activists, indigenous peoples and many from the ‘developing’ nations do not share this worldview. They see the Earth as a living entity, sustaining life, human and non-human alike and that the resources of the earth are in fact ‘price-less’ and in regard to TRIPS, the concept of patenting and owning living natural organisms is repugnant.

In relation to genetic engineering and the notion of risk creation it is argued that industrial society, in moving away from its preoccupation with the production of material goods, to a focus on the production or generation of risks is one where the “the ideologies and practices of modernity – for example, progress, economic growth, and western science and technology – are under intense paradigmatic challenge for their perceived role in escalating environmental and social problems, .... In this terrain genetic engineering has become a perceived mega-technological risk.” (Rogers-Hayden & Hindmarsh, 2003: p.5)<sup>13</sup> The naming of ERMA is an example, Environmental Risk Management Authority.

Worldviews are irreconcilably contested. “There is a fundamental conflict between the Western capitalist vision and the belief systems of indigenous peoples from around the world. One celebrates a world driven by individual self-interest, where all things can be reduced to commodities, and where social relations are mediated through markets for a

<sup>13</sup> Tee Rogers-Hayden and Richard Hindmarsh in “Modernity Contextualises New Zealand’s Royal Commission on Genetic Modification: A Discourse Analysis” is very useful as it sets out a similar discursive frame, incorporating the idea of risk analysis, although limited to one aspect of the public debate over GM in New Zealand, the Royal Commission of Inquiry.

price. The other is founded on principles of kinship, solidarity, spirituality and guardianship, underpinned by the belief that all living things are connected and sacred and the obligation of present generations to protect this life world for future generations.” (Kelsey: 2003: p. 47) “The cosmologies of indigenous peoples are environmentally and culturally specific and are not congruent with popular Western theories, such as Bering Strait migration theory or Darwin’s theory of evolution. The assumptions ... that the origins and/or migrations of indigenous populations can be ‘discovered’ and scientifically ‘answered’ is insulting to groups who already have strong cultural beliefs regarding their origins.” (Harry, 1996: p. 4) To threaten the cosmologies and myths of other cultures is of serious concern.

Vandana Shiva in her article entitled ‘*Resources*’ 1992, states that “The scientific revolution was to have rolled back the boundaries of ignorance. Instead, a particular knowledge tradition, one which views nature only as a resource and nature’s limits as constraints, has created unprecedented man-made ignorance, and ignorance which is becoming a new source of threat to life on this planet.” In the face of this, it is interesting to reiterate the pro-GE lobby’s claim that GE will feed the world and that TRIP’s will pave the way for more research and development to solve many of the world’s problems of disease. Yet, what we actually have is a global economic system that seeks to turn all citizens into human guinea pigs in the world’s largest uncontrolled experiment. (Eastham, 2003)

If there is a silver lining to biotechnology, especially to genetic engineering, it is that the products of their global project are now in the supermarket shopping bags of western consumers. Finally we have issues of food safety and food security so all pervading that they are the springboard from which to challenge western patterns of consumption which are having devastating effects on the rest of the world. As activists we need to encourage people to act.

To work towards this survival paradigm, in Jane Kelsey’s *Manual for Counter-technopols*, a range of positive strategies for action are offered. Some of these include; “Be proactive and develop real alternatives – start rethinking visions, strategies and models of development for the future; Rethink identity and alliances – combine a critical analysis of economic, political cultural and social models of the past with a forward thinking vision of what the future might look like. Recognise that the legitimate

expectations, insights and visions of indigenous peoples are not just a matter of social justice, but offer the foundation for an alliance which can forge a new way ahead; Promote informed debate and critique; Promote participatory democracy – encourage people to take back control, empower them with knowledge to understand the forces affecting them and the points at which they can intervene; Stress that no-one has a fail safe recipe for change, and that everyone has a contribution to make; Recognise the skills, resources and insights of tribes, individuals, communities, sectoral groups and civil society, and the right to act separately and in concert; Embrace the Treaty of Waitangi as a liberating force – moving forward means facing up to the past. Healing the wounds from over 155 years means restoring to Maori their economic and political power. Constructive debate on a treaty-based republican constitution can provide a liberating framework within which Maori and Pakeha can co-exist; Encourage progressive counter-nationalism – celebrate diversity rather than uniformity; work to build identities and values which replace xenophobia, racism and nostalgia with multiple identities and progressive visions for the future.” (Kelsey, 1995: p. 375)

As part of the new paradigm that acknowledges the inherent contradiction of a system that willingly destroys one life form under the pretense of protecting another, that exploits nature and yet purports to live in harmony with it, Alix Fano concludes that “as long as millions of non-human animals are needlessly killed in the most grotesque forms, on the pretext of protecting human and other life, while we simultaneously allow the manufacture, sale, and release of poisons into our environment, we can never hope to achieve the goal of physical, environmental and spiritual health we desire.” (Fano, 1998: p. 226) “To negate the complexity of any life form by isolating and reducing it to its minute parts, western science and technologies diminish its identity as a precious and unique life form, and alter its relationship in the natural order” (Declaration of Indigenous Peoples of the Western Hemisphere Regarding the Human Genome Diversity Project 1995, in Mead, 1996, p. 48)

## Chapter 6 – Conclusions

In conclusion, by positioning the combined efforts of the many groups engaged in resisting these development issues in relation to and in contrast with the standpoints of the New Zealand central government and the proponents of biotechnology internationally against a discursive backdrop the threads have become clearer. The recurring themes throughout this work relate firstly to Oncomouse as a physical manifestation of all three aspects, namely animal experimentation, GE and TRIPS. Secondly, the protection of human rights is problematic within all these discourses. Governance and the notion of democracy is also seriously contested throughout these discursive terrains, so too the challenges to modernist development theory and practice.

However, the major issue at stake, in my opinion, is that worldviews are increasingly being challenged and contested. This work has demonstrated just how varied the discourses are, surrounding the many ways in which we utilise and respect animals and the natural world. Considering the possibility of ownership of living organisms as proposed by the TRIPS Agreement, these major sites of discursive conflict are emerging. As this discussion has taken place within the context and framework of the global neo-liberal free trade capitalist (and patriarchal) agenda of the western world, the hegemony of the powerful is clearly evident. The discourse of the proponents, advanced in settings created and controlled by them, serve to illustrate the powerful paradigms of global industrial capitalist economies.

The western scientific reductionist project is dominated by white men who make up approximately five percent of the world's population. The advancing of their agenda in the face of massive opposition is cultural imperialism. A recent striking example is the millennium and Y2K extravaganza. Given that Christians make up less than 30% of the world's population, the way Jesus Christ's 2000<sup>th</sup> birthday as the founder of Christianity became "a planetary turning point, and the Y2K problem as a potential global disaster. The large majority of the world's people worship different gods with different calendars. Most of them also have different, and more mundane, priorities than Y2K – such as where the next meal is coming from, or how to find safe water to drink." (Urquhart, 2000: p. 12) I think there is a challenge to be made to the unquestionable, unthinking dominance of white males globally.

Ordinary people are beginning to understand these links and the intricacies of the web of survival. This is being demonstrated in the protests against the WTO as witnessed in Seattle. "Knowledge is power, but power is also knowledge. Power decides what is knowledge and what is not knowledge. Thus modern science actually attempted to suppress even non-competitive, but different ways of interacting with man, nature and the cosmos. It warred to empty the planet of all divergent streams of episteme in order to assert the unrivalled hegemony of its own batch of rules and set of perceptions, the latter being clearly linked with the aggressive thrust of western culture." (Alvares, 1992: p. 231)

The existence of contested worldviews and the construction of knowledge, for the first time in history, with the availability of modern technology as a vehicle, reaches many more peoples. This discourse analysis could equally apply to other facets of the natural world, such as water, protection of biodiversity, issues around western concepts of ownership pertaining to private property rights. In contrast to customary rights, the historical concept of commons, and the notions of guardianship and kaitiakitanga in Aoteroa.

Perhaps some common ground can be found that will enable the best technological advances to be applied to our common environmental and health problems with the best practical traditional knowledge. Looking at culture and traditional revival as a tool for effecting positive change in western developed countries may lead to a richer approach. By consciously moving back to our own cultural heritages; such as pagan events like Solstice and Halloween, revisiting our old medicinal systems from our own history books, such as herbs, homeopathy, various forms of Holistic healing based on traditional practice are all now being recognised and are able to exist as complementary medicine alongside western medicine. Paul Eastham in his recent book *The BioTech Timebomb*, sees the collision of worldviews especially relating to genetic engineering, however, he purports that the Western scientists may learn from this collision and from the forced interaction with these other divergent worldviews.

The privileged segments of Western industrial society benefit disproportionately from their substantial control over global resources, human and material, and will attempt to maintain it. This is where the issue of state violence comes into play. However this subject is beyond the scope of this thesis. Suffice it to say that the neo-liberal free trade project has increased state repression as part of its implementation scheme. To raise the issue of animal exploitation, experimentation and research is seen as radical. To challenge western reductionist science is one of the most difficult political undertakings. Correspondingly it has been a long struggle on the part of philosophers of science to introduce feminist thought into science, and to bring forward the complex realm of ecological philosophy and science to the more linear conceptualization of standard science. It has been my purpose, as indicated in the introduction to this thesis, to present an expansion of the considerations that need to be brought to bear on the restricted frameworks that have governed statutory regulations on patenting, genetic engineering and animal testing. One way of bringing an expanded approach to the discussion has been to provide a glimpse into different world views, and to focus on indigenous discourses in Aotearoa-New Zealand.

It is grossly inadequate that economic interests, as discussed in chapter 1, should provide the driving mechanism to regulate these processes which have behind them the very mysteries of life itself. I say mysteries to be explicit about the limitations of human knowledge, and of western science to probe the complexity of the regeneration of life. In analysing the economic and political interests of current systems of regulation, I expect to have exposed the narrow frameworks on which assessment and evaluation is currently based. Discourse analysis work as discussed in chapter 2 assists us in understanding the many contradictions that keep this cruel deception alive. Genetic engineering and patenting of life forms (TRIPS) discussion of which is included in chapter 3 and 4 may well expose western reductionist science's mono-cultural worldview and bring about its' self-inflicted demise. The scrutiny this brings to bear will assist us enormously to stop animal testing and abolish vivisection as outlined in chapter 5.

This work has created a space where the spiritual, cultural, moral and ethical standpoints of the wider global communities have been discursively analysed. Equally important has been the broadening out of the framework of the current discussions and also enabling an analysis of controversial scientific and technological developments

from the standpoints of the multiplicity of lived human experiences, social and cultural contexts, thus allowing these dissenting viewpoints to be heard. I believe that it is the same epistemological basis, (western reductionist science) the same trans-national companies and the same arguments and justifications that underpin all three topics under discussion in this thesis, namely animal use in the west, genetic engineering and TRIPS. When are we going to unlearn?

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