

**Democracy and political economy of genetic engineering**

**This thesis is presented for the Degree of Research Masters With Training  
2007**

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October 2006**

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

.Delys Weston

## **ACKNOWLEDGEMENTS**

This thesis would not have been started without the support and encouragement of my children Katherine, Nic and Alex.

It would not have been finished without the support and encouragement of my partner, Gavin.

I would like to thank my supervisors, Ian Barns and Dora Marinova, for their support.

## Abstract

This thesis aims to provide a more critical framework for the assessment of future technologies and therefore social directions and to help to bring an understanding to the relationship between global political economy, corporate power, ideology, science and technology. This is essential given the many issues facing contemporary society – issues of sustainability and humanity's place in the broad ecology, of the need for a diversity of economies, societies and cultures, of the need for greater economic equality and equity across the globe.

The relationship between globalisation, science and technology, democratic governance and citizens is explored using the case of genetic engineering technologies. The thesis draws on a conceptual framework provided by the theory of political economy to facilitate the assessment of the impact of a technology on society . It provides a critical framework for looking at individualised, sectoral and short term interests versus the often conflicting interests of what is termed the 'common good'. The juxtaposition of the neo-liberal, conservative and contemporarily dominant world view with that of the more radical, political economy stance exposes the tension between these two ways of viewing human history and the future of humankind.

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## **Acronyms**

ABC	Australian Broadcasting Commission
ACCHO	Aboriginal Community Controlled Health Organisation
BBC	British Broadcasting Corporation
BSE	Bovine Spongiform Encephalopathy
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DDT	Dichloro-diphenyl-trichloroethane
G7	U.K., U.S., France, Italy, Canada, Germany, Japan
G8	G7 plus Russia
GATT	General Agreement on Tariffs and Trade
GE	Genetic Engineering
GM	Genetically Modified
GMO	Genetically Modified Organism
HGP	Human Genome Project
IMF	International Monetary Fund
IPR	Intellectual Property Rights
IVF	Invitro Fertilisation
NGO	Non-government Organisation
NIH	National Institute of Health
NHMRC	National Health and Medical Research Council
OGTR	Office of Gene Technology Regulator



PHA	Public Health Association
PHM	People's Health Movement
RCEP	Royal Commission on Environmental Pollution
SWAHS	South West Area Health Service
TNC	Transnational Company
TRIPS	Trade Related Aspects of Intellectual Property Rights
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WIPO	World Intellectual Property Organisation
WTO	World Trade Organisation

## Chapter 1

### Introduction. Globalisation, neo-liberalism and technology governance

#### 1.1 Summary of thesis

This thesis aims to provide a more critical framework for the assessment of future technologies and thereby of social directions and to help to bring an understanding to the relationship between global political economy, corporate power, ideology, science and technology. This is essential given the many issues facing contemporary society – issues of sustainability and humanity’s place in the broad ecology, of the need for a diversity of economies, societies and cultures, of the need for greater economic equality and equity across the globe.

The thesis explores the relationship between globalisation, science and technology, democratic governance and citizens, using the case of genetic engineering technologies. It draws on a conceptual framework provided by the theory of political economy to facilitate the assessment of the impact of a technology on society. This approach is used because it takes a critical, structural, historical perspective that is conducive to the asking of the big questions of where we as a global collection of human societies want to go in the future. It looks at questions of sustainability and social justice, of the divide between north and south<sup>1</sup>, of whether the corporate globalised market economy will provide the best model for future human societies. It provides a critical framework for looking at individualised, sectoral and short term interests versus the often conflicting interests of what is termed the ‘common good’. The juxtaposition of the neo-liberal, conservative and contemporarily dominant worldview with that of the more radical, political economy stance exposes the tension between these two ways of viewing human history and the future of humankind. There are inevitably other ways and worldviews which are not covered in this thesis. The candidate has however, drawn on ideas from Indigenous cultures to capture at least one broader and more holistic perception of the relationship between society, culture, economy, technology and polity.

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<sup>1</sup> The North refers to the wealthy western industrialised countries – North America, Europe and Japan; the South to the poor, previously colonised countries – of Africa, Asia and South America. The divide refers to the disparity in wealth, conflicting interests and different worldviews.

The thesis explores the conflicts of interest and the different power bases in the relationships between corporations, researchers, governments and public policy. It then moves to examine how these conflicts are played out with respect to the governance of technology and the deeper humanistic interests of sustainability, diversity, social justice and health.

Much of neo-liberal language and many of the concepts used in supporting the adoption of these particular technologies are based on euphemisms which obscure a more problematical underlying socio-political reality. These include 'freedom', 'personal choice', 'individual rights', 'progress', 'personal empowerment'. Many of the language ephemera surrounding the concept of the 'linear trajectory of progress'<sup>2</sup> are often used to expound the benefits of genetic engineering technologies. They are also part of an ideology which supports and maintains not only certain forms of power structures but also specific technologies which often run counter to the interests of both the large mass of humanity and the broad ecology. The thesis maintains that the convergence of on the one hand neo-liberal ideology, economics and political structures with on the other the powers and political economy of the technologies is contrary to good democratic governance.

An underlying premise of this thesis is that all citizens of the world have a right to be involved in determining the future course of human history. How this can be achieved is a complex issue, beyond the scope of this thesis. Numerous mechanisms have been established in Western democratic societies, often as addenda to public policy processes, but at least there is recognition that, in principle, the public's view is an important part of public policy development. There are no global mechanisms to find out what the global human community wants. This consideration is picked up in Chapter 2 which covers the methodology used to underwrite the thesis. A core premise of the thesis is laid out: that the democratic politics of neo-liberalism is a veneer which is increasingly serving the interests of global corporatism and not the

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<sup>2</sup> 'Linear trajectory of progress' refers to the concept of a neat and linear historical trajectory of progress aligned with technological and politico-social developments, particularly from a stage of unsophisticated, uncivilized, technologically backward society to one that has progressed through various stages to a modern, technologically and economically sophisticated society eg from the 'stone age to space age' with the assumption that this is progress.

‘common good’ of humanity or the broad ecology. It is of note that the ‘double speak’ used to promote genetic modifications to plants and animals and the belief in bountiful food supplies, is perhaps not so different from the ‘double speak’ used to justify international aggression in the name of security, democracy and anti-terrorism.

Thus, Chapter 2 outlines the two broadly conflicting worldviews which might underpin any discussion about the governance of technology. The hegemonic neo-liberal worldview and ideological framework provides only limited opportunity for meaningful (Western) public consultation for citizens other than as consumers, to effect the course of history and hence, for radical people-driven social change. Opposing this is the worldview of global political economy. This is associated with critical theory and dialectical materialism. This worldview looks critically at underlying socio/political/economic structures, takes a historical (although problematically also linear) perspective and has clearly articulated values. This leads on to discussion about the global political economy of genetic technologies and how these are illustrative of the wider issue of developing policies from a neo-liberal worldview and a global market economy.

Chapter 3 provides the theoretical context for a more critical appraisal of democratic governance in relation to genetic technologies in the global economy. Drawing on cross-disciplinary perspectives, it is based on the theory of political economy. It gives a more critical and political assessment of relevant features of society, its power structures and institutions. It indicates how, without a clearly articulated ethical, historical and political framework, technologies will be used to serve the interests of corporate capital, global markets and the status quo rather than the broad interests of humanity - the common good. It argues that many of the concepts and the language of neo-liberalism used in supporting the adoption of particular technologies are euphemisms which obscure a more problematical and particular structural socio-political reality. These are part of an ideology which supports and maintains particular power structures (and in turn particular technologies) that are contrary to the interests of the large mass of humanity and the broad ecology.

To provide the wider context in which genetic engineering technologies are being developed, Chapter 4 gives an overview of the phenomenon of globalisation. It

outlines the relationships between corporations, researchers and governments in genetic engineering technologies and the conflicts these create with the humanistic interests of sustainability, social justice, equality, diversity, health and happiness. It further argues that the convergence of interests and blurring of lines between corporations, governments and research institutions are contrary to the principles of democracy and civically rich and engaged communities of citizens. It examines the global financial structures and Western proprietary international patenting laws and trade agreements which underpin the corporate drive and interests in this technology. The chapter also looks at the issue of gene patents and TRIPS, the Trade Related Aspects of Intellectual Property Rights, and the consequences of such political economic structures for first world/third world relationships.

Chapter 5 examines the relationship between technology, society and history. Further, it details the significance of (genetic) technologies in maintaining the status quo.

Chapter 6 explains why genetic engineering has been chosen as a case example. It expands on how this technology encapsulates many of the problems surrounding neo-liberalism, the dominance of the market economy, the impact of the nexus of trade agreements, patenting laws and corporate interests which are contrary to the interests of the large mass of humanity.

Chapter 7 gives an overview of the literature on public consultation in the biosciences. There are numerous policy documents, journals and publications which outline arguments in favour of public consultation and descriptions of the methods of such consultation. The most relevant of these are set out in this chapter. It is argued in the thesis that the literature is largely 'captured' within the dominant neo-liberal worldview.

Chapter 8 gives three very different but practical examples of how citizens can have a 'voice', a voice that needs to be listened to by the world's leaders if more radical methods are not to dominate. The first, a public forum organised by the author in 2004, represents a microcosm of some of the issues involved in Western public engagement. The second is a (Western Australian) South West Area Health Service Citizens' Jury consultation in 2005 at which the author was present as an observer,

and the third (again attended by me but as a participant) is an International People's Health Assembly in Cuenca, Ecuador in 2005. There the stories of Indigenous, poor, exploited and marginalised people, people representative of a large majority of global citizens, were given a platform. The issues of citizen participation are enormously important in this time in human history when we are told that the future of humankind is at stake due to such human made phenomena as global warming.

Chapter 9 explores the changing role of universities in the neo-liberal political economy and how that is part of a nexus of issues affecting research and developments in the biosciences. The growing commercialisation of universities – both in their funding and the commercialisation of its output – knowledge – is of great significance to democratic society. This is nowhere more so than in developments within the biosciences.

Chapter 10 provides a summary of the thesis together with recommendations for the establishment of a more democratic framework for the governance of genetic engineering technologies. The thesis has used these technologies as representing a microcosm of broader issues of which they form a part.

The thesis concludes with a proposal which makes a step toward dealing with one technology in a way which will be conducive to a more democratic and critical awareness about the consequences of a sophisticated, Western technology and its relationship to and impact upon human society. This proposal is in the form of an outline of a course for a more holistic and critical study of genetic technologies - a course that looks at the wider context of genetic technologies, as a basis for democratising the governance of genetic technology policy.

It acknowledges at the same time that a more radical and broadly based response is required. That response however is beyond the scope of this thesis.

## Chapter 2

### Methodology

*The studied neutrality of scholarly prose amounts, too often, to a passive or heartless endorsement of the plans of the powerful. (Kim et al, 2000: xiv).*

#### 2.1 Introduction

The thesis uses genetic technologies as a case study to analyse aspects of the relationship between on the one hand the neo-liberal economic paradigm and on the other corporate power, ideology, science and technology. In this chapter, the candidate attempts to demonstrate that neo-liberalism and the scientific paradigms and technologies it spawns fail to serve the interests of the global community, especially long term. These are the interests that have been taken as the goal for what would occur if the central critique of this thesis were to be acted upon.

The perspective of the thesis is from the theory of political economy. An attempt is also made to bring a more holistic view to bear on the consequences of a particular ideology, economic system and technologies. The thesis adopts a cross disciplinary approach that brings together ethics, philosophy, sociology, epistemology, psychology and multi-cultural perspectives.

The thesis is overtly political and deliberately critical of global power structures and institutions. It endorses the core principles of social justice, equity, diversity of cultures and of economic systems. It is based in a belief in the concept of the ‘common good’<sup>3</sup>, solidarity with and compassion for the poor and dispossessed and for the increasing numbers of people living on the margins of an economically globalised corporate world. It is built on the premise that there is an ideological battle

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<sup>3</sup> ‘The common good’ is a term that can refer to a number of different concepts, but in this thesis it is used to refer to a good that is shared and is beneficial for all (or at least most) members of a community – such as air, water, the global gene pool, the broad ecology. It is not reducible to the sum total of the private interests of individual members of society.

between two views of the world – the neo-liberal view and a critical, global, political economy view.

This thesis critically assesses democratic governance of such technologies as genetic technologies. Yet more importantly, it appraises the theoretical context within which such technologies are developed and embraced and which in turn reinforce the status quo.

## 2.2 Neo-liberalism

The neo-liberal paradigm is currently dominant across the globe and is expressed through increasingly conservative political agendas and governments.

*‘Neo-liberalism’ is a broad term for the pattern of economic theory that has most strongly influenced American economic policies over the past two decades....the United States and Great Britain have used their authority to ensure that neo-liberal ideas inform the programs and policies of major international financial institutions like the International Monetary Fund and the World Bank. Thus neo-liberalism, while far from uncontested in academic and political circles, has contributed decisively to shaping the current global economy (Kim et al, 2000:52).*

The term neo-liberalism came into common use in the 1990s although it goes back in origin to the late 1970s (Harvey, 2005). Its most fundamental principles relate to the belief that ‘the market’, if allowed to operate unfettered, will lead to optimal outcomes for society as a whole. Harvey (2005:2) writes that ‘neo-liberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterised by strong private property rights, free markets, and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices’. In theory it draws on the principles of laissez faire economics, opposing trade tariffs, unions, social welfare and general regulation of the economy. Neo-liberals promote liberalisation, privatisation and deregulation. ‘Conservatism’ is a political offspring of neo-liberalism. As Kim



et al (2000:54) write, neo-liberals also endorse the idea that there is a moral, social and metaphysical aspect to wealth and poverty – in that it reveals the results of individual ‘choices’, endeavours and freedoms. Neo-liberalism embraces a set of policies which are most often aligned to the concept of globalisation and the expansion of capitalism. It is promoted by such global institutions as the World Bank, the International Monetary Fund and the World Trade Organisation – all institutions closely aligned to Western economic and corporate interests. (These organisations are described in more detail in Chapter 4.) There are numerous contradictions in this theory – for example, the deregulation of institutions which protect local, state and national interests at the same time as the development and enforcement of regulations which promote corporate security – such as patenting and trade laws (which again, will be further examined in Chapter 4). The corner-stone of neo-liberal economics however is the belief in the importance of the free reign of the market. ‘Freedom’ is a codeword for a market that is increasingly protected by complex legislation, powerful political lobbying by corporate interests; and one that is often protected by destabilisation, invasion and occupation of ‘lesser’ nations by ‘more dominant’ nations<sup>4</sup>. The market is like any political and social institution that has to be protected – in many cases it needs force and military strength imposed by the dominant ideology. Consequently the belief in the ‘freedom’ of the market turns out in many instances to be more about control than any more normal concept of freedom. It is too often about the hegemony of power and ideas that maintain the structures supporting ‘free markets’. Today, neo-liberalism and capitalism enjoy a political legitimacy in the West which belies the consequences of such theory and practice<sup>5</sup>.

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<sup>4</sup> There are far too many examples from the 20<sup>th</sup> century – the US was heavily involved in destabilising numerous South American countries in the 1970s, ‘80s and ‘90s. The invasion of Iraq has been attributed by many commentators to economic motivations; the war in Vietnam to secure tin, tungsten and other minerals and raw materials.

<sup>5</sup> Two billion people live in abject poverty, the gap between rich and poor has grown; the net worth of the 358 richest people in 1996 was ‘equal to the combined income of the poorest 45% of the world’s population – 2.3 billion people...the world’s 200 richest people more than doubled their net worth in the four years to 1998 to more than \$1 trillion. The assets of the top three billionaires...were more than the combined GNP of all least developed countries and their 600 million people.’ Harvey,2005,34 - 35

Neo-liberalism has given rise to societies with little opposition<sup>6</sup>, with a vast proliferation of material goods, but a dearth of critical, reflective and analytical ideas. All ideologies can form ‘smokescreens’ that conceal reality – and in this sense the process of dialectical materialism, of critically relating theory to praxis, to reality, and of testing reality against theory, of critical reflection, is essential.

### 2.3 Political economy

A second worldview<sup>7</sup> which most neatly provides a juxtaposition to the ideology of neo-liberalism, and is in fact subversive of neo-liberal corporate globalisation, is that embraced by the theory of political economy. This is most commonly expressed in the twentieth century in socialist forms of governance but which in practice is best seen as much wider than socialism.

Political economy has been defined as ‘the social science that deals with political science and economics as a unified subject; the study of the interrelationships between political and economic processes’ (<http://www.answers.com/topic/political-economy>). When political economy is used in the discipline of economics, it is often to distinguish this school from neo-classical economics – the theoretical branch which supports neo-liberalism. It involves accepting that issues around resource allocation cannot be wholly positive (or objective) as much neo-classical economics claims but are political in nature and hence normative and value laden (and also subject to conflicting interests). For most lay observers of economic phenomena, this stance will seem quite natural and sensible but for the neo-classicists and in turn neo-liberals it is not. Neo-liberalism has today an almost global reach, and according to political economic analysis, gives rise to a hegemony of ideas – a dominant ideology, which precludes much by way of critical analysis. This is odd given the reality on the ground which provides ample evidence of many shortcomings in this model of human social

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<sup>6</sup> All are familiar with George Bush’s statement ‘ you are either with us or against us’. See also Arundhuta Roy (in the foreword to Chomsky, 2005) who writes how oppositional ideas and thinking are not acceptable.

<sup>7</sup> It is the candidate’s contention that there are numerous worldviews, but only two contemporary worldviews which have reached global impact. This is not to devalue geographically more contained views but to illustrate that there are different ways to analyse the human condition, institutions and practices.

organisation – war, poverty, environmental degradation, gross disparities in wealth, and so on.

Concepts such as ‘hegemony’ are drawn from some of the great political economy theorists (for example Gramsci<sup>8</sup>) who see the power and importance of ideological hegemony as precluding a critical analysis of the real world. Hegemonic ideological frameworks give rise to particular methodologies which claim to but do not deliver a “neutrality” to social interpretation and academic research which amounts, too often in reality, to a ‘passive or heartless endorsement of the plans of the powerful’ (Kim et al 2000: xiv). A political economy approach is more conducive to a critical analysis of contemporary political and economic structures which have given rise to increased inequality and vast numbers of people living in abject poverty in a time of unprecedented wealth for some. Part of the task of the thesis is thus to show that the powerful technologies associated with genetic engineering illustrate the contradictions in policy which serve to exacerbate the worst aspects of neo-liberal economics. Yet at the same time they claim technologically to underwrite an end to starvation, premature death, the eradication of disease and disability.

#### 2.4 Neo-liberalism versus political economy

The focus of this thesis is not to assess genetic technologies per se – that is another story – but to argue that the technologies are being developed in a political economy environment that is destructive of humanity as it has been known for centuries and without any deep sense of the place of humans in the broad scheme of things. The neo-liberal corporate dominated social and economic environment fails to have any sort of commitment to justice, peace, real democracy and equity; to have any commitment to ‘genuine forces for progressive social change’ (Kellner in Marcuse, 1964: xxiv). Proponents of genetic technology suggest it is a panacea for many

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<sup>8</sup> This emphasis on intellectual and cultural influences rather than on purely economic ones enabled Gramsci to develop his doctrine of hegemony which goes a long way to explaining how a particular social and economic system maintains its hold and retains its support. Gramsci saw, in a way that few other Marxists have done, that the rule of one class over another does not depend on economic or physical power alone, but rather on persuading the ruled to accept the system of beliefs of the ruling class and to share their social, cultural and moral values. It is in the cultural aspect of social relations that Gramsci is most influential. He regarded the intellectuals as playing a central role in the revolutionary process (in Joll, 1977).

health and food shortage problems while ignoring the other side of the coin that predicts an even deeper entrenchment of the global economic divide, together with a deepening insolubility of some of the most complex ethical questions facing the human community and which arise from the technology.

‘Political economy theory sees economics as a manifestation of an underlying reality which is affected by policy and law’ (<http://www.answers.colm/topic/political-economy>). Political economy is concerned with structures and institutions, the relationship between the global capitalist economic system and local economic systems, the ecology and cultures. The market is not the focus of political economy; rather the focus is the relationship between capital and labour. Socialism was a rational development from political economy in that it looked at ways of structurally changing the economies and societies of nation states to combat the human misery of the 18<sup>th</sup> century industrialising world – although it often fell far short of its objectives and developed its own forms of misery.

For the purpose of this thesis, it is enough to propose that neo-liberalism (in theory and practice) and market driven economics are not sufficiently protective of the interests of the broad mass of humanity and the common good. Political economic theory is complementary to Hegel’s emphasis on the importance of institutions in society: the rules and structures of the game. They provide an understood framework to enable human beings to carry out their dealings with others. The role of institutions and structures in economic life is to influence the way in which individuals, groups and organisations interact with one another. There is a dilemma here however in that social institutions tend to establish only one norm, ignoring the perspectives of those who fall outside that norm. The complexity of this issue is beyond the scope of this chapter on methodology; it is enough to argue that social institutions are essential for the well being of a society – it is not enough to leave society to the determinants of the market.

Protagonists of neo-liberal economic theory claim that the market is the best determiner of the distribution of goods and services. Ironically at the same time, in the globalised neo-liberal institutional framework, the major institutional players have developed very powerful, undemocratic global institutions, rules and structures such

as the World Trade Organisation (WTO), the World Bank, the G7 and G8<sup>9</sup>. These are all closely aligned to serving the interests of powerful Western corporates, and a minority of (powerful and rich) global citizens and which are well outside the boundaries of democratic processes and accountability (to ‘the people’). In chapter 4 the thesis will look at particular institutions and their rules, such as the WTO and Trade Related Intellectual Property and patenting regimes. This exposes how genetic engineering technologies are being developed in a political economic and global context to entrench further the interests of rich countries, individuals and corporations.

The thesis uses political economy analysis to show that in a technology such as genetic engineering, the convergence of interests and blurring of lines between corporations, governments and research institutions are contrary to the values and interests of democratic governance. The goal is to build recommendations that indicate the ways in which democratic governance in this area of policy can be enhanced but which will have lessons for other areas of public policy as well. It is well beyond the scope of this thesis to propose changing the global institutional structures of neo-liberalism (however desirable that may be). It is necessary however to have some broad awareness of these structures to understand the phenomena arising out of them.

The methodology used is thus closely linked to the theoretical description and analysis of a technology (in this case genetic engineering) as a product and tool of a particular socio-political order. To understand the significance of the technology, it must be placed within the context of global power and economic relations - the global political economy. This in turn involves embarking on a critique from the standpoint of political economy of various aspects of neo-liberal ideology and Western hegemony. This critique is however limited and diminishing on two counts – firstly, the demise of socialism which grew out of political economy theory as a limited but alternate model to neo-liberalism. Secondly ‘ideologies of the neo-liberal order are instilled by the global media as the only right, real and true ideas, and which have come to be controlled by a small number of giant corporations such as Fox News and

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<sup>9</sup> G7 refers to the seven powerful nations: United States, Germany, Italy, France, UK, Japan and Canada; the G8 additionally includes Russia.

CNN' (Herman and Chomsky, 1988;). 'Consent to inequality and submission to the U.S. run imperial order is manufactured by the media' (Bagchi, 2005:302). Bagchi goes on to argue that the democratic process in countries such as Italy and India has been repeatedly subverted by the power of money and oligarchy controlled media, and that this has gone hand in hand with the weakening of democracy.

The language of neo-liberalism is often accepted in the hegemonic culture as being objective and non political. A contemporary example, the 'war on terror', has entered the everyday lexicon as if it connotes an objective reality. But as Vidal (2005:32) writes, such a concept is as absurd as a 'war on dandruff'. Furthermore, one cannot go to war against an abstract noun. It is a form of language reminiscent of that of McCarthyism which constructed a perception of reality that did not stand up to critical analysis but served the interests of the dominant power and ideology. It is part of this ideological pathology that if one disagrees with the premises and concepts involved (for example, in the 'war on terror'), one is accused of becoming part of the other, the terror, the enemy<sup>10</sup>. While there is no 'war' as such in genetic technology, there is much at stake in terms of who wins the contest to control these technologies in the future. At a more parochial level, to contest the technologies is to attract such labels as 'Luddite' – as is illustrated by the '21<sup>st</sup> century genetics' forum in Chapter 8.

There is a deep ideological betrayal in neo-liberal philosophy – the promise of freedom, economic wealth, boundless opportunities and the control of humans over nature. However, Ryan (2005: 30) writes that neo-liberalism is 'a social (and) political order that cannot give a viable account of its continuity'. It has no explicit recognition of what one human is to another human, or of what a human's place is on the broader canvas of life. Neo-liberal philosophy is based on values and assumptions that it has managed to generalise and make dominant (or what Shiva (1993) refers to as the 'monoculture of the mind' but which cannot stand up to critical historical scrutiny (Bagchi, 2005). For the majority of people, there is a deep chasm between the promise of neo liberalism and its fulfilment. In terms of democracies, Nairn (2006:25) writes 'Westminster used to consider itself a world model (of democracy). It has

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<sup>10</sup> Neo-liberalism and the spread of democracy are then used as excuses for condoning untold suffering on peoples (as in for example the Iraq war in which 100,000 people have been killed since 2002 in the name of bringing democracy and freedom to the Iraqi people).

become a dry-rot-infested ruin, where one sham succeeds another'. Western democracies have at best become very 'thin'<sup>11</sup> - whereby the people go to the polls once every three, four or five years, to cast a vote on a few highly publicized short term issues, often highly individualised and of selfish appeal, raised by parties that are both ideologically and practically embedded in the dominant polity and economy. The future of public governance is at risk. If globally, the people of the planet do not have the opportunity to have their voices heard and to influence the nature and direction of developments (of, in this case a globally socially transforming technology), then it can be argued that the future of democracy per se is at risk.

This basic social failure of neo-liberalism has exposed a fundamental division - continued deprivation, poverty, powerlessness and marginalisation amidst spectacular wealth, consumption and power and, also concerning, the perpetual promise of better times always deferred. This is a major betrayal of neo-liberalism.

The Turkish writer Orhan Pamuk illustrates this point (Pamuk, 2001:12)

*At no time in history has the gap between rich and poor been so wide... at no time in history have the lives of the rich been so forcefully brought to the attention of the poor through television and Hollywood film... But far worse, at no other time have the world's rich and powerful societies been [as he puts it so ironically] so clearly right, and 'reasonable'.*

He continues:

*Today an ordinary citizen of a poor undemocratic Muslim country or a civil servant in a third world country or in a former socialist republic struggling to make ends meet, is aware of how insubstantial is his share of the world's wealth; he knows that he lives under conditions that are much harsher and more devastating than those of a "Westerner" and that he is condemned to a much shorter life. At the same time however he senses in a corner of his mind that his poverty is to some considerable degree the fault of his own folly and inadequacy, or those of his father and grandfather. The Western*

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<sup>11</sup> In 2005, in the UK for example, 'New Labour' won its 'convincing majority' in the House of Commons with just 21.8 per cent of electoral votes (Nairn, Arena, 2006:26)

*world is scarcely aware of this overwhelming feeling of humiliation that is experienced by most of the world's population...*

That the Western world is largely oblivious to its role in creating and maintaining the divide between rich and poor is captured nightly with great clarity in the television news; by the many statistics which illustrate not only the chasm between the language of foreign aid and the geopolitical reality of international trade (Monbiot, 2006:13) but also those which show the flow of capital from poor to rich countries. Neo liberalism is a philosophy that has brought little more than devastation and demoralisation to many of the world's Indigenous peoples that it claims to have set out to 'civilize'. It has also resulted in thousands of small farmers, peasants, craftsmen no longer being able to make a decent living, due to structural changes resulting from 'development'.

The methodology of this thesis is also based on the premise that there has to be a moral dimension to public policy.

Contemporary Australian leaders adopt a well orchestrated 'political speak' with appeals to our self interest and basest instincts, our mortgage interest rates, our growing economy, our sense of racism, nationalism and individualism. Our leaders have joined an international convention opposed to bribery at the same time as being deeply immured in a bribery scandal in the 'Oil for Food' affair that contributed to the suffering and deaths of thousands of Iraqi children (Cole Inquiry 2006; Chomsky, 2005).

Currently in Australia (and indeed elsewhere) there is not only an absence of any moral benchmark (or thoughts independent of the US hegemonic interests) for taking our seat at the international table. Instead there is a lack of accountability and of informed critical public discourse about the sort of society we want to leave for future generations, about the sort of global society we live in now and why it is like it is. This is true of many fields including in developments in genetic engineering technologies. There is a need to expose how the debates that do take place are captured by sectoral interests; in the case of genetic technologies, it is by the corporate patent holders, the colluding governments and the scientific community



using esoteric language. These are alienating and excluding for the general public and endorsing of the status quo. They place the issues in a compartmentalised, neo-liberal philosophical and ethical framework. The corporate stakeholders, the pharmaceutical and biotechnology companies, have the corporate 'bottom line' at the top of the agenda.

## 2.5 Conclusion

It is in the public interest that the debate on the adoption and development of genetic technology is broadened. It is a potential test case for other complex technologies, such as nanotechnology and other major policy areas which will affect Australia's place in the world in years to come. Critical, multi-disciplinary information needs to be made available to the public to allow first, informed, responsible and sustainable choices to be made and second, public policy to be brought into line with community rather than corporate interests. However, it is unlikely, given the global and national economy and polity, that citizens will be given a 'space' to examine critically genetic engineering technologies and whether such technology developments should continue and do so within the current institutional framework. The People's Health Assembly in Cuenca, described in Chapter 8, was one example of 'the people' coming together, discussing global and local issues, strategies for change and how the issues are inter-related. There were people at Cuenca (from Argentina) who said they were the human guinea pigs of new genetically modified food crops and that these crops were making them sick.

The thesis contributes to the public discourse about the politics of technology governance. It uses an explicit methodology and theoretical context to illustrate the need for a broader, deeper analysis of society and the relationship between technology, ideology, political economy and the humanistic values of democracy, justice, equity, sustainability and the common good. As a society there is a need to find ways of empowering this discourse so that it becomes meaningful in the sense that public views and interests have some structural power to influence the future course of the technologies' development.

In using genetic engineering technologies as a case study to analyse aspects of the relationship between the neo-liberal economic paradigm and corporate power, ideology, science and technology , the thesis also explores the notion that what could perhaps otherwise constitute life enhancing innovations is problematic in that they are set in the context of life destroying structures – this will be discussed further in Chapter 4, particularly in relation to patenting regimes and international trade agreements.

The next chapter explores some of the related theoretical issues, including an overview of some of the key concepts of neo-liberalism - power, freedom, the linear trajectory of progress and the ‘end of history’.

## Chapter 3

### Theoretical context

*By Marx's standard of freedom, and almost certainly by that laid out by Adam Smith in his Theory of Moral Sentiments, neoliberalization would surely be regarded as a monumental failure (Harvey, 2005:185).*

#### 3.1 Introduction

Chapter 2 briefly described the two broad and conflicting methodological approaches for analysing social phenomena. This thesis uses political economy to provide a conceptual framework within which concepts of power, democracy and civic engagement are analysed for their implications in developing public policy. Political economy enables a more explicit, macro, even global framework for analysis of the philosophical perspectives and consequences of neo-liberalism, that philosophy and ideology which currently dominates contemporary global economics and politics.

It is noteworthy that currently there is no comprehensive, alternative theory to that of neo-liberalism. This chapter explores some of the issues which lie behind Amoroso's search (Amoroso, 1998) for such an alternative. As he writes (Amoroso, 1998:6), this search is

*akin to the vagabond who inhabits the outskirts of capitalism's metropolises...(a)... 'symbol of man' that searches through the rubbish heaps, whether steaming or frozen, of what the world's wealth has left behind. For these are the shards and tatters which, though having lost their original function, enable one to survive and to continue looking in the midden for the rest of the pieces and theories which have escaped the suffocation that consumerism and cultural opportunism have heaped on top of them.*

By framing the issues surrounding genetic engineering within first macro political economic structures and second neo-liberal philosophy, a critique of the 'critical reality' of public participation in policy development becomes possible. Central to this are the interactive concepts of power, democracy, ideology and freedom. Each of

these is complex in its own right and each has been the subject of philosophers' deliberations for centuries. This chapter provides a brief analysis of these concepts in terms which are pertinent to the development of public policy.

It is argued first that neo-liberalism is the underlying paradigm of the global political economy and hegemonic ideology. Bagchi (2005:302) writes that

*the ideological marker of the neo-liberal order is the notion of freedom... [and yet] neo-liberalism increasingly underpins the corporate hegemony of power in the world's economic systems.*

He suggests: *[I]n principle however globalisation might embrace some other form or forms of economic structure and need not, as currently, embrace only one such structure.*

Thus while the thesis has a concern about some of the implications of neo-liberalism for the development of genetic technologies, much of the focus at a global level is around the hegemony of neo-liberalism rather than neo-liberalism per se. The thesis also argues however that neo-liberalism per se is ultimately anti-democratic.

Second, a few key concepts are selected to exemplify in practice the conflict between, on the one hand, the globalising, corporate-driven genetic engineering technologies and, on the other, the constraints on any kind of genuinely democratic input to the policy development of the technologies. The critique of these concepts and practices shifts the focus in policy development from its existing, rather narrow, concern with, in essence, technical matters, medical ethics and regulation, to a broader political understanding and analysis of the involvement of society and its citizens in the development of public policy. In doing so it is important to recognise that such policy development is manifestly political but becomes seemingly, if falsely, depoliticised when filtered through neo-liberalism. The analysis in the thesis allows the values and interests underlying the development and dissemination of (genetic technology) policy and the implicit conflicts of interest and contradictions to be made explicit.

In addressing these issues the candidate has assumed an acceptance of certain indivisible universal values, which are important to any society. These are laid down by the United Nations<sup>12</sup>. They include equity, justice, sustainability, diversity, the common good, community, citizenship and human rights based on the normative principles of universality and indivisibility; equality and non-discrimination; participation and inclusion, accountability and the rule of law. An account is given of the sense of the key terms among these.

Equity is concerned with the treatment of people – in a fair, just and impartial way. It differs from equality in that it may involve adjustments to take into account differing degrees of need. Justice also refers to fairness, in the way people are treated or decisions are made, but now restricted to the concerns of the law. Sustainability is about something that can be maintained – used most often in the context of the use of resources, the ecology, the environment, society and economic wellbeing. Diversity refers to the desirability of having and supporting diverse ways of living and thinking, diversity in economic systems, cultures, languages and knowledges. The ‘common good’ can be used in a number of different contexts, but in this thesis is related to its philosophical, ethical and political science roots where it refers to the notion of being of benefit to some overall population in some context or other, such as a nation state or a village . The text will refer later to the ‘genetic commons’ – which like the air, the oceans, the forests – are (have been) viewed as belonging to everyone, including future generations – that is, there is an over-riding sense that they are a resource that needs to be valued and looked after, and cannot be privatised or exploited for short term gain. These values are very much interrelated in their prescriptions for how society might be structured particularly economically to optimise people’s wellbeing, happiness, security and custodianship, both for themselves and for future generations.

The next section examines and critiques neo-liberalism. The chapter then looks at choice, freedom and individualism. Out of that discussion come naturally the remaining sections first on ideology and power and finally on knowledge, hegemony and democracy.

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<sup>12</sup> United Nations Universal Declaration of Human Rights (<http://www.un.org/Overview/rights.html>)

### 3.2 Neo-liberalism

In this section there is a critique of neo-liberalism first in general and then in the context of science and technology, arguing that it is not supportive of, and in fact, contrary to the core social values described above. This is then set in the context of globalisation.

Neo-liberalism is the dominant philosophical paradigm of the current global capitalist economic system. It refers to the political philosophy, arising in the second half of the 20<sup>th</sup> century that emphasises free market forces and the importance of economic growth. It asserts that society is best maintained by minimal government interference and regulation. Neo-liberalism equates economic growth with more happiness and prosperity (Hamilton, 2003: xvi). Hamilton writes:

*[T]oday, the compulsion to participate in the consumer society is not prompted by material need or by political coercion: it is prompted by the belief of the great mass of ordinary people that to find happiness they must be richer, regardless of how wealthy they already are.*

The central plank of neo-liberal philosophy is that the unfettered market will lead to optimal outcomes for society. By incorporating the idea that neo-liberalism can achieve this for society as a whole, rich and poor, through the ‘trickle down effect’<sup>13</sup> for the disadvantaged and marginalised, it seeks to overcome one of the major criticisms levelled at it. The evidence in practice suggests that the trickle down effect is something of a myth (Navarro, 2002: Chapter 20 and McMichael, 1993: xiv). Central to neo-liberal economics is the belief in the desirability of unlimited consumption and economic growth as the cornerstone of development – ‘both of which are unreal in the extreme’ (Hinkinson, 2006:6).

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<sup>13</sup> The ‘trickle down’ hypothesis supports the idea that economic growth itself will see wealth seep down to those at the bottom and raise them out of poverty. This idea absolves governments of the responsibility to do anything other than promote free market policies and structures that maximise the rate of economic growth (Hamilton, 2003:235). It also ignores evidence that the gap between rich and poor in times of economic growth is growing.

Proponents argue that neo-liberalism is the cornerstone not just for showing that market forces are crucial for determining the best outcomes for society but of liberal democracy and human rights per se. Given this, neo-liberalism is then imbued with a moral imperative which raises it above a mere economic system of thought and practice, making it even more impervious to criticisms from other economic perspectives and schools of thought. Placing these thoughts in a policy focus, Kim et al (2000) argue that neo-liberalism is best seen as a broad term for the school of economic theory that has been most influential in North American economic policies over the last two decades. Furthermore, it is the theoretical basis on which the West has used its authority to foist a particular model of economic organisation and development programmes and policies on to the structure and practices of international financial institutions like the International Monetary Fund (IMF) (Navarro, 2002) and the World Bank. Kim et al (2000) argue that neo-liberal philosophy has played a decisive role in shaping and supporting the current global economy.

It is increasingly assumed that neo-liberalism can embrace not just economic matters but the whole gamut of social issues and even social purpose itself, including capturing the concept of 'freedom'. At the same time, and in contradiction to this, it ignores the importance of the relationship between culture and economic systems. Under neo-liberal ideology, the economy and society become as one; consumers and citizens are synonymous; the values of the market place go unchallenged; and the question is posed in an increasingly rhetorical fashion: "what other social values are there?" By defining and identifying social purpose solely within this framework, the fact that economic systems are ideological and cultural phenomena is lost to view.

There are clearly problems here. The adoption of neo-liberalism and its policies and ideologies distances both peoples and policy makers from taking any responsibility for the human condition of other societies elsewhere in the world. The notion that the omnipotent market can somehow resolve not just economic problems but social problems, if accepted, allows us to ignore these social problems and take no action to resolve them. The individualism of the market also means that social determinants of

human malaise (as in health and poverty) are played down and the ‘blame game’ is focused firmly on the individual.

The embracing of freedom by neo-liberalism leads to major contradictions between the ideology of ‘free’ markets and human ‘freedom’. As Bagchi (2005: xii) observes:

*the rise and growth of capitalism with freedom on its public banner lead to the birth of the largest slave trade in history and a system of slavery that denied all rights to the enslaved.*

He continues (Bagchi, 2005: xx)

*capitalism has relied on markets so long as they have served its purpose. As in the past the propaganda of the civilising mission was in full drive even as cluster bombs tore apart the bodies of the intended beneficiaries of that civilizing process or as two-thousand – or nine-thousand pound bombs buried patients of a whole hospital under the debris.*

A major problem for the formulation of public policy is the attempts by its supporters to push as pervasive and integral to it the tenet that the covert neo-liberal ideological framework is rational, right and objective. Some acceptance of this might then explain in part at least the lack of any explicit comprehensive overt theoretical perspective in the arena of public policy. In so far as the rightness of neo-liberalism goes unchallenged, it follows that no alternative theoretical perspective is considered. This enables the comfortable maintenance of the status quo.

Since in reality neo-liberalism does not provide such a theoretical perspective, there is then a void. There is simply too great a belief in the rationality, rightness and objectivity of neo-liberalism. Chomsky (1973:310) writes that the rationality involved here is ‘uninformed by any sense of justice’ and translates into practice as the knowledge of how to ‘preserve privilege and order but not to meet human needs’.



### 3.3 Neo-liberalism and science

Turning more specifically to neo-liberalism and science, the neo-liberal philosophical core just spelt out would seem to make an excellent bedfellow for (Western deductive) science and technology with its assumed neutrality and objectivity in Western society. Just as the invisible hand will direct the market, so left to its own devices it is believed the science of genetic engineering can be left to direct its own future to the benefit of all humankind. Just as the market is based on one particular type of freedom, the freedom on the supply side to choose to maximise one's profits, so the freedom in genetic engineering is of scientists enabled to choose the direction of their endeavours. On the other side of the market the two come together under the banner of consumer sovereignty where rational consumers can choose what, by way of genetic engineering, is best for them. Demand will determine supply – so it is presumed.

Yet increasingly even if we were able to trust our scientists to be driven by humanistic values, their training, which is almost totally devoid of considerations of philosophy, ethics (certainly social ethics) and political science, does not equip them for such tasks. When so much of their endeavour is based on the values of the market place, aided and abetted by corporate funding, the prospects for the needed objectivity of our scientists must be questioned (more on this in Chapter 9). The basis of consumer sovereignty, the most central tenet of the market economist, is a fully informed rational individual consumer acting autonomously seeking selfishly to maximise his or her utility. Neither the 'investment goods' which are required to develop genetic engineering nor the 'consumption goods' which are likely to flow from such developments could conceivably be seen as being able to be assessed by consumers in this way. The populace want to believe in the moral standing of their scientists and in their claims for the benefits of genetic technologies. The scientists are happy both to play this role and to play down the risks.

This problem can be realised as manifest and multiple when we recognise that science and technology play an integral part in maintaining systems of economic power and ideological hegemony. Technology developments are equated with progress, even if that 'progress' poses major threats such as in those to sustainable living on the planet.

Vandana Shiva (1992), for example, writes about the devastating effects the Green Revolution in agriculture has caused to developing countries such as India and Bangladesh. This is illustrated when the adoption of genetic engineering technologies takes place within a political economic framework that mandates and facilitates the patenting of all of life's genetic blueprint. The fact that the ownership and value of genetic material are located often in first-world, private corporate entities is seen (if it is seen at all) as being an acceptable (and even desirable and right) price to pay for 'progress'.

The policy makers often have to be pragmatic and are more concerned with the micro details of policies than with the macro or global consequences. Even if they were not politically and ideologically aligned to the status quo, they might be driven to respond implicitly at least to immediate pressures and points of view which too often are set by the policies and ideology of the neo-liberal market. Fundamentally lacking today is an alternative paradigm whereby politicians and policy makers can critique or question the philosophical or ideological framework underlying the policy questions that drive their decisions. Science policy makers enjoy confidence not only in this 'rational' and 'right' economic system, (one could argue that they too are products of this system) but in the unexamined paradigm of the deductive, fragmented methodologies of Western science. Citizens enjoy confidence in the science policy makers - there are always ethicists on board after all - so that questioning and dissent are muted. Add to that the fact that at the same time, and increasingly, knowledge and science are pursued for their financial return rather than their intrinsic or humanistic value and we have reason to be worried that the value base of these endeavours is not endorsing, or even having a connection, to the general humanistic values including as set out at the start of this chapter.

While there is justification for concern that neo-liberalism provides succour for scientific endeavours to avoid scrutiny by 'the people', such worry is compounded by the increasing hegemony of neo-liberalism. It is this that then threatens the social fabric in many ways. Most crucially in the context of this thesis the greatest threat in the context of genetic technology (that is but an example of a more general phenomenon) comes from the lack of a serious critique of the underlying neo-liberal paradigm.

### 3.4 Choice, freedom and individualism

This section considers the issues of choice, freedom and individualism first in the neo-liberal market generally but then in genetic technology more specifically.

The concept of freedom of choice is central to the philosophy of neo-liberalism. The mechanism of exchange and of market forces has been reified into the political ideology of Western society as a whole. As a result, statements about society (and not just the economy) are reduced to those about private, self seeking individuals and privatised institutions; there is no acknowledgement of a society or community nor of conflicting, contradictory and perhaps even irreconcilable class, race or cultural interests. Similarly, there is no recognition that our institutions are being restructured and changed to support a more radical neo-liberal global market economy. Thus is created or assumed an ahistorical, apolitical environment.

Neo-liberalism is based on the philosophical assumption that the right of adult individuals to make 'free' choices about how to pursue their own welfare, even if they are the 'wrong' choices in some social sense, is paramount even sacrosanct. The expression used to cover this form of choice is 'consumer sovereignty' - the consumer rules. The key concern is individual freedom of choice which quickly becomes converted and not just shortened into individual freedom. The measurement of preferences is through market values. Consumers reveal their preferences through their market choices, exercised freely. This is a seemingly strong form of autonomy such that individuals not only make their own choices but in essence *must* make their own choices. It is thus strong autonomy in the sense that individuals must act as sovereign consumers whether they choose to do so or not. The fact that such consumer freedom in the market place is constrained by individual income or lack thereof tends to be sidelined or forgotten.

At the global level there have to be concerns that neo-liberalism is fostering a hegemony of this one economic system which then endangers the remaining diversity of social and economic systems around the globe. As Chua (2003:8) writes:

*[t]he prevailing view among globalisation supporters is that markets and democracy are a kind of universal prescription for the multiple ills of underdevelopment. Market capitalism is the most efficient economic system the world has ever known.*

Such claims cannot stand up to even rudimentary scrutiny (e.g. Kim et al, 2000; Navarro, 2002; Chomsky, 2003; Roy, 2004; Bagchi, 2005). Such universal prescriptions constitute an irreversible shrinking of communitarian socio/economic choice, what might be termed the homogenisation and ‘McDonaldisation’ of societies.

Thus central to the ideological framework of neo-liberalism are the concepts of freedom, choice and the place of the individual in society. These however ought ideally to be considered as being very context-specific rather than simply being accepted in the way in which they are conceived in neo-liberalism. As Harvey (2005:184) writes: ‘[I]f it is indeed the case that the US public can be persuaded to support almost anything in the name of freedom, then surely the meaning of this word should be subjected to the deepest scrutiny.’ This unfortunately has not been done. This conceptualisation of the words ‘freedom’ and ‘choice’ is in no sense independent of the market place itself. Particularly germane to the discussion of choice in neo-liberalism is Hegel’s recognition that concepts of freedom are problematical in that people’s wants do not develop ‘outside’ the system and that entrepreneurs are a major force in the expansion of the imagined wants of consumers. Hegel argued that the market did not just satisfy wants; it created them (Muller, 2003). Yet in neo-liberalism somewhat oddly there is little debate about where the choice set comes from, that is, how preferences are formed and over what.

Thus Hamilton (2003:64) writes that neo-liberalism is based on the assumption that people’s preferences are a given and not the subject of social control or manipulation by others. It is these preferences that determine what people consume and how and how much they strive to become richer. Choice is thereby elevated to some sort of supreme status, despite the fact that the correlation between choice and wealth is largely inextricable - that is, the rich have it and the poor do not. This is happening precisely at a time of social and cultural homogenisation across the globe (and an enormous advertising, marketing and branding industry to affect people’s choices). A

number of theorists argue that choice, the cornerstone of neo-liberalism, is manufactured (Hamilton, 2003:68) and even that ‘choice is primarily...the privilege of those groups which have attained control over the productive process. Their control projects the way of life for the whole, and the ensuing and enslaving necessity is the result of their freedom’ (Marcuse, 1991:226).

For as Harvey (2005:185) writes:

*For those left or cast outside the market system – a vast reservoir of apparently disposable people bereft of social protections and supportive social structures – there is little to be expected from neo-liberalisation except poverty, hunger, disease and despair. Their only hope is somehow to scramble aboard the market system either as petty commodity producers, as informal vendors....as petty predators to beg, steal, or violently secure some crumbs from the rich man’s table, or as participants in the vast illegal trade of trafficking in drugs, guns, women, or anything else illegal for which there is a demand.*

While Hegel was dealing with a world very different from the neo-liberal form of capitalism we see today, he adds a further dimension to the critique of the concept of ‘freedom’. Hegel’s ‘ordinary man’, he wrote (Muller, 2002:141) ‘believes he is free when he is permitted to act arbitrarily, but in this very arbitrariness lies the fact that he is unfree’. For Hegel, the question of what our social and political institutions ought to be is linked to the philosophical issue of what sort of person it is good to become – a social being with rights and responsibilities, an individual subject integrated into the whole society – not a ‘free floating atom’ competing against other free floating atoms – the survival of the fittest (or wealthiest). This is based, in part, on the potential for human development created by historical institutions. That is why for Hegel, ethical theory is social and political theory, and all three are tightly linked to historical developments (Muller, 2002:141).

For Hegel, the concept of freedom was closely tied to the belief that social institutions played a pivotal role in protecting and promoting freedom. He saw the importance of the state in terms of institutions. For Hegel what provides the framework for freedom

and hence for a good life and society is the establishment of such social institutions which, based in culture, can provide a way of socialising people into good social habits. In contemporary neo-liberal globalised market society, a number of social institutions are being radically eroded – those that promote equity, community, inclusiveness, forms of arbitration to conflicting economic interests.

Thus while John Howard, the Australian Prime Minister, talks about ‘Australian values’ and the need to fly the Australian flag in schools, he at the same time heads an agenda which is radically altering the social institutions, the framework, the glue, the values, that bind together what was previously a more (but less than ideal) egalitarian society. The privatisation of health and education, the dismantling of the industrial arbitration system, disempowerment of the trade union movement and the basis of collective bargaining by workers are all acts which are destroying or as a minimum radically changing our social institutions.

The attacks on the marginalised, the unskilled, the unemployed, poor, refugees, Indigenous and Muslim communities<sup>14</sup> dismantle and threaten those ‘social institutions’ that are built on the notion of a fair go – egalitarianism, tolerance, acceptance of the other, multi-culturalism. Juxtaposed against this is the globalisation of finance and capital, further tax breaks for corporations and the rich, the growing power and reach of globalisation’s international undemocratic institutions such the WTO, the World Bank, free trade and patenting laws. At the same time, there is much anecdotal evidence to suggest that the Howard Government has overseen a very radical shift away from the impartiality of Australian institutions – the politicisation of the bureaucracy – particularly noticeable in the Departments of Immigration, Foreign Affairs and Trade.

There are different constructs of freedom which can apply both to individuals and to economic systems. For example, the ‘freedom’ that George Bush speaks about in the context of Iraq is quite different from the ‘freedom’ that Brazilian liberation educator Paulo Freire wrote about; from the ‘freedom’ that East Timorese Fretilin guerrillas

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<sup>14</sup> There is no room to explore this issue further here, but it is noteworthy that Chua (2003) shows how the relationship between free market democracy and ethnic violence and instability around the world is inextricably bound up with globalisation.

fought for; from the freedom that Nelson Mandela wrote about in '*A Long March to Freedom*' or Martin Luther King referred to in his famous speech (King, 'I have a dream', August 28, 1963). These are all 'freedoms' which have a highly social, historical, political and 'community of peoples' dimension. Bush's 'freedom' is the freedom to live according to dominant American values – for individuals to be able to consume and then to consume more<sup>15</sup> and for freedoms that do not impinge in any way to the 'American way of life'<sup>16</sup>. Freire considered 'man's ontological vocation (was) to be a 'subject' who acts upon and transforms his world, and in so doing moves toward ever new possibilities of fuller and richer life individually and collectively' (Freire,1993:14) and that even while deprivation and suffering continued, man could act upon and transform his world and create history. This is a much more social, more complex and deeply meaningful interpretation of the concept of 'freedom'.

### 3.5 Neo-liberal freedom and its constraints

The assumption that people's preferences are simply a given and not the subject of social control or manipulation (by for example, advertising campaigns) has long been questioned. Yet it is a central tenet of neo-liberal economics. If this assumption does not hold, then the behaviour of consumers reflects not their own 'inherent' preferences but whatever influences them, including potentially the preferences of various organisations and institutions.

The press for this neo-liberal form of 'freedom' is happening just at the time that across the globe there is a shrinking in the diversity of possible life styles, cultures, languages<sup>17</sup>, economic systems, epistemologies and ontologies. In the wake of that, choice sets are being reduced. Yet neo-liberalism's freedom of choice is responsible at least in part for bringing about this homogenised world.

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<sup>15</sup> With growing deregulation and privatization 'what remains of democracy is largely the right to choose among commodities' (Chomsky, 2003:139)

<sup>16</sup> Bush refers to doing whatever it takes to defend the 'American way of life' – a way of life that is only possible as a result of global economic, political and military hegemony.

<sup>17</sup> In 1800, there were approximately 9,000 major distinct dialects and languages in the world. Today, it is estimated 80 – 90% have been lost, with many more quickly disappearing – and largely being replaced by English. With the loss of these languages comes the loss of different worldviews, cultures, economic systems, a loss of human diversity and richness on the planet.

The amount and sophistication of product advertising have reached a level that is unprecedented in human history. This is aimed at manipulating people's preferences and choices, thereby seeming to deny the very basis of the neo-liberal principle of people's preferences being a given or being freely derived. Choice is assumed to reflect and be a product of these given preferences. Consumer sovereignty is seen as the altar at which the neo-liberal market worships. Liberty is expressed in terms of freedom to exercise one's consumer sovereignty, whatever are the individual's wants. There is no over-arching or constraining construct of what is the 'common social good' except as the summation of whatever individuals want. The idea in neo-liberalism that people seek to maximise their utility is problematical since it allows an interpretation of people's actions in what is only a very narrow way; it is especially so given that the emphasis is on individuals' seeking to maximise their own individual utility.

Hamilton argues that there is evidence that consumer sovereignty is very shallow (Hamilton, 2003:64). There is an issue here of the distribution of power in terms of the prospects at least of corporate manipulation of consumer behaviour. This can be seen against the reality of poorly informed (and poor) individuals in society understanding what is in their real interests, what sorts of choices they face and what autonomy they have in exercising choice.

Perhaps even more critical is the question of what choice sets consumers face. The issue is simple. Consumers can only choose from what is available; but their ability to determine their 'choice set' is severely constrained. In perfect markets they are much better placed – neo-classical economists would say just as well placed as producers in a perfect market – to establish or at least influence the choice sets. In imperfect or monopolistic markets, consumers lose this influence and producers gain more. The imbalance in power is thus not only at the level of individual consumer choice over individual consumption but also at the level of aggregate consumers and their ability to say to the market (through for example their combined purchasing power) 'we want X or Y included in our choice set'.



The exponents of individual rights and freedoms in the market place, and the ability of the market to reflect individual needs, fail to address the enormously powerful social mediation that produces needs and wants. It follows that the fact that ‘the consumer may possibly be as much a mass-produced product of the system as cornflakes or Coca-Cola, is not even remotely hinted at’ (Hunt and Schwartz, 1972: 11). There is much evidence to show the role of corporate marketing in producing ‘cultures’, the value of brand names (Klein, 2001) in creating demand and an image that is sought after. It is interesting here to consider the amount spent by pharmaceutical companies in promoting products compared to what they spend on research (Angell, 2004:52-58).

The convergence of the interests of media empires with political and corporate interests is significant in supporting neo-liberal hegemony and represents a significant shift in the requirement for independent media reporting as a bastion of democratic principles. For example, the international arena has never had such sophisticated information technologies with such widespread networks, so great an ability to bring the story ‘to the people’ so close in time to the event. Never have there been so many reporters ‘on the ground’ and yet so little independent and critical analysis of events. Concurrently, the pervasiveness of and increasing reliance by the public on television as the preferred source of news corresponds with and is perhaps partly causal in creating the loss of civic engagement in Western nations. It also corresponds with the trivialisation of news which is reduced to the 30 second ‘grabs’; culturally bereft entertainment interrupted by sophisticated commercial advertising and the idealisation of the rich, powerful and beautiful. It provides the brief opportunity to see voyeuristically the suffering of ‘the other’, the dispossessed – to whom we can, in our much acknowledged generosity, make a charitable donation, but which precludes us from taking action to change the system radically and which has no room for them.

Charles Taylor (1991:4) argues that individualism is a major source of ‘*The Malaise of Modernity*’. He writes of what he calls ‘the dark side of individualism’ which ‘centres on the self, which both flattens and narrows our lives, makes them poorer in meaning, and less concerned with others or society’. As Mooney (2004:10) argues: ‘If we look inward, introspectively at ourselves, where is the space for society? The space for the social? For culture? A planet full of free floating atoms not caring about

others; not caring about culture.’ Mooney continues: ‘We risk ending up behind Rawls’ ‘veil of ignorance’ not just as a philosophical construct but in the real world, with, in Thomas Nagel’s telling phrase, ‘A View from Nowhere’.’

### 3.6 Neo-liberal freedom and inequality

The theory of revealed preferences – people’s choices in the market place ‘reveal’ their preferences - is manifested in the neo-liberal economist’s measuring rod of value. The consequence of this is inter alia that the preferences of the rich have more weight than those of the poor, and conversely, the poor, despite constituting the great bulk of humanity, often have little or no choice at all. The theory chooses to ignore the inequalities of power, of wealth and of the fact that many people are marginalised from the market place and the structures of both global society and their own local society. The idea of an individual’s right to choose ignores questions of unequal resource distribution, especially income distribution. Indeed in neo-liberal economics the distribution of income is taken as a given and is not to be challenged. (In cost benefit analyses for example not only is this the case but the ‘social benefit’ is taken to be the sum of the benefits to individuals, irrespective of who gets them!)

It is assumed that the system is stable and self-reproducing, that there is no conflict of interests, no social classes, no exploitation and no imperialism (Hunt and Schwartz, 1972:10). The flip side of this coin is that there is no acknowledgement in neo-liberal philosophy that an overemphasis on individual rights (as with for example consumer sovereignty) leads to an impoverished sense of community and social values.

At a global level the issue of inequalities is indicated in a report from the UNDP (United Nations Human Development Report, 1998:30) which states:

*The additional cost of achieving and maintaining universal access to basic education for all, basic health care for all, reproductive health care for all women, adequate food for all and safe water and sanitation for all is....less than 4% of the combined wealth of the 225 richest people in the world.’*

It is not simply a case however of the rich donating some of their money, as Bill Gates and Warren Buffin have. This arguably does some good to some individuals, but it does nothing to change the social structures which could, if reformed, result in people being empowered to do good for themselves in a lasting way<sup>18</sup>.

Thus freedom in neo-liberalism is a function of income and wealth in the sense that without income and/or wealth there is no choice and hence no freedom of choice and in turn no freedom. Further it ignores the constraints of the broad ecology and the biosphere and in turn gives rise to the commodification and the enslavement and marginalisation of a large section of the human community. Concurrent with this is the decline in (and in fact, a deliberate attack and undermining of) institutions such as the trade unions, and publicly funded health, education and welfare, of independent social welfare advocacy groups. Without these, which provide a degree of balance and support for the social whole, there is failure to protect the less powerful, the environment and future generations.

### 3.7 Neo-liberalism and society

It is a failing of neo-liberalism that it does not accept the concept of society but rather places the market as the central, predominant force. Individual autonomy is the driving concern and community autonomy, which may well conflict with its individual counterpart, is ignored and undermined. There is thus a need for 'a more communitarian form of autonomy, in contrast to the individualistic autonomy of the neo-liberal market place which today both dominates globalisation and underpins much of the ethics of genetic engineering' (Mooney, 2004:2).

There is ample evidence that neo-liberal institutions are heavily weighted in favour of the rich and powerful both individually and across countries. The coming together of the market and the political institutions of liberal democracy is problematical in that it means that the only way people can express their choice is through their role as consumers, not as citizens. When basic social services such as health and education

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<sup>18</sup> Easterley (in *The White Man's Burden: Why the West's Efforts to Aid the Rest Have Done So Much Ill and So Little Good*) argues that if something is imposed from outside, it will almost certainly fail to work. Whether economic or political, it must come from the bottom up, supporting the importance of Hegel's concept of social institutions (Easterley, 2006).

are privatised, it is only the privileged and wealthy who have free choice – the poor are often excluded. An integral component of the ideology and ethos of liberal democratic institutions is the public's sense of trust in the institutions, which they need to believe are inter alia accountable and transparent. The lack of integrity and credibility by our political and business leaders and in our social institutions is an issue which should be of fundamental importance to our society. Yet it is not<sup>19</sup>. The focus is instead on the market; if it is thriving, interest rates are down, petrol prices are artificially low, then the privileged can continue to enjoy their freedom - to consume.

The theory underlying social capital<sup>20</sup> tells us that individualism and disengagement are bad for society. For example: in the decade following the introduction of the liberalisation, privatisation and individualism of the market economy in Russia, the resultant excess deaths were equivalent to the numbers killed in Stalin's purges in the thirties (Chomsky, 2003:147). The free market economy and liberal democratic political theory replaced communist theory and practice in Russia but, without the development of capitalist and democratic infrastructure, a few individuals have been able to exploit the system to an extraordinary extent. The great mass of the population suffer deprivation, poorer health, environmental degradation, and declining social supports. In Russia, Karl Polanyi argues (in Chomsky, 1973:400) the self adjusting market 'could not exist for any length of time without annihilating the human and natural substance of society; it would have physically destroyed man and transformed his surroundings into a wilderness'. Chomsky suggests that the notion of the 'private person' is wrecked on the realities of the predatory capitalist economy in which 'state intervention is an absolute necessity to preserve human existence and to prevent the destruction of the physical environment' (Chomsky, 1973:400).

Supported by neo-liberal philosophy, deregulation and privatisation remove the public yet further from exercising control over the social and economic structures which support their lives. Governments increasingly express their purposes in terms of

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<sup>19</sup> The political and corporate figures entwined and involved in the Australian Wheat Board corruption scandal is a classic case study of the arrogance and lack of accountability of Australian neo-liberal power brokers – and the sense of 'business as usual' attitudes of sections of the Australian public who do not demand any better.

<sup>20</sup> Putman, 2001

facilitating market processes and neo-liberal economic goals. The belief in the ‘trickle down’ effect, whereby the poor are supposed to benefit from investment, tax breaks and growth at the top end of society’s economic pyramid, is still pervasive, forty years after its currency amongst development economists and decades after its validity have been shown to be false. Society is increasingly being conceptualised as individuals pursuing their individual interests within a framework that ignores power and privilege, poverty, inequality and disenfranchisement .

More fundamentally still there is not the evidence to support the belief that, if the pillars of neo-liberal ideology are in place, that if freedom of choice exists for autonomous individual sovereign consumers and that if the economic fundamentals are right, then prosperity and social wellbeing will follow. There are many critics of neo-liberalism, however, who argue that it is neither conducive to economic development nor social wellbeing (Cox, 1995; Stretton, 2001; Hamilton, 2003); that neo-liberal ‘reforms’ destroy social capital (Cox, 1995) and that the ‘state becomes less democratically accessible ... (with the resulting) ... privatisation of government’ (Barns, 2002:24). Indeed, as Eva Cox has argued, such (neo-liberal) reforms are progressively destroying the social capital upon which prosperity, good government and social wellbeing ultimately depend. In an increasingly privatised global economy, policy making processes cannot become more democratic, no matter what the rhetoric is regarding improving public participation in policy decisions. Even within nation states, if public consultation were practised in an ideal form, in a global economy with globalised technologies, ‘the people’ would have no democratic power over the direction, development and control of technologies, such as genetic engineering. Despite their potential global influence on present and future generations, there are no democratic global governance structures to control the development of such technologies.

### 3.8 Choice, freedom and individualism in genetic technology

Examining the literature and policy in genetic technology, against the background of what has been said above about choice, freedom and individualism, places in sharp focus the work of advocates for the new bio-engineered utopia, in which the exercise of consumer preferences for [human] offspring options will be the prelude to the

technological control of human evolution (Athanasίου and Darnovsky, 2002). Such advocates include Princeton geneticist Lee M. Silver who describes this techno-eugenic future in *Remaking Eden: Cloning and Beyond in a Brave New World* (1997). In this, Silver celebrates the free reign of the market and seeks to perpetuate the myth that private choices have no public consequences.

Athanasίου and Darnovsky<sup>21</sup> write:

*The techno-eugenic vision carries with it a deep ideological message. It urges us, in case we still harbour vague dreams of human equality and solidarity, to get over them. It tells us that science, once .....the instrument of enlightenment and emancipation, may bequeath us instead a world in which class divisions harden into genetic castes, and that there's not a damn thing we can do about it. The story of an 'enhanced' humanity panders to some of the least attractive tendencies of our time: techno-scientific curiosity unbounded by care for social consequence, economic culture in which we cannot draw lines of any kind, hopes for our children wrought into consumerism, deep denial of our own mortality.*

Such technological possibilities are probably very good from a market and profit point of view. They are not good from a 'social determinants of health' or equitable resource allocation perspective and, even more problematic, from an ethical, ecological and hermeneutical perspective.

The 'common good' consists of 'the fact that the persons or groups comprising a society have interests that cannot be reduced to the sum of individual interests' (Englehard, 1996:459 in Dierckxsens, 2000:16). There are things which are in the interests of everyone that are not encompassed in the aggregation of the private interests of each. On the other hand, some individual interests have to be forgone in the interests of the society as a whole. Those may be subtle, highly nuanced, in the realm of non materially measurable social values and beliefs. As a rule, in the past, the state was assumed to represent common interests. Through taxation systems,

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<sup>21</sup> [http://www.genetics-and-society.org/resources/cgs/200207\\_worldwatch\\_darnovsky.html](http://www.genetics-and-society.org/resources/cgs/200207_worldwatch_darnovsky.html)

various infrastructures and institutions, education, health care and so on, the state can still assume the role of making the society more equitable, harmonious and cohesive. The increasing trend towards privatisation in the neo-liberal economy however leads to greater disparities in health and welfare, less social cohesion and social compassion, and an ethos of the 'survival of the fittest'.

As Dierckxsens (2000:17) argues, democratic political governance is essential to regulate the economy and private interests in the broader, common interests of its citizens. '[A]s economic rationality based on private interest continues to depart from and erode the common good [and democratic governance], a market ethic based on private interest expands at the expense of a solidarity ethic' and the political commitment to 'the people' and democracy.

This primacy of individual rights however lacks a wider moral vision. It further entrenches the homocentric view described by Somerville (2000) and Rifkin (1998) who see the problematic in genetic engineering as the ultimate encroachment of human power over life. It ignores subtleties of human society and deep psychology, the fact that we are not free floating atoms but social beings, without which all of our lives would be much poorer in so many ways. The writings of the philosopher Martha Nussbaum (1992) are relevant to genetic engineering, when she sees humanity as increasingly confusing the ability to choose with the ability to create. Freedom of choice is central to both and it is this concept of freedom in neo-liberal globalisation and in genetic engineering which is celebrated by the supporters of both.

Mooney argues that there is however a need to avoid the 'excesses of freedom of choice', both in neo-liberalism and in genetic engineering. He proposes that this might best be done through 'a more communitarian form of autonomy, in contrast to the individualistic autonomy of the neo-liberal market place which today both dominates globalisation and underpins much of the ethics of genetic engineering' (Mooney, 2004:2).

The need to avoid Mooney's 'excesses of freedom of choice' not only in neo-liberalism but also in genetic engineering arises because of the possibility at least that

such freedom can have negative ramifications at a social or community level. The growing market place for reproductive technologies is a case in point. The consequences of the market choices here are often not given adequate consideration in policy. To illustrate the absurdity of this, one can look at the reproductive technology “business” where people’s ‘hugely personal, highly emotional transaction(s)’ are tempered by their ability to pay (in the US) for eggs at ‘prices beginning at \$6,700 and rising to \$35,000 for attractive Ivy League donors with perfect teeth and academic scores’ (*The Weekend Australian*, March 4-5, 2006:27). What about the child, its lineage, its genetic history, its place in the family; the subtleties of human relations and connectedness? Surely, this is commodification of human reproduction. In the same article, it is reported that one company ‘enjoying the booming demand for fertility services (IVF Australia) made a profit of \$18.8 million in 2003-04. One of the company’s largest shareholders who was credited with turning the company into a high powered conglomerate, compared the IVF business model to ‘the fast food industry, with lots of outlets’. Fertility doctors in the United Kingdom are becoming the country’s ‘newest millionaires, outranking even plastic surgeons’ (op cit: 27). At best, in an overpopulated world this is irrational economics; at worst it is the market place at its most a-moral. Furthermore, such technologies as assisted reproductive technologies clearly illustrate that freedom of choice is income dependent and social value independent.

### 3.9 Ideology and power

The Macquarrie dictionary defines ideology as ‘a closely organised system of beliefs, values and ideas forming the basis of a social, economic or political philosophy or programme’ (Macquarrie International English Dictionary, 2004:929).

Ideology and power are closely linked which is why they are discussed together in this section. There are numerous ways in which power can be conceptualised, but for the purposes of this thesis, consideration is restricted to that power which is embedded in the global and political economic structures, and the ideology (which it is argued is increasingly pervasive and hegemonic) arising from those structures. In the context of genetic engineering technologies, the focus is on the power relationships between capital, technology, ideology and governments.



While it is clear that imbalances of power affect people's capacities to make effective and meaningful choices at an individual level, more importantly in the context of this thesis is that they affect people's capacities to effect change on a structural, political and community level. Importantly within the latter they inhibit people from making social choices about the sort of society in which they want to live. Certainly these 'big picture' issues are not on the agenda of (science) policy makers. There the issues are 'technicalised', fragmented and compartmentalised, scrutinised by experts on ethics committees, whose rules are framed by the discourse of science and, by at least default but perhaps also in complicity, in the status quo. Consequently, the strategic questions of where society is going, what its broad values are and what the limits are for a particular technology are seldom part of the discourse. Yet these are clearly not market based issues that consumers might address. They are community matters which can only be meaningfully addressed by people wearing the hats of citizens.

Critical theory acknowledges that particular beliefs, values and ideas arise out of particular power structures and social institutions.

*The ideas of the ruling class are in every epoch the ruling ideas....the class which has the means of material production at its disposal, has control at the same time over the means for mental production so that...the ideas of those who lack the means of mental production are subject to it (Marx and Engels, 1947: 39).*

Dierckxsens (1998) argues that political economy is the only theoretical approach which can deal with the economic relationship of politics and ethics and how the 'free play of the market abandons the Common Good, especially in this age of globalisation'. Dierckxsens continues that '[t]o separate ethics from economics, the market needed to appear to be a natural product of history, a self referenced system and the means of promulgating general well being and progress' (1998:17). The fear is that, in this regard, it is succeeding.

In this context social institutions (in Hegelian terms) are crucial. It is these which can provide the 'glue' or 'pillars' to bring together or provide support for a more socially

integrated society where the common good has a chance to prevail. This is not a new problem. Muller (2002:397) writes that '[f]or at least two hundred years...from Moser and Burke down to Jurgen Habermas...intellectuals have repeatedly expressed concern that the modes of thought and action characteristic of the market would permeate all human relations. The result...would be the impoverishment or disabling of the very institutions on which human flourishing depends.'

The relationship between power, ideology and knowledge is too often viewed in isolation from the political, socio-economic and institutional context. The big contextual issues and irresolvable conflicting interests between corporate driven science and technology, markets and profit on the one hand and democracy, the social contract and public interest on the other, are too seldom addressed or even acknowledged. The protection of democracy and the common good that institutions such as the law, freedom of speech, trade unions and a strong civic society can provide are too often overlooked.

Shiva (1993) suggests that modern scientific knowledge has often been thought to be able to be determined without social mediation. From within this worldview, knowledge is believed to be in principle seen as reducible to directly verifiable 'facts'. As Shiva writes: '[t]he concept of 'scientific' assigns a kind of sacredness or social immunity to the Western system...the dominant system makes alternatives disappear by erasing and destroying the reality which they attempt to represent' (1993:12). She writes of how in the Third World entire crops, valued on the basis of scientific knowledge, have been destroyed in the pursuit of some scientific monoculture which has assumed a superior, more scientific method of agriculture. She refers to the example of bathua, an important green leafy vegetable, which has a high nutritious value and which was declared a weed in India. Expensive herbicides were used to kill this weed and as a result, Shiva argues, 40,000 children in India go blind each year for lack of Vitamin A. This is an example of dominant knowledge responding to reputedly 'objective scientific' and market values, rather than of some more integrated, sustainable, diverse cultures and economic systems. Indigenous knowledge systems are by and large ecological, while the dominant model of scientific knowledge, characterised by reductionism and fragmentation, is not equipped to take the complexity of such interrelationships in nature into account.

Another illustration of this issue is the perception of forests. For a Western educated forestry official, a forest is seen as a potentially valuable economic resource if access is given to clear certain areas to retrieve economically valuable timber for commodity markets. Shiva gives an example of how local forest dwellers value the forest in a quite different way (1993:14): 'It is a home, a shelter, a source of food – plants and animals, a means of stopping soil erosion, a spiritual home, a source of economic good.' She laments 'knowledge systems which have emerged from the food giving capacities of the forest are ...eclipsed and finally destroyed'.

The importance of power and its exercise are rarely explicitly acknowledged in their true light in public policy debates on health, agriculture and animal husbandry. What does happen is that, paralleling the conception of power in individualistic rather than socio/political structural terms, the terms empowerment, power and rights are used - particularly in relation to sophisticated genetic health technologies. This construction of power – the power of individuals – serves however (and it is almost certainly with intent) to depoliticise and obfuscate what is in practice the most significant sense of power, that which arises from the structures of the global political economy.

Returning more specifically to the development of genetic engineering, this is an excellent example of situations where individuals are discouraged or even debarred from acting in the role of citizens. This effectively leaves the grand design to the corporate players. They can first paint the big picture and then manipulate it to maximise profit rather than to promote the interests of humanity. Society becomes devoid of any sense of a larger or longer term purpose in life, of a common purpose in life for humanity. Society thus increasingly leaves it to the commercial market to fashion its norms, values and sources of social recognition. Rational market-determined society exists in what is a moral social vacuum. Individuals play out their individual lives in this vacuum and society is no more than the aggregation of individuals with 'social; values reduced to the disparate voices of disconnected individuals. Charles Taylor writes that with the focus on individualism, 'people no

longer have a sense of a higher purpose, of something worth dying for – they have no aspiration left in life but to a pitiable comfort'<sup>22</sup>.

Sen (1995) asserts that people are not free when they do not have the power to make choices about their lives. People who are profoundly marginalised due to their poverty are adversely (if at all) incorporated into society. This disenfranchises them from even their local economy and community, often also their local language and culture. For many of the poor, this disenfranchisement has no possibility of redress – decisions are made in board rooms in different languages, often continents away. For the world's Indigenous peoples, this can mean the disappearance not only of their livelihoods, language and culture, under the influence of hegemonic Western society, but of their existence as a people. Their loss is also a loss of identity as individuals but also, and perhaps more crucially, as a people. This is the story of many Australian Indigenous communities.

Sen (1995: 8) argues that contrary to the rhetoric of the current neo-liberal regime in the US 'the Western world does not have any proprietary right over democratic ideas'. The issue, as arose most painfully in Iraq, as to whether any nation has the right to impose democracy on another state, especially one with a very different non-Western culture, is a manifestation of arrogance on the part of Western society. We need to reflect on why it is so difficult to discuss the issue of some people having structural, political, economic, and social power over others. Sen argues: 'the world in which we live is both remarkably prosperous and thoroughly miserable, where a massive command over resources, knowledge and technology go hand in hand with the rugged presence of extraordinary deprivation and staggering inequality' (1995: 9). It is increasingly an integral part of Western thought, that the poor are poor because of their own deficiencies – (they are corrupt, lazy, have too many children, and so on) - and the rich have earned their riches.

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<sup>22</sup> <http://www.sicetnon.com/archives/aricles2003/threemalaises>

### 3.10 Power and ethics

An exploration of the issues associated with genetic engineering would not be complete without at least some reference to ethics and some of the ethical dilemmas posed by complex technologies such as genetic engineering

Genetic technologies are being developed in a world in which there is no absolute moral authority, code of ethics, or agreed upon vision for humanity. Rather the development of these technologies is taking place in a world with an ideology dominated by individualistic interests and material gratification of Western cultural, ideological, social and economic hegemony.

Furthermore, these genetic technologies are being developed on a planet in which every aspect of the biosphere is in decline. Yet the long term health and survival of homo sapiens depends upon sustaining ecosystems. How this happens is multi-faceted but central to it is the fact that the Anthropocentric nature of the dominant technologically orientated Western culture blinds us to the ecological dimensions of human existence (McMichael, 1994).

As Suzuki and Knudtson write:

*Most of us have lost any clear sense of our species' place in global ecosystems and of our biological kinship with other living things. We must not lose sight of this larger context as we continue to tinker with genes and shape the hereditary futures of species. For as we embark on this new era of applied molecular genetics, we are in some ways incredibly short-sighted. We are so intent on rushing to exploit our newly acquired insights that we often do not have the faintest idea of the long term consequences of our technologies.*  
(Suzuki and Knudston, 1988:343)

If predictions about the significance of the technology are correct, then it is unethical to have the interests of corporate companies dictate the direction the technology takes. The 'guardianship' of big business to date has not served the planet well and does not

reflect the interests of those that do not play a significant role in the market, such as the marginalised, the poor, the environment and future generations.

Multinational corporations are enormously powerful. With such power, they are able to capture the public policy agenda and determine the rules. The convergence of the interests of the scientists with those of the corporates further entrenches this. The reductionist scientific paradigm is rooted in understandings that exclude the wider context – be it biological or socio-political or indeed social ethics. It ignores the interconnectedness of nature, species and societies; it conceals the socio-political/economic context out of which the technology arises. Expert advice and scientific knowledge are invoked as if they provided a value neutral basis for regulatory decisions. At the same time, advertising and images created by multinationals (Nike, McDonald's, Rupert Murdoch) powerfully influence people's values, attitudes, desires and expectations.

Certainly it is to be conceded that there are short term benefits that genetic medicines can bring to individuals. These are inevitably more highly valued in a society where individualism is pre-eminent and expressed in terms of the values of personal autonomy and self determination. In such societies the values derived by or driven by the social determinants of health are over-ridden in consideration of the individual genetic determinants of health. What might appear as being democratic consent to new technologies is manufactured through a combination of media coverage of claims about the benefits of genetic technologies within the context of the wider cultural milieu which assumes the benefits of 'scientific progress'. This is further exacerbated by people's growing dissociation from any sense of connectedness to nature and the broader ecology and the belief that being healthy and having extended longevity is a right and is normal. All of this is aided and abetted by a society that is critically unaware of deeper structural issues; that being able to consume whatever is producible is a right. This is a product of neo-liberal consumerist ideology based on the individual and individual rights. It ignores or seeks to deny the social responsibility and inter-connectedness of people and other species. These structural issues are sacrificed at the altar of neo-liberalism's appeal to individualism and individual freedom of choice.

From the outset, the development of GE technologies has been firmly situated in the international arena and intimately linked to global economic processes. It marks an unprecedented coming together of first the power of and then the ethics of science, of technology and of capital. There is a clear relationship which links neo-liberal globalisation with the agendas of such bodies as the World Trade Organisation and the Trade Related Aspects of Intellectual Property agreement.

Without the huge financial promises secured by patents in the field of genetic engineering, it can be assumed there would be no precipitous rush into this technology. The reach of corporate patents is global and hegemonic, economically, culturally and legally. Patent holders are unaccountable to the public, being largely and increasingly located in the private corporate multinational domain, screened from public scrutiny, accountability and control.

In health care, genetic engineering technologies promise all sorts of health benefits. The technologies are however sophisticated and complex, thus placing their control in fewer hands and making the technologies and debates surrounding them less accessible as compared to more basic and more economical health care supports and practices. The genetics 'revolution' in health care changes perceptions of disease and health and humans' place in the broad ecology. It feeds attitudinal expectations that disease and disability will become less acceptable. (Everyone wants a perfect baby – and besides, it is then not a burden on the health system or society at large.) At the same time we continue to turn a blind eye to the disease and premature death caused by the unjust, unequal and unsustainable distribution of the world's resources. On one hand, the imperative is to save the life of some individual with some rare disorder; on the other, 20,000–30,000 children die each day as a direct result of poverty. This latter does not rate a mention in the world's media but it is a solvable problem at the equivalent combined cost of all the ice-cream consumed and hairdos done in Europe and Northern America each day. How many researchers who have sought funding for their research on the basis that it will save lives have donated the profits from their patented research outcomes to saving lives of the desperately poor? Have used the logic of the social determinants of health to argue for a redistribution of wealth and medical resources? Medical ethics focuses on the individual's rights, rather than that of the common good. It provides a narrow framework devoid of the

wider concepts of social ethics and justice. Yet the health and wealth of one nation cannot be separated from that of another – particularly when assessing globalised technologies such as genetic engineering and the spread of infectious diseases.

Where are we going as a global human community? Where is the global community? In an increasingly deregulated globalised market fuelled by consumerism and individualism, where decisions made in Wall Street affect peasant farmers in Uttar Pradesh, how do we meaningfully construct democratic systems and public consultative mechanisms which take into account the global community's voice? If the promises of genetic engineering – to feed the world, save and prolong lives - are real, why are the public, the global community, not more engaged in discussions about the technology and its future directions?

The relationship between genetics, technology, power, governance and democracy is complex and multi-layered. Institutions, consultative processes, agendas and frameworks for discourse conducted within and by a dominant culture will inevitably be biased in their outcomes toward maintaining that culture and system. As Chomsky states, in industrial Western society, it is 'obviously far from true, that the mass of the population have nothing to lose but their chains, and there is no point in pretending otherwise. On the contrary, they have a considerable stake in preserving the existing social order' (Chomsky, 2003). The long term sustainability of the planet and of the human community however is dependant on our co-operative co-existence. For this we need to build a just, equitable, sustainable and democratic global system which sees humans as part of the broad ecology rather than dominators of it.

The most common cause of disease and disability in the world today is that caused by the abject poverty imposed on one billion people who are also excluded from a global economic system dominated by the rich and powerful and corporate interests. Eighty billion humans have preceded us and Indigenous culture teaches us we are custodians of the future. Any assessment of genetic engineering technologies must place the broad interests of humanity – peace, compassion, justice, sustainability, equity and democracy – firmly on the agenda. Unless the global human community takes control over the future of genetic engineering technologies through active participation in decision-making processes, researchers, corporate interests and complacent and



compromised governments wooed by the benefits to the GDP, will continue to support a technology which carries enormous biological, economic, political and social risks and little promise to present and future generations.

### 3.11 Knowledge, hegemony and democracy

Associated with the concept of power in the sense of power over is the idea of hegemony, a particular conceptual understanding of the way the world is as being the only way the world could be. However knowledge, how we understand and describe the world, is contingent on our time and place and the relations of power, the language and cultural contexts that shape our lives.

We can recognise the existence of a hegemony of knowledge and ideology when the understanding of a certain social, economic or political practice is seen as ‘natural’. In turn such a concept cannot be challenged because we cannot imagine other possibilities. It is increasingly the case that ‘other models’ of society i.e other than neo-liberal are seen as aberrations, even as irresponsible, as uncivilised or undeveloped, particularly if they fall outside the radius of US interests. Before its demise in the Soviet Union and the ‘Eastern bloc’, socialism provided an ideological counterpoint (even if very un-ideal) to Western capitalist market ideology. The benefits of having that ideology, indeed any ideology, being juxtaposed against the capitalist one have largely disappeared, leaving by default a unilateral hegemonic polity (although developments in South America are suggesting a ‘new way’). The lack of any seeming alternative has been instrumental in the conversion of the mid 20<sup>th</sup> century capitalism to the neo-liberalism of today with its hegemonic overtones and its increasing movements into all the nooks and crannies not just of economies but societies.<sup>23</sup>

The ‘new way’ in South America is under attack by neo-liberal leaders. Journalist and author George Monbiot’s (2006:13) juxtaposes the demonisation of Evo Morales of Bolivia nationalising oil wealth for the benefit of the whole national society with

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<sup>23</sup> Apart from the individualism that underpins Thatcher’s suggestion that there is no such thing as a society, her comment means that no distinction can be drawn between an economy and society. Neo liberal values become all pervasive.

the very positive treatment by Bush and Blair of Idris Deby, the leader of Chad, (one of the poorest countries of Africa), a leader infamous for human rights abuses and corruption and enormous personal wealth, who has allowed the private exploitation of oil and used the wealth from this to purchase arms rather than build the Chad nation. This is a classic example of the double speak and double standards of neo-liberal leaders. Deby has not challenged the neo-liberal model which supports US hegemonic interests and ideology; Morales, along with Chavez of Venezuela, clearly has.

While an ideological belief can be challenged, a hegemonic belief cannot. There is a continuum from ideology to hegemony. Ideology is just one view among other possibilities of how the world should be. Of course, one ideology may be more hegemonic and harder to resist than others – but there is a stronger capacity to challenge power over as we move along that continuum from hegemony to a condition in which ideologies have equal status or at least none has monopoly status. Western science can be seen as ideologically hegemonic within the global political economic framework. It is seen as an expression of truth. This hegemony is challenged by such movements as the World Social Forum and the People's Health Movement. Beyond that Indigenous communities also set up a challenge. This is inevitable given that their cultures are still physically intact and their worldviews encapsulate a different ontology and epistemology. Their livelihoods are based on diverse and ecologically sustainable economic systems and their languages articulate a different structuring of realities. Although some different (non neo-liberal) economic systems do still exist, such as diverse Indigenous peoples' cultures and economic systems, Cuba and Kerala in India, they are not on an equal basis in terms of either reality or status. Furthermore, many of these systems (for example, that of the Kalahari peoples) are fast disappearing under pressure from the global economy.

There are other dimensions to the power of hegemonic ideology. Marxist theory argues that invisible power is rooted in the idea of 'false consciousness' in which reality 'is concealed from us' (reflecting only) surface phenomena, giving us only a partially true picture. It is such necessarily false consciousness that Marx calls 'ideology' (Barratt Brown, 1995:8). This idea of false consciousness has been a popular concept in feminism, in the radical catholicism of Latin America and in other

social movements that seek to liberate people through knowledge of how the world objectively works.

In our society certain genres of discourse, especially economic rationalism (as neo-liberalism tends to be called in Australia, uniquely it seems) have tended to dominate political and social debate. It follows that this has resulted in other ways of seeing the world being muted and/or being seen as lacking validity. The resultant political climate has been thereby narrowed and political discourse truncated as the neo-liberal hegemony in economic terms has resulted more generally in a lack of tolerance of other views, a hegemony of thought that increasingly pervades social and cultural intercourse. A closely related but somewhat different concern is the skewing of thought and ideas which follows in the wake of growing individualism. The problem here is that certain social concerns then end up not being articulated. There is a narrowing of the range of such concerns which echoes the flattening of the social passions for debate per se and an increasingly pervasive view that a retreat from anything involving citizenship to some form of consumerism is the way to cope. The debate regarding the nature of political discourse has become an almost 'silent' dispute. To be rescued and rejuvenated, a critical political and overt ethical orientation is necessary, one that for example can help the socially repressed to find voice.

The disappearance of local knowledge and the flattening of diversity in the wake of the interaction with dominant Western knowledge occur at many levels. These can be dealt with simply by being ignored. For Western eyes much of the local knowledge that is threatened is very distant both geographically and culturally. It can then be assumed all too readily that Western knowledge is universal – which countries have not welcomed MacDonaldis one might ask? Local knowledge can be 'bought', almost literally. Such knowledge, however, is clearly not universal in any epistemological sense.

Emerging from a dominating and colonising culture, modern knowledge systems are themselves colonising. The knowledge and power nexus is inherent in the dominant system because, as a conceptual framework, it is associated with a set of values based

on power, an intellectual, language and cultural framework, which emerged with the rise of capitalism.

Evidence suggests however that post modernism is a passing phase in the history of humankind. The events of the 21<sup>st</sup> century represent ever so clearly an insecure, unjust world – genocide in Dafur, the invasion of Iraq, 30 million people dying each year from poverty, 10 million child slaves, global insecurity, every system of the biosphere in decline, billions spent on armaments. By any benchmark, such descriptive statistics suggest the dominant system is not rational, nor is it sustainable. It is also not in the broad interests of the human community.

Just as the disappearance of Indigenous cultures and peoples is contributing to the narrowing and flattening of our lives, so too is the increasing dominance of technology. Our human surroundings are harmed by a loss of both resonance and the richness of diversity which then represents a diminution of us all as peoples and as individuals. Perhaps the risks to cultures and to peoples are the greater as neo-liberalism threatens existing economic structures which in turn can put at risk existing cultural arrangements and the identities of different peoples and cultures.

We cannot rely on ‘democracy’ as currently practised to protect us from the problems of the neo-liberal market nor to ensure that technologies such as gene technology serve the interests of humanity. Democracy is slow, unwieldy, fallible and fragile and compromised by the neo-liberal order. As Chua (2004:275) writes: ‘ballot boxes brought Hitler to power in Germany, Mugabe to power in Zimbabwe, Milosevic to power in Serbia...’. The main lesson from Chua’s comment however is not to demonise democracy but to recognise three things; first that it needs to be seen as a cultural and social phenomenon; second that it must include constructs of community and protection of minorities and not just majority rule; and third, genuine democracy is very fragile and subject to other (including global economic) forces. Thus ballot boxes alone do not constitute democracy – it needs to be protected, nurtured by civic engagement processes, supported by social institutions and underpinned by economic systems that are not contradictory to democratic processes and objectives or opposed to local cultures. Additionally it has to have the depth, resilience and richness engendered by a strong, open and just civil society. It needs also to be based in the

diversity of both economic systems and cultures, a critical analysis of reality and a respect for the broad ecology on which we are all dependant. One can argue that the Australian Howard government's treatment of refugees is unethical. A bi-product of this treatment which is not often acknowledged, is that it is a treatment that has also significantly damaged Australian institutions, institutions which are pivotal to the health of Australian political democracy. Such damage to our social institutions include political interference in the legal system, arbitrary and short term interest driven changes to policies and laws, the politicisation of the bureaucracy and the 'demonisation' of certain groups of people.

The theoretical construct underpinning this thesis thus takes any evaluation of genetic engineering technologies beyond the standard frameworks of medical ethics and risk analysis as these are currently used to assess genetic engineering into the much broader and more critical arena of social ethics and political economy.

In conclusion, this chapter has attempted to introduce a theoretical and conceptual context to the thesis to give the ideas explored some framework for analysis and evaluation. The theory and concepts ideally require further exploration and exposition but cannot be explored in greater detail in this master's thesis. For the purposes of this thesis, the main points for consideration are that the dominant ideas of contemporary Western society arise out of and support a neo-liberal economic system. These ideas (and the values and beliefs relating to them) are in no sense absolute, but rather are value laden and representative of only one cultural/political/economic model of society – a model that has grown from a local ideology to a global and dominant ideology. This ideological framework is not necessarily the best (and in fact some would argue, is contrary to that) in terms of the values of sustainability, justice, diversity, equity, the common good, community, citizenship and human rights based on the normative principles of universality and indivisibility; equality and non-discrimination; participation and inclusion.

In the next chapter, the thesis will provide a more detailed exposition of some of the aspects of neo-liberal globalisation, corporate interests and political economy and the impact on the governance of genetic engineering technologies.

## Chapter 4

### Globalisation, political economy and genetic engineering

*[C]orporations have been enthroned... An era of corruption in high places will follow, and the money power of the country will endeavour to prolong its reign by working upon prejudices of the people...until all wealth is aggregated in a few hands... and the Republic is destroyed. (Abraham Lincoln in Kim et al, 2000:230)*

#### 4.1 Introduction

Within the context of the theory of global political economy, this chapter addresses some of the practical problems in neo-liberal globalisation relevant to democratic governance in policy development. This is done in the specific context of genetic engineering technologies. It is to be noted however that while this is the focus, much of what is set out would apply to other areas of public policy such as those which relate to the pharmaceutical industry.

The chapter gives an overview of the global context within which genetic engineering technologies have developed. Political economy is used as a conceptual framework which allows a critical appraisal of the problems and conflicting interests of, on the one hand, democratic governance (and public consultation) in a global arena and, on the other, the influences of Western corporate interests.

In the next section the relevant background is set out before turning to globalisation per se. The chapter then examines the linked and key issues: TRIPS, and Intellectual Property Rights (IPRs) including gene patents before setting some of these issues in the context of what is called 'inequality at the world negotiating table'. That leads into questions around democracy at a global level. Conclusions to the chapter are then outlined.

#### 4.2 Globalisation

A google search reveals numerous definitions of globalisation. The majority of these are descriptive and a-historical, de-linked from any concepts of power, culture,

ideology or sense of economic hegemony. To take just one part of a definition – that relating to globalisation being a term describing changes in societies resulting in ‘cultural exchange’ illustrates the problem of unexamined neo-liberal ideology. The rhetoric of ‘cultural exchange’ belies the reality involved in the power play of globalisation, particularly when non-Western and Indigenous communities are in contact with the Western market economy, Western culture and Western political institutions. In every case, the relevant Indigenous community suffers some loss of language, culture, economic system, political/social structures and processes, relationship to the land and cosmos. The cultural exchange that may take place happens with respect to the iconic Indigenous artefacts. Of course, there are more technologically and economically resilient societies than such Indigenous societies but all nations are being drawn into the globalised Western neo-liberal economy.

A more accurate and more apposite definition of globalisation has to reflect the dominant role of corporations, the concepts of cultural, ideological and economic hegemony; the imbalances in power between the players and the location of the powerful players. It has to acknowledge the threats to democracy that globalisation (and its undemocratic institutions) represent, and the growing gap between rich and poor, within and between nations. A definition of globalisation has to make reference to the values, technologies and systems that are being globalised and to recognise where the globalisation process is taking humanity and the broad ecology. The globalisation process can easily seem inexorable.

For a description of some important features of globalisation, Susan Hawthorne’s ‘Wild Politics’ (2002:32) is most useful:

*[t]he dominant global forces at work are capitalist, masculine, white, western, middle-class, heterosexual, urban, and highly mobile. In general a majority of these dominances is present in the institutions developed by this conglomerate, and most of the individuals are members of cultural elites. They are situated at the still point, they are representatives of a cultural thesis which is buoyed up by the ideologies of Western knowledge and science, by a masculinist view of history and the world, and by neo-classical economics.*

Amoroso (1998, 52) defines globalisation as:

*the means being used to control the market and available resources so as to increment world wide profits. It is rooted in a strong cohesion among social classes and privileged groups of power which exploit to their own advantage principles of planning, coordination, centralisation and authority. The ideology of competition and a free market is employed as a tool to exercise ever greater power over citizens and workers or to penetrate without the constraints of bureaucratic red tape the weaker parts of the global system.*

He continues:

*globalisation marks an important turning point in the historical trend towards the continuation of unequal development ... (and) for the first time in history there is a rapid acceleration in the growth of capitalism accompanied by a notable shrinking of the areas and social groups involved.*

It is within a globalised context defined in this way that genetic engineering technologies are interpreted in this thesis as having a special significance. This is in part because of the power of the technologies in terms of their potential to change the broad ecology; but also because of the convergence of the physical aspects of genetic engineering technologies with their social, political and economic features. Genetic technologies create a new form of profit for capitalist economies, hence the global metropolis' determination to implement gene patenting regimes (more about patenting later in this chapter). The increasing spread and pervasiveness of Western market economics in conjunction with, for example, the patenting of the seeds of particular crops, mean that there is the growing potential for a poor, powerless peasant farmer in a Third World country being tied to the economic and legal requirements of a multi-national seed owning company (based for example in New York) with which the farmer has no other connection. It becomes clear that an understanding of globalisation and the forces lying behind it are critical to an appreciation of the political economy of genetic technology.



In looking behind the concept of globalisation, there is a need to recognise the extent of the power of multinational corporations in the world today. For example 50 of the world's 100 largest economies are multi national corporations. As such they wield more power than many nation states. Not only are they politically and economically powerful in their own right, but there are frequently important linkages between the hierarchy of the corporates and governments. This can be seen in the United States for example in the links between the Presidential Executive team and US corporations – what is referred to as the ‘revolving door’ (Chomsky, 2003; Krinsky, 2004). Yet corporations are not accountable in any democratic sense to any body of people or to any global governance structure (Chomsky, 2003). This results in largely unfettered corporate influence globally in which ‘the internationalisation process gives rise to economic marginalisation, political destabilisation and the globalisation of economy and technology’ (Amoroso, 1998:46).

It can thus be argued that economic globalisation ‘vitiates democratic processes... Corporate power has been vastly increased; it is entrenched in international free-trade treaties at the expense of the autonomy and power of states, workers and citizens’ (Coburn, 1998:46).

Amoroso (1998:52) argues that: ‘[g]lobalisation marks an important turning point in the historical trend towards the continuation of unequal development and becomes the ‘end of development’. This growth is the preserve of transnational companies but they are aided and abetted by international organisations both financial and political such as the G7, the World Bank and the International Monetary Fund (IMF)<sup>24</sup>. He in particular is scathing of these international organisations and their seeming inability to control the transnational companies and even their complicity in furthering the aims of the transnationals rather than those of national governments.

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<sup>24</sup> The G7 is made up of Canada, France, Germany, Italy, Japan, Britain and the US – what Amoroso refers to as triadic capitalism (Amoroso, 1998:52); the World Bank is a specialised agency of the UN that inter alia guarantees loans to member nations for the purpose of reconstruction and development. It has a controversial history in that it favours capital/technology intensive developments and is accused of tying nations into the ‘debt trap’; the IMF is also an agency of the UN but dominated by the G7, particularly the US which has led the push into structural adjustment programs for indebted Third World countries, bringing them more tightly into the globalised economy. The IMF and World Bank are always chaired by someone from the capitalist triad, or what Sachs refers to as ‘global governance by the rich countries, or international voting weighted by money as in the IMF and World Bank’ (Sachs, 2000).

Historically it is relevant to draw attention to the fact that in 1949, US President Truman began the era of scientific 'international development'. Huge construction projects began in Third World countries<sup>25</sup>. The Green Revolution<sup>26</sup> which relied on imported seed and chemical fertilisers, was supposed to usher in the end of famine and food shortages, agribusiness turning aid into opportunity. That however was also the beginning of the era of international debt and such debt has become a political instrument (George, 1988). Currently, there is over \$160 billion per annum in interest on debt paid from Third to First World countries<sup>27</sup>. Over \$1.5 trillion in interest has been paid to the richest countries in the past decade. In all of this 'the people' have been shut out of the decision making processes (loans and development projects often being decided by corrupt elite with Westernised values and education) that have led to this situation. The people have become (expendable) cogs in the wheel.

As Arundhati Roy writes '[o]nce the economies of the Third World countries are controlled by the free market, they are enmeshed in an elaborate, carefully calibrated system of economic inequality. Countries that have been plundered by colonising regimes are steeped in debt to these same powers' (Roy, 2004 <http://www.hinduonnet.com/fline/fl2121/stories/20041022008300400.htm>).

Transnationals move to and in turn between Third World countries to lower labour costs. The former in turn puts pressure on countries like Australia with respect to their national labour conditions, environmental policies, education, health, monetary and industrial policies. In Western Australia for example the forest debate has been couched in terms of the trade off between jobs and environment. But in the long term in Australia, in all countries and indeed globally, since it is a global issue and one that can only be resolved in a satisfactory way globally, the two have to go together to be

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<sup>25</sup> The term 'Third World' is enormously inadequate as Kim et al, 2000:47 advise. It is used in this thesis with a 'critical consciousness.... of its limitations and distortions'. First used by French demographer Alfred Sauvy to label regions that had been colonized but not settled, by European powers (contrasted to industrialised communist socialist countries) i.e.the 'Second World' and to industrialised capitalist ones, the 'First World'. About 80% of the world's people live in the 'third world' and yet enjoy less than one-fifth of the total world gross national product (Kim et al, 2000).

<sup>26</sup> The Green Revolution involves the introduction (particularly into India) of western high tech/artificial fertilizer/monocultural farming techniques with the aim of improving crop production. There have been numerous often adverse consequences including increasing indebtedness of small farmers, monocultural farming and a decline in local crop/plant varieties and hence the health of local poorer people.

<sup>27</sup> George, Susan. 1988; Kim et al, 2000; Bagchi, 2005.

sustainable. Suzuki (on *Trading Futures*, 1992) argues that we need to ‘safeguard our future...see through the economic fantasy...and into the real world that sustains us. Policy makers have to find a way of measuring the true cost of growth and globalisation and take the long term view’.

No single nation state on its own can hope to regulate transnational corporations’ (TNCs’) global activities. It is increasingly difficult for states to do this even when acting together. Dierckxsens (1998:150) describes how formal political power is held by the G7 and the 29 OECD nations through international agreements such as the General Agreement on Tariffs and Trade (GATT) and various Free Trade Agreements, and structures such as the World Trade Organisation. At the same time, internationalist organisations such as the United Nations and agreements such as the Kyoto Protocol, the International War Crimes Tribunal and the International Court of Justice, agreements which have been developed for ‘the common good’, are under-funded and/or undermined particularly by the premier global power, the United States.

Millen et al (Kim et al, 2000:225-26) state that although the degree of corporate influence over specific policy decisions may be uncertain, the pervasive effects of transnationals’ economic and political power are increasingly apparent today; . ‘As national and transnational corporations expand their share of the global economy, they consolidate their powerful position vis-à-vis governments and international institutions, in turn further enhancing opportunities for growth’. This cycle of corporate expansion and increased political leverage does not occur by accident. ‘The history of corporate-government relations has been one of continuing pressure by corporate interests to expand corporate rights and to limit corporate obligations’ (Korten, 1995:55 in Kim et al, 2000:226). Millen et al (in Kim et al, 2000) further argue that in recent years, ‘as regulatory mechanisms limiting [corporate leaders’] activities have been scaled back, and as social forces (such as organised labour) that once counterbalanced corporate demands have lost ground, TNCs and other large companies have attained a degree of power over our political decision making and legislative processes that a short time ago would have been unimaginable’ (Kim et al, 2000:226). Increasingly, TNCs are integrally involved in the deliberations of international political and economic institutions such as the WTO.

It is clear then that the power and commitment of corporations to influence national and international policies in relation to powerful technologies such as genetic engineering should be of concern. Kaye (1992), an assistant professor of the history of science at Massachusetts Institute of Technology, writes that the new biology of genetic engineering was founded on a strong belief in 'industrial capitalism' and its perceived mandate for 'science-based social intervention'. The developers of this technology were 'confident that it would offer them a previously unimagined power and control over both nature and society' (Cummings, 2005:26). Science was being moulded to the agenda of how it could better serve the private sector. Cummings writes that Monsanto Corporation, a leading corporation in the development of GMOs, visited the Reagan White House, sought and obtained assurances that they would not be disturbed by regulations of the GMO business. The early developers of GMOs were the agrochemical companies like Dow Chemical (Griffiths, 2001 in Chomsky, 2003: xvii), DuPont, Novartis and Monsanto – all sources of pervasive chemical pollution that resulted in the environmental laws passed in the 1960s. 'This time (in relation to genetic technologies developments), they were intent on getting to the lawmakers before the public did' (Cummings, 2005:27). Dow Chemical is the company responsible for the manufacture of Napalm used against the peasants in Vietnam. To capture one snapshot which illustrates the moral standards adopted by such powerfully influential corporations, as one American pilot said:

*We sure are pleased with those backroom boys at Dow. The original product wasn't so hot – if the gooks were quick they could scrape it off. So the boys started adding polystyrene – now it sticks like shit to a blanket. But then if the gooks jumped under water it stopped burning, so they started adding Willie Peter (white phosphorous) so as to make it burn better. It'll even burn under water now. And just one drop is enough, it'll keep on burning right down to the bone so they die anyway from phosphorous poisoning (Chomsky, quoted in Roy, 2003).*

Is this the sort of company we want influencing technology policies and controlling powerful technologies? Are these the sort of scientists we want determining the future of such powerful technologies?

In this world order, the economic disparities between rich and poor are both substantial and growing (Amoroso, 1998; Kim et al, 2000). This situation is at least in part created by transnational business firms which seek to bypass the more traditional framework of the nation state or seek to blur or merge the interests of corporations and the political process. Thus transnational companies increasingly fail to recognise geographical and national borders. It can become difficult for these sovereign 'private states' to be held accountable for their actions (Dierckxsens, 2000:111). There is complicity by national governments.

One could argue that neo-liberal globalisation is a form of colonialism. It has trapped countries and communities in a web of economic relationships which is much more insidious, destructive and pervasive in its controls and consequences than colonialism and supported by a hegemony of ideology that is hard to resist.

The global neo-liberal economic system is very mobile and flexible. Capital can be moved across continents within seconds through the internet rather than through a country having territorial control over another. At times it can even be called 'aid' or 'development' (what some critics see as euphemisms for another form of exploitation or at best, mis-information about the relationship between North and South).. Financial capital flows can have an enormous impact on national/regional economies overnight, at times with devastating consequences as was shown in the East Asian economic crisis of 1999.

Shiva (2000) maintains globalisation is the rule of commerce and Wall Street is the determinant of what constitutes social values. As a result things that should have high worth – nature, culture, the future – are being devalued and destroyed. The rules of globalisation are undermining the rules of justice and sustainability, of compassion and sharing. As she points out: 'when patents are granted for seeds and plants, as in the case of basmati rice, theft is defined as creation, and saving and sharing seed is defined as theft of intellectual property' (Shiva, 2000:122).

The internationalisation of finance, production and consumption in the globalised 'borderless'<sup>28</sup> world takes the control of regulation and policy formation out of the hands of national, democratically elected governments. As of 2000, the top 200 corporations had almost twice the economic power of the poorest four fifths of humanity. Economic power translates into political power and with corporations answerable only to their shareholders, the bottom line fails to represent the development of good environmental, health and education policy. The top corporations represent an enormously powerful lobby force with the potential to hold governments to ransom. Their lobbyists have access to the highest levels of the most powerful governments and have played a pivotal role in the structuring of a global economic infrastructure which advances their interests, very often at the expense of local economies, jobs, human and environmental health. The underlying humanitarian values that this thesis seeks to advance - equality, solidarity, etc. - are denied as the values of market efficiency and corporate growth replace them.

There is however a further major problem for national politicians. While the economic system of unlimited growth appears environmentally unsustainable (The Worldwatch Institute Reports 1970's – 1980's; George, 1988), for businesses to survive in the global economy, they require growth. This sets up the danger that the push for individual corporate sustainability comes into direct conflict with global sustainability. The risk is that the latter loses. Thus while Australian and other national governments focus their policy making at a national level, there is a need for this to be done in the context and understanding of the global arena.

The model that has dominated international assistance programs in developing economies and is supported by institutions that direct globalisation is one that prioritises economic values and the globalised market economy. The fact that institutions such as the World Bank are controlled by the West intensifies its economic dominance. For example, evidence indicates that economic globalisation contributes to growing disparities in health outcomes worldwide (Navarro, 2002; Blouin et al 2006). They document how the IMF champions market supremacy and repayment of wealthy creditors, even when reimbursement impoverishes the domestic

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<sup>28</sup> Term coined by Ohmae 2000.

economy of the debtor nations and intensifies their poverty. This is because forcing debtor countries to repay loans regardless of the condition of their economy severely diminishes the resources available to support the health and well being of their people.

Parallel to this phenomenon is the lack of trust people have in their government. This was shown for example in a poll commissioned by the BBC World Service (Guardian Weekly, 2005:7). Yet if the market were to reflect humanitarian values, globally and/or locally, then there might be no problem here. The reality is however that such values are largely missing.

Our mainstream politicians are loath to act against the consequences of the globalising growth economy. However communities of people acting together can. For example, a Greenpeace initiated shareholder resolution exhorted the company BHP not to spend \$500 million slated for frontier oil production project in Alaska. Instead, as was reported on the BHP web site in 2000, they invested it in solar powered projects.

In this era of globalisation, nothing happens in isolation. There is a serious and growing disjuncture and powerlessness in people's lives when international agreements are so far removed from local realities, yet so deeply influencing them. This amounts to a loss of sovereignty, a loss of control that people as individuals, local communities and nations can have over their lives. So while Western governments go to war to 'bring democracy to the people', the economic system they bring to underpin the society is essentially anti-democratic.

New technologies cannot be introduced into systems without having (what are often unexpected) consequences. New technologies and global financial structures removed from local economies have even greater consequences. For example in 1987, as a result of the Green Revolution and a dependence on imported pesticides, more than 60 Indian farmers from Andhra Pradesh killed themselves by consuming pesticide, overwhelmed by debts they had incurred for pesticide purchase (Shiva,

1993:112)<sup>29</sup>. An even greater dependence on the global economy is being instituted through genetic engineering. This technology in agriculture is linked, through patenting, to international negotiations related to trade. For example, a number of India's traditional crops which have evolved and been grown for thousands of years, have become subject to international corporate patenting claims since India became a signatory to a number of agreements following its membership of the WTO. Agreements like TRIPS and the Agreement on Agriculture (AoA) and international inter-governmental organisations like the International Union for the Protection of New Varieties of Plants directly influence control over natural resources. These regimes, whether in the form of patents or any other form of control over rights, recognise and allow for private, monopolised control over resources, knowledge and practices.

How has globalisation affected policymaking processes in Australia? In what ways has it restricted the capacity of (nation) states to choose policy directions? How should Australian governments respond to the challenges of globalisation?

Capling et al (1988) argue that many Australian political institutions and the values which have sustained them have come under direct and sustained attack from the pressures of globalisation. Such pressures emanate for example from institutions which have been constructed ostensibly to manage conflict and economic regulation, such as the systems involved in industrial arbitration, social welfare, public health and environmental planning. Their impact is in a sense two fold. First the institutions are diverted from or even perverted in their original goals but second their continued existence masks the need for their replacement or at least reform.

In Australia, the impartiality from corporate influence of the regulatory and policy role of the Office of Gene Technology Regulator (OGTR) has been called into question by various bodies including the Australian GeneEthics Network, the Network of Concerned Farmers and Greenpeace Australia Pacific. Evidence suggests that the OGTR is embedded in a political context which assumes that laws should

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<sup>29</sup> Similarly, Barwa et al, 2002:51 note that 'in 1998-9, 500 Warangal farmers in India took their own lives due to "pressure from a combination of local and global structural pressures"'.



facilitate not restrict the licensing and release of genetically engineered organisms (Taeger and Phelps, 2004).

According to John Stocker (1992), former chief executive of Australia's premier research and development government funded body, the CSIRO, 'working with the transnationals makes a lot of sense, in the context of market access...the best strategy (being) to get into bed with these companies. Hindmarsh lists corporations, including Agrigenetics, Monsanto, Rhone Poulenc and AgrEvo (<http://www.geneethics.org/>) which have direct financial connections with the CSIRO. While it has not been possible to obtain figures for Australia, in the US the Biotechnology Industry Organisation, a major trade group, spent nearly \$143 million to lobby the US Congress, the White House and the Food and Drug Administration between 1998 and 2002. In Australia, the lobbying sums are surely less, but there is evidence of the 'revolving door' relationship between corporate interests, regulators and policy makers (e.g. Hindmarsh and Lawrence, 2001). Internationally, evidence also suggests a corrupt nexus between multinational corporations like Monsanto and Third World countries' politicians and bureaucrats<sup>30</sup>.

Good policy needs to give credence to core humanitarian values such as social and educational security and opportunity and fair access to legal, educational, medical and other social services. It needs also to reflect the value of and support a rich, diverse and sustained environment. Most fundamentally political leaders need to develop a more robust political culture and involve the people as citizens in decisions governing their lives and in so doing recognise our global responsibilities not just as national citizens but global citizens. The prospects for achieving this are not very encouraging, especially as our politicians have little political will to maintain and develop institutions and values that transcend efficiency and growth (Capling et al, 1998). In any case, more than this is needed. Somehow the seemingly fundamental dilemma between on the one hand neo liberals' chasing of economic growth and on the other sustainability must be resolved. The latter is only achievable if the former is challenged (Cairncross, 1993).

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<sup>30</sup> For example India. See also Australian GeneEthics Network

### 4.3 Gene patents and Intellectual Property

The combination of technologies, raw materials, and markets, power and global corporatism is in part the foundation of the politics of technology change. It is within this contextual nexus that the thesis will now explore patent regimes and intellectual property rights both in general but also more specifically in genetic technology.

Wikipedia states that ‘in law, intellectual property (IP) is an umbrella term for various legal entitlements which attach to certain types of information, ideas, or other intangibles in their expressed form. The holder of this legal entitlement is generally entitled to exercise various exclusive rights in relation to the subject matter of the IP’ ([http://en.wikipedia.org/wiki/Intellectual\\_property](http://en.wikipedia.org/wiki/Intellectual_property)).

Intellectual property laws vary between jurisdictions. However,

*these laws are becoming increasingly harmonised through the effects of international treaties such as the 1994 World Trade Organisation Agreement on the Trade-Related Aspects of Intellectual Property Rights (TRIPS)*  
([http://en.wikipedia.org/wiki/Intellectual\\_property](http://en.wikipedia.org/wiki/Intellectual_property))

The impacts of IP laws on health and pharmaceuticals and the poor are discussed later in this chapter, particularly in relation to the Intellectual Property issues associated with the patenting of genes.

A patent is a government licence giving a person or organisation the sole right to make, use and sell an invention for a period of time, usually 20 years. For patent protection, the ‘invention’ must be novel, non-obvious, of practical use and able to be described in sufficient detail to enable one skilled in the field to use it for the stated purpose.

In 1987, the United States Commissioner of Patents decided that ‘the Patent and Trademark Office now considers non-naturally occurring nonhuman multicellular living organisms, including animals, to be patentable subject matter’ – that is, anything under the sun that is made by humans could be patented. What are known

as ‘utility patents’ then came into being such as the genetic modification of a mouse, genetically modified for the purposes of biomedical research. Since then human genetic material has been routinely patented. This raises enormous ethical issues. For example, a cell line ‘produced from a spleen removed from a Leukemia patient’ had a commercial value for pharmaceuticals produced from this cell line, worth several billion dollars.(Hettinger,1995:269). The owner of the spleen, John Moore, was found in the California Supreme Court, to have no ownership interests over the cells.

Hettinger writes that the ‘environmental and international political significance of the biotechnology patenting issue is clear from the United States’ refusal to sign the biodiversity treaty during the United Nations conference on Environment and Development in Rio de Janeiro in 1992 because of the perceived inadequacies in the treaty’s handling of biotechnology patenting rights and royalties’ (1995, 271). The United States has been vitally concerned to have stringent patenting protection particularly in the area of biotechnologies as this provides an enormous and growing source of wealth and competitive edge to US corporations (Rahman, 1992).

Patenting regimes provide for a very aggressive form of intellectual property rights. Not only is it the case that any living entity can be patented, but also the ‘biotechnical processes for manipulating ...biological materials and organisms, such as gene splicing, can be patented...(as can be) broad classes of organisms in radically different species as long as the organisms have the same traits and functional properties’(Hettinger, 1995:277). An extension of this is that utility patents can prohibit farmers who have traditionally observed the practice of saving and using their seeds from previous crops, or from breeding animals (Hettinger, 1995: 279).

Intellectual Property Rights have developed directly out of Western systems of property rights. Concurrent to this is the way Western cultures have viewed the relationship to other species. For example, in Western society, it is commonly accepted that individuals/families can own an animal or animals or a tree or trees. In many non –Western societies and in particular, in many Indigenous cultures, humans are seen as custodians of the environment, of other species of animals. The concept of private ownership of the whole of a particular species would be unthinkable. That however is what patenting can now lead to.

Thus, patenting regimes are embedded in Western proprietary concepts of ownership with the result that patenting laws are clearly neither economically or culturally neutral. They become another form of not only economic but also cultural hegemony. The convergence of proprietary concepts of ownership with the Western instrumentalisation of other species – what Hettinger refers to as the ‘institutionalise[d] disrespect for life’ (1995: 304), raises important questions about our Western moral ontology, and the potentially devastating consequences of this ontology which underpins the destruction of our biosphere.

As Shiva (2001:43) writes:

*Only capital can add [economic] value to appropriated nature, and hence only those who own capital have the natural right to own natural resources; a right that supersedes the common rights of others with prior claims. Capital is thus defined as a source of freedom, but this freedom is based on the denial of freedom to the land, forests, rivers and biodiversity that capital claims as its own. Because property obtained through privatization of the commons is equated with freedom those commoners laying claim to it are perceived to be depriving the owners of capital of their freedom.*

Shiva is thus able to describe the economically hegemonic underwriting in Western concepts of proprietary law which allows capitalist expropriation of the genetic commons and places it in the private hands of corporations. This is particularly tragic when that commons has provided the shared livelihoods (medicines, food sources, cultural meanings and so on) of communities for aeons.

Most genetic diversity occurs in the Third World (or ‘the South’); most patents are held in the First World (or ‘the North’). The North (in the majority, the US, but also Europe and Japan) owns 95% of the world’s patents, 95% of Africa’s patents, 85% of Latin America’s and 70% of Asia’s (Barwa et al, 2002:41). This results in a massive transfer of wealth from South to North, in addition to the \$100 million that the poorest countries pay to Western creditors in interest repayments every day. International enforcement of patenting regimes serve only to reinforce the divergence of economic interests between the First and Third World. For example, in Madagascar, the rosy periwinkle plant was used Indigenously to treat diabetes and forms the basis of a

compound now used in chemotherapy treatment to treat Hodgkin's disease. It is worth US\$100 million per annum. Madagascar receives none of this wealth and currently has chopped down most of its forests to feed its people. Similar examples abound – the Kalahari people and the 'obesity' drug; the Shamans of the Amazon whose generations of lore about the properties of herbs and flowers have yielded a high percentage of valuable drugs but with no recompense or acknowledgement of the common heritage of this knowledge for the people, all done under the auspices of the private property rights of pharmaceutical companies.

Traditionally and conventionally the reason economists argued for patents was to protect the profits of firms which had invested heavily in research and development. It is not the purpose of this thesis to recommend alternative regimes that would protect the investment into research that corporations make. That is a significant issue in itself – with much publicly funded research underwriting private corporate research, the relatively small amount of corporate budgets that are spent on research in comparison to marketing budgets, the making of drugs for essential disease treatment such as HIV widely accessible to the public – all are issues relating to this subject and outside the scope of this thesis.

Gene technology has led to its key component – genes – being increasingly seen as a valuable resource which can be privately owned through patent regimes. The application of patent laws to genetic biotechnology involves a new body of asset ownership that raises many ethical, legal, social, economic and political issues.

Gene patenting is a particularly contentious issue. At the same time it lies at the cornerstone of corporate interest in genetic technologies. It can be argued that Intellectual Property Rights, which enable gene patenting, constitute a legal and economic entity which has a number of undesirable features: enclosure of the last commons of humanity; ownership of the genetic blueprint for all life by private companies; a new form of colonialism which will further transfer wealth from the South to the North; and the securing of technologies by the North in the North.

These outcomes are not surprising given that the development of patenting laws has arisen from negotiations between unequal partners at the negotiating table (General

Agreement on Trade and Tariffs or GATT). They result in the enforcement of internal national structural adjustments, often by countries that do not have adequate infrastructure, resources or priorities in this area. Furthermore, patenting regimes force local Third World economies to try to compete in the global economy but on a hopelessly inequitable basis.

Patenting laws can also be seen as further entrenching a global structural 'collusion' with international trade agreements. These then form a web of protection for corporate interests, leading to yet greater dominance of corporate influence. In this sense and in their support of these neo-liberal organisations, they are not economically neutral.

Yet more importantly, patenting laws as currently formulated and practised are anti-democratic. This is especially so with respect to Indigenous, Third World and community held knowledge, medicines, plants and seeds (Shiva, 2001; Barwa and Rai, 2002). The US National Institute of Health (NIH) are engaged in what the Wall Street Journal calls the

*biggest race for property since the great land rush of 1889 in this case, 'staking US patent claims to thousands of pieces of genetic material ... The purpose, the NIH explains, is to ensure that the US corporations dominate the biotechnology business, which the government expected 'to be generating annual revenue of \$50 billion by the year 2000, and vastly more beyond' (Chomsky quoted in Z Magazine, July-August 1992).*

It is these developments which gave new urgency to the US demands for increased protection for intellectual property at the ongoing GATT negotiations. This was to ensure that US corporations would then be well placed to dominate the health and agricultural sectors worldwide. The goal was and is to control the essentials of human life, and to guarantee to US pharmaceutical corporations large profits on their products. This results in them being priced far beyond the reach of most taxpayers who partially fund the basic research and certainly beyond the reach of the bulk of the world's population more generally.

These policy stances by the US are particularly problematical in a world that is already experiencing the effects of the very poor global governance of the planet. Every aspect of the biosphere is in decline yet the dominant global power remains outside the collective international legal frameworks provided by such protocols and treaties as the Kyoto Agreement, the International Court of Justice and the United Nations Nuclear Disarmament Treaty. The rate of ‘anthropogenic species extinction is hundreds - perhaps thousands – of times greater than normal background extinction rates, resulting in a possible loss of one-quarter of all species on earth within fifty years’ (Hettinger, 1995:267). Coincidentally, this loss of genetic diversity in itself pushes up the stock value of genes.

Blakeney (1997) argues that there is no proof that IPRs affect the level of investment in research and development which is one of the arguments used to support the practice of gene patenting. There is a contradiction here in the very concept of increasing social benefit by restraining society’s ability to use an innovation. In fact two thirds of patented products are never placed on the market. Instead the patent is used to prevent competitors gaining an advantage. Even if IPRs could be shown to stimulate innovation, there is an assumption that it will be beneficial to society to have a ‘profusion of biotechnical products ... in fact it is possibly a mistake to stimulate this technology indiscriminately through offers of broad and lucrative utility patent grants’ (Hettinger, 1995:296). There is a strong argument to have public rather than private funding for a technology that raises such significant ethical and social issues.

What is clear, however, is that the practice of copying patented drugs can make medicines more affordable for patients around the world. For example, the Indian generic pharmaceutical industry provided drugs to about half the people infected with HIV who are receiving treatment in developing countries. In less than 10 years this supply of ‘copycat’ drugs forced down the cost of AIDS treatment from \$15,000 per patient to a little more than \$200. Such cheap medicines were possible because India did not have any constraints from product patents. If countries conform to the requirements of the WTO, only the rich are able to afford the drugs. Due to India’s recent commitment to the WTO’s Intellectual Property Rights regime, the days of cheap treatments for millions of AIDS patients around the world is coming to an end.

Having been one of the world's major suppliers of cheap drugs for Third World countries, in March 2005, the Indian parliament passed a bill that made it illegal to copy patented drugs. Medecins Sans Frontieres, the medical relief agency, stated that 'under the new Indian legislation, new medicines will only be available for the rich' (The Guardian Weekly, 2005:3).

#### 4.4 Trade Related Intellectual Property Rights

In 1995, the World Trade Organisation (WTO) came into existence. This was very much at the insistence of the United States which at the Uruguay round of the General Agreement of Tariffs and Trade (GATT) moved to have a body responsible for regulating world trade. The WTO was established to administer and monitor GATT (Christie, 2001:180). It was at the insistence of the United States that intellectual property was included in the GATT rather than being administered by the World Intellectual Property Organisation (WIPO), which is the international organisation created to administer intellectual property. This was done because of the cross-retaliatory measures that were available under GATT but not under WIPO, thereby making any infringement of the Agreement easier to enforce (Christie, 2001:180). The aim of the WTO was to "harmonise" legal trade agreements including those relating to patents (Hawthorne, 2002:330). As Hawthorne (2002:331) writes: 'The implicit and explicit aim is the worldwide spread of Western systems of law to satisfy the needs of industrialised countries.'

In the 1990s developed countries had become concerned that the products protected by IPRs in the North could not be protected in the South where there was often no equivalent IPR system. In the area of biotechnology, agricultural companies were concerned that they would lose their competitive advantage as the knowledge behind the invention was utilised without profit to them (Barwa and Rai, 2002:48). The North responded by introducing Trade Related Intellectual Property Rights (TRIPS)<sup>31</sup> as a means of ensuring that the countries of the South provide an IPR system to complement their own. The TRIPS agreement mandates the development of strong

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<sup>31</sup> '[F]rom the 1970s, major figures in the corporate world in the United States such as Edmund Pratt, the chief executive office of Pfizer, the biggest drug company of the world, were looking for ways of blocking competition from new challengers. Their effort led ultimately to the inclusion of so-called intellectual property rights in the document establishing the WTO. Under this patent regime, the US practice of giving patents for 20 years and for products rather than processes has been extended to all members of the WTO. This regime has pushed up drug prices everywhere' Bagchi, 2005, 307.



intellectual property laws in member countries. It is said to be ‘probably the most significant development in international intellectual property law [last] century’ (Blakeney, 1997: v). Such trade and intellectual property laws protect the corporate investments – there is no parallel system of laws that protects the labour or non-corporate knowledge that goes into making the various products. There are concerns that the TRIPS Agreement is inequitable for the South. It will possibly result in an increased flow of income from South to North but a decreased flow of technological knowledge from North to South. Stronger critics say that TRIPS amounts to ‘economic colonisation’ of the developing world (Lesser et al, 2000). Ministers from ten South American countries<sup>32</sup> agreed to avoid ‘TRIPS plus’ provisions in bilateral and regional trade agreements on the basis that they would lead to a significant increase in drug prices and decreased access to drugs.

In the 19<sup>th</sup> century, the US rejected foreign claims to intellectual property rights on grounds that they would hamper its economic development. Japan followed the same course. As in the case of ‘free trade’, the poorer, developing countries are denied any recourse to the methods that were used historically by the rich countries to develop their economic strengths.

#### 4.5 Patents and piracy

The US accused the Third World of ‘piracy’ when it introduced IPRs in the Uruguay Round as a new issue. The US estimated that royalties lost to them in agricultural chemicals amounted to US\$202 million and US\$2,545 million for pharmaceuticals Shiva <http://www.twinside.org.sg/title/tur-cn.htm> . The Rural Advancement Foundation International (RAFI) argued however, that if the contribution of Third World peasants, farmers and Indigenous peoples were taken into account, the ‘piracy’ was in the reverse direction. The RAFI estimated that the US owed US\$302 million in royalties for agriculture and \$5097 million for pharmaceuticals to Third World countries. In other words, in these two sectors alone, the US alone owed \$2.7 billion to the Third World<sup>33</sup>.

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<sup>32</sup> Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela

<sup>33</sup> Third World Network, 2001 <http://www.twinside.org.sg/>

There are numerous examples of Indigenous medicines developed over the millennia, which have been pirated by Western pharmaceutical companies and subjected to monopoly patent claims. The example of the Madagascan rosy periwinkle plant used in chemotherapy treatment for Hodgkin's disease was quoted above. Shiva (2000) states that patents and intellectual property rights are supposed to prevent piracy. Instead they are becoming the instruments for pirating the common traditional knowledge from the poor of the Third World and making it the exclusive 'property' of Western scientists and corporations. She argues that many components of Indian Indigenous food and medicines are pirated and patented. The knowledge of the poor is thus being converted into the property of the global corporations, creating a situation where the poor will have to pay for the seeds and medicines they have evolved over centuries and have used to meet their own needs for nutrition and health care.

It is however not only Indigenous public knowledge that has been patented but Indigenous people themselves. In 1995, the US government 'issued itself a patent on a foreign citizen' (Horvitz, 1996:34). This was a Hagahai man from Papua New Guinea. – US Patent no. 5,397,696<sup>34</sup>. The people from there are reputed to be immune from leukaemia and neurological degenerative disorders. For the Hagahai, who are few in number (about 260 people) and only came into regular contact with the outside world in 1984, their genetic material, the very core of their physical identity, became the property of the United States Government. The same patent application was tabled in 19 other countries. Though one of the "inventors", resident in Papua New Guinea, apparently signed an agreement giving a percentage of any royalties to the Hagahai, the patent made no concrete provision for the Hagahai to receive any compensation for becoming the property of the US Government. This patent was withdrawn in 1996 after huge protests by Indigenous people (Hawthorne, 2002:354).

In another example illustrating the disdain for Indigenous intellectual achievement, and similar severe costs for the local population, Chomsky (2003) writes about the Kpelle peoples of Liberia, who had developed hundreds of varieties of rice that were matched precisely to microenvironments in particular ecosystems so that dozens of different seeds might be planted in a small field, with very high yields. The US

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<sup>34</sup> Hawthorne, 2002:353

agronomists advised capital-intensive 'green revolution' techniques using petrochemical inputs which, apart from being far too costly for a poor country, bring lower yields and loss of both the traditional knowledge and the wide variety of seeds that have been bred, selected, diversified and maintained over centuries. Various estimates have been made that agricultural productivity would be cut by as much as 50% if the rich genetic pool of rice varieties were lost to be replaced by foreign products (Chomsky 2003). The lack of concern by the experts, in this case, was heightened by the fact that this was 'women's knowledge', transmitted by older women to young girls who spent much time acquiring the skills and lore (Chomsky, [www.zmag.org](http://www.zmag.org)). At the same time Chomsky claims US experts also advised Liberia to convert farmland to plantation cash crops (which, incidentally, happen to benefit US corporations). The results led USAID to push the development of paddy rice in swamps, ignoring a World Health Organisation effort to keep people out of these regions because of severe health hazards.

Indigenous people, whose unique identity is inevitably in part reflected in their genes, and whose cultures have developed food and medicines over many centuries, are prime targets of gene hunters. Given Indigenous people's attitudes culturally to plants, to do this is to diminish their culture per se. Plants are part of that culture in a way that is not true for most Western cultures. Were this to happen in the West it would still be a problem but less so. Here is an example of cultural hegemony which to Western eyes is not immediately apparent.

The US International Trade Commission (<http://www.usitc.gov/>) estimates that the US companies stand to gain \$61 billion a year from the Third World if 'intellectual property' rights are not protected in accordance with US demands, a cost to the South of somewhere between \$100 and 300 billion when extrapolated to the other industrial countries. This dwarfs the debt service flow of capital from South to North. The same US demands will require poor farmers to pay royalties to international corporations for seeds, denying them the traditional right to re-use seeds from their harvests. Cloned varieties of commercial crops exported by the South will also be commercial property, subject to increased royalties. The main beneficiaries will be the core group

of less than a dozen seeds and pharmaceutical companies which control over 70 per cent of world seeds trade and agribusiness generally.

In developing countries the predominant focus of agriculture remains subsistence farming. The Green Revolution helped to draw Third World farmers into the market economy and create an outlet for their products – a class of farmers with sufficient capital and sophisticated technology to benefit from the monocultural high yield varieties. The biotechnology era will further undermine organic farming and create reliance on chemical farming methods (Hettinger, 1995:302). The IPRs lead to the production and proliferation of biotechnology products that do not meet the needs of, and indeed may negatively impact on, developing economies<sup>35</sup>. There is significantly less emphasis on engineering products such as nitrogen fixing or drought resistant plants that are important for the developing world. These are left to the public sector which is also influenced by patents and reliance on funding from industry<sup>36</sup>.

Patents may well make the food supply more vulnerable both economically and ecologically. Patenting encourages monocultural production and is likely to increase this trend even beyond that of the Green Revolution. It is crucial to the method of monocultural agriculture that a diverse base of varieties is preserved so that entire varieties of crop are not destroyed (e.g. US corn blight)<sup>37</sup>. It has been argued that patents granting a single corporation monopoly control over any major food crops are a threat to world food security.

The World Trade Agreement on TRIPS has brought intellectual property into the forum of debates about and regulation of global trade. By ensuring the adoption of intellectual property rights regimes in developing countries, TRIPS decreases the sovereignty of developing countries and allows greater domination by the North, economically, ideologically and culturally. In particular, greater IPRs in agricultural

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<sup>35</sup> Hettinger 1995:302: 'Half of the research into biotechnology conducted by the big agricultural firms is aimed at producing herbicide tolerant crops. The vertically-integrated agribusiness industry dominated by petroleum, chemical, and pharmaceutical conglomerates puts its energy into genetically altering crops to withstand its chemicals.'

<sup>36</sup> Hettinger 1995: 302: Universities are also now turning to "market relevant" biotechnology research.

<sup>37</sup> Stenson and Gray 1999:13: 'the potential economic value of biological diversity is enormous and it has been estimated that the germ plasm in the developing world is worth untold billions of dollars to the advanced capitalist nations...and yet not a penny has been earned by the developing world from it'.

biotechnology increase the monopoly of transnational agricultural companies and undermine the economic position of small-scale farmers in the South.

#### 4.6 Inequality at the world negotiating table

Biotechnology proponents claim that genetic engineering will assist the developing world – through the development of pest, draught, salt, resistant crop grains, the development of various medicines, the eradication of disease and the increased production of food. However privatisation of biotechnology results in the industry being geared towards the generation of maximum profits. The creation of a system of strong IPRs tends to promote the development of products suitable for the markets of countries where there are strong markets (Barwa and Rai, 2002:46). Evidence, however, suggests this is not the case with research being diverted away from less profitable conditions prevalent in developing countries where it is perceived that the market is inadequate to justify private corporations from investing (Barwa and Rai, 2002:46).

Indigenous knowledge systems are by and large ecological, while the dominant model of scientific knowledge, characterised by reductionism and fragmentation, is not equipped to take the complexity of inter-relationships in nature fully into account. Intellectual property rights are supposed to reward and provide recognition for intellectual creativity. However, as discussed in global platforms, such as GATT and the Biodiversity Convention, or as unilaterally imposed through the Special 301 Clause of the U.S. Trade Act, IPRs are a prescription for a monoculture of knowledge. These instruments are being used to universalise the U.S. patent regime worldwide, which would inevitably lead to an intellectual and cultural impoverishment by displacing other ways of knowing, other objectives for knowledge creation, and other modes of knowledge sharing.

The TRIPS treaty of the Final Act of GATT is based on a highly restricted concept of innovation. By definition it is weighted in favour of TNCs and against citizens in general, Third World peasants, Indigenous peoples and forest dwellers in particular.

The first restriction is from common rights to private rights. As the preamble to the TRIPS states, intellectual property rights are recognised only as private rights. This excludes all kinds of knowledge, ideas and innovations that take place in the ‘intellectual commons’ – in villages among farmers, in forests among tribes people and even in universities among scientists. The TRIPS agreement is therefore a mechanism for the privatisation of the intellectual commons and a de-intellectualisation of civil society.

The economic inequality between the affluent industrialised countries and the poor Third World ones is a product of 500 years of colonialism, and the continued maintenance and creation of mechanisms for draining wealth out of the Third World. According to the UN Development Programme (<http://www.undp.org/>) while \$50 billion flows annually from the North to the South in terms of aid, the South loses \$500 billion every year in interest payments on debts and from the loss of fair prices for commodities due to unequal terms of trade. Instead of seeing the structural inequality of the international economic system as lying at the root of Third World poverty, the IPR advocates explain poverty as arising from a lack of creativity, which in turn, is seen as rooted in a lack of IPR protection.

#### 4.7 The common good and democracy

‘The ‘common good’ (refers) to the fact that the persons or groups comprising a society have interests that cannot be reduced to the sum of individual interests’ (Englehard, 1996:459 in Dierckxsens, 2000:16) . There are things of interest to everyone that surpass the private interests of each. As a rule, the state assumes common interests but democratic political management is essential to regulate the economy and private interests in the interests of its citizens. As economic rationality based on private interest continues to depart from the common good, a market ethic based on private interest expands at the expense of a solidarity ethic grounded in participatory democracy and a belief in the ‘common good’. As indicated previously political economy provides a theoretical approach that deals with the conjunction of how the economy can incorporate both political and ethical considerations. It provides a critique that illustrates how the free play of the market abandons ethical humanistic interests and commitment to the common good in this age of corporate

globalisation. As Clive Hamilton (2006, [www.echonews.com](http://www.echonews.com)) writes, ‘ethical decisions have become economic decisions, despite a nagging feeling that putting a price on some things actually devalues them. Even the most intimate and precious aspects of being human have been subtly transformed into their antithesis.’ To separate political and ethical considerations from economics, the market needed to appear to be a natural product of history, a self-referenced system, the means of general wellbeing and progress. This is a view of history which will be challenged in the next chapter.

It is not easy to shift from values centred on individual interests to those centred on the vitality of the whole, as that requires some fundamental changes both to values and to Western hegemonic ideology. John Ralston Saul (2005:12) asks:

*What could more certainly drive individuals away from citizenship than an endless chorus of leaders and specialists ... proclaiming the inevitability of global economic forces and of technological forces... in shaping the way the planet works and therefore the way each of our societies works.*

The global community needs a sense of civic solidarity, a sense of ‘people power’, the opportunity to engage in critically informed public debate, to be able to establish socially and ecologically sustainable policies that have public confidence, to be able to set limits and to give directions to economic and technology developments within the context of pursuing the broad interests of humanity.

Identification with a community, particularly with communities beyond the confines of the nation state, in other words with a more global citizenry, has not been advanced in this era of corporate globalisation, despite the language of a ‘global village’. There is in fact, a ‘growing incidence of old style nationalist violence’ (Saul, 2005:172). The formation of an international identity has not been a project of globalisation – although many contemporary issues depend on a united global citizenry to solve the global challenges (e.g. global warming, desertification, reduction in biodiversity, refugees, disarmament and so on). The European Union has in some ways made the most progress towards integration and has established the free circulation of capital, the creation of a single market and a single currency as top priorities. Yet their

policies are very clearly aimed at maximising the benefits to its European members even when through their subsidy regimes they do so at a high cost to developing countries' agricultural sectors.

As more human beings are reduced to mere *homo oeconomicus* and economic and social exclusion becomes more extensive and deep, deprivation is also on the rise. Wilkinson, in writing on the impact of inequality states (Wilkinson, 2005:283)

*co-operative, more equal societies bring into play a range of more highly social strategies, including reciprocity, trust, principles of fairness, mutual aid, and an ease of emotional identification with each other.*

*The organisation of material life has such powerful social and psychological implications because it keys into primitive mental structures, structures that have been honed to operate the different ways in which we, as human beings, can come together, faced as we are with the huge potential for conflict over scarce resources and the very substantial benefits of cooperation if the necessary social relationships can be established.*

In international law, past heinous crimes with international ramifications have included slavery, genocide and piracy (of ships and planes). Today, piracy of intellectual property products has become one of the central concerns in negotiations on world trade, a concern where both the figures and projected losses and rhetoric of condemnation are surprising. This has prompted an extraordinary shift in the policy of the developed world on intellectual property, developing mechanisms whereby intellectual property rules are imposed on countries which have neither had the advantages of genuine free trade to allow these to develop nor the infrastructure to develop intellectual property regimes to protect their own national assets and interests.

#### 4.8 Conclusion

The issues discussed in this chapter are complex; they are also fundamentally important. The science and technologies involved are also complex, the potential



consequences of the proliferation and adoption of genetic engineering technology complicated. The implications for populations and the planet are largely unknown. To have corporate interests, a capitalist market economy, neo-liberal ideology and a hegemonic deductive worldview driving the development of genetic technology is deeply problematical.

Will GE technologies contribute to improving health/food supplies for the poorest 50% of the global population, or just the wealthiest few? Would that same investment in a global campaign to improve health/food supplies have a greater impact – directly for the poor and indirectly for global security, stability and the global human ‘psyche’ (feelings of compassion, connectedness, trust and security, caring and sharing)? If the political economy of genetic technologies results in greater disparities of wealth (e.g. the flow of capital resulting from patents held by the North, reliance on more sophisticated and expensive food/medical technologies), or threats to biodiversity sustainability, what weight should be given to possible micro benefits in relation to unknown macro costs? Such questions need to be decided by the human community rather than unelected corporations, researchers and complicit governments determining the agendas for changes in the course of human history and polity.

There is no absolute moral authority to guide the human species. This chapter however concludes that it is imperative that acknowledgement is given to the wider implications and values inherent in the adoption of particular technologies. It is important in democratic society that decisions are made by a critically informed (global) community within the context of clearly articulated values. Suzuki and Knudtson (1988:344) suggest a just and broadly acceptable moral framework which will provide a basis for determining policies and developments in the interests of the whole of humanity. It is urged that we need to adopt a clear and acknowledged theoretical and historical perspective. If we seek guidance only from the traditional moral authorities of the Western societies that gave birth to modern genetics, this would provide a narrow and ethnocentric view which in today’s world would be inappropriate. We need to be prepared to go beyond the rigid boundaries of Western science and philosophical thought to rich, cross-cultural realms that embrace and respect other ways of knowing.

As this chapter has argued, the cornerstone of corporate interest in genetic technologies arises from gene patenting, a legal and economic system which is anti-democratic, exploitative and hegemonic, particularly in the areas of Indigenous, Third World and community held knowledges, medicines, plants and seeds. The global community needs to have the opportunity to engage in informed public debate, to be able to establish socially and ecologically sustainable policies that have international public confidence, to be able to set limits and to guide directions to GE technology developments within the context of pursuing the broad interests of humanity. There is no point in having visions which cannot be realised. It is important however that we do have a vision for humanity, for humans' relationships to the broad ecology and for future generations. Suzuki and Knudtson (1988) ask whether we should invest huge sums of money in the research and development of expensive techniques to manipulate genes associated with extremely rare hereditary illnesses, when millions of children in Third World countries suffer from diseases that could easily be prevented. While this question is difficult to answer, behind it lie some of my concerns with expensive sophisticated technologies which attract much attention and capital relative to technologically simple political economy questions which would save more lives and provide more equitable access to health and food resources.

As this chapter has attempted to illustrate, the convergence of gene patenting regimes, trade agreements, and corporate globalisation, is highly significant to democratic governance of genetic technologies, the global flow of capital and wealth, the survival of a diversity of cultures and economic systems, and the equitable and sustainable access to resources. Issues of governance and ethics are promoted as being hugely significant in the development of genetic technologies, with budgets for genetic research often having a significant line item for ethics and public consultation – although these are undermined by the narrow, value laden framework within which they are embedded. The next chapter, Chapter 5, will outline the significance of the relationship between science and technology to society.

## Chapter 5

### Technology

*In a society such as ours, which long ago abandoned social purpose to the automatic mechanism of the market, and attributed to things a supremacy over people, technology has readily assumed its appearance as the subject of the history.*

Noble, 1986: ix

#### 5.1 Introduction

Technology is not neutral even if too often it is seen in policy terms as somehow value free. It is based in some set of values and in turn can be interpreted as a political, economic and cultural entity. It therefore needs to be set in some socio-economic-political framework. Unfortunately the reality of this is seldom recognised within the literature and debate in genetic technology. It is not only that natural resources are consumed and the environment changed in some way (often a bi-product is pollution or some form of ecological damage). Additionally, Western technology's benefits are skewed towards the rich with the result that the costs of such technology need to be measured in terms of marginalisation and dispossession of the poor<sup>38</sup>. 'The combination of ecologically disruptive scientific and technological modes and the absence of the criteria for evaluating scientific and technological systems, in terms of efficient resource use and capability of satisfying basic needs, has created conditions where society is increasingly propelled towards ecological and economic instability and has no rational and organised response to arrest and curtail these destructive tendencies' (Shiva, 1993:136).

The relationship between science and technology, the people and democratic society is explored by Sclove (1995). Sclove is an advocate for the idea that people should be in control of their own lives. This he sees as being what social justice is about. That

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<sup>38</sup> Arundhati Roy (2002) illustrates this graphically in her book, *The Algebra of Infinite Justice*, which describes the World Bank's support for major dam projects which benefit the wealthy but cause displacement and dispossession of thousands of peasants and villagers – 150,000 for the Andhra Pradesh Irrigation 11 scheme and 240,000 for the Upper Krishna irrigation project (p76). In China, the Three Gorges Dam has resulted in the removal of 1.2 million people, the largest known number removed for any dam development and representing an enormous human cost for so-called 'development'.

requires democracy but not at the level solely of the ballot box but active participation by citizens in decision making as it affects people's lives. Too often technological developments, as Sclove argues, are driven by a mixture of market forces and what he calls 'distant bureaucracies' and not the people's values.

Policy in relation to technological developments is often inclusive of experts and expert opinion, but exclusive of the public – most commonly on the unwritten premise that the issues are too complex for the public to understand. That is not surprising given the complexities that are often involved. The issue is rather what role the experts are to play legitimately and the extent to which they might usurp the influence of democratic forces to achieve particular ends. It is important that experts use their expertise to inform and clarify issues, not to confuse, cloud or to make decisions. The language of experts can be translated into normal daily speak if the experts so wish; it can also be used however to assume power. The esoteric language and oft-times elitist culture of the 'experts' is currently and to a large extent used to exclude the public, with the self fulfilling result that if the public do not understand the science, then there is no point in consulting them. However, it was not the public who were responsible for the Three Mile Island nuclear plant disaster, Union Carbide's Bhopal or the Exxon Valdez oil spill<sup>39</sup>. While it might be argued that we are all to some degree responsible, it was not the public who developed the science to enable the laying of the '110 million land mines in 70 countries' (Green Left Weekly, 2005). Just as there is evidence to suggest (for example, the South West Area Health Service Citizens' Jury in 2005, as described earlier) that a critically informed public will decide on values and principles that are in the interests of the common good, if an informed public were to decide whether landmines should be developed and used, the chances are that they would never have been developed, let alone used.

There is a need to distinguish clearly between technical and value judgments. The experts have a right to exercise the former but even then transparently and under the gaze of a public able to question and challenge if needs be. The experts have a duty to

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<sup>39</sup> The Exxon Valdez oil spill on March 23, 1989 was one of the most devastating environmental disasters to ever occur at sea. On March 28, 1979 the US nuclear power station on Three Mile Island suffered a partial core meltdown - the worst accident in US commercial nuclear power generating history. The Bhopal Disaster of 1984 in India is claimed by many as the worst industrial disaster in history.

take this technical information and present it in a way that the public can understand and which then allows the latter's value judgments to be well informed. The experts are there to allow the public to exercise their autonomy on an informed basis and to give them the capacity to act autonomously. Such community autonomy is the key. It is too often recognised as such by the experts and 'stolen' from an unsuspecting and unknowing public. It is critically informed citizens who must decide in what sort of world they are to live.

Here the issue is in part one of the distribution of both power and knowledge. Trust and transparency go together. Both micro and macro economic structures can provide opportunities and incentives for disclosure or they can provide screens for experts, bureaucrats and political/financial interests to hide behind. Different cultures will also seek different structures of decision making. Quite what the role of experts will be in different cultures will vary but nowhere can it be justified to give them monopoly power over technological developments. Chapter 9 looks at how experts and scientists are particularly compromised when their relationship to science is set against a background of patenting regimes, commercial 'in-confidence' and corporate influence.

Experts are just that: experts; and then only experts in a limited compartmentalised field. They are not representative of the people; they are not or ought not to be decision makers in social terms. They cannot assume responsibility for designing the world. No elites can. The difficulty of course is that experts are well placed to hide behind the language and power of their expertise (Sclove, 1995:51).

In the next section there is a discussion of the role of and more importantly the values underpinning science and technology. This is then related more specifically to genetic technologies.

## 5.2 Science, technology and society

In the twentieth century, it was believed that in modern science<sup>40</sup> there lay a great cause for optimism. Part of this belief came from an assumption that Western

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<sup>40</sup> Science refers to the systematic study and experimentation of the physical world; technology refers to the application of tools and methods.

paradigms of science and technology would improve human life by conquering disease and poverty. 'Nature, long man's adversary, would be mastered by modern technology and made to serve the end of human happiness' (Fukuyama, 1992:4) which might be seen as the ideal of (Western) liberal democracy. Certainly there have been enormous achievements through the adoption of the Western scientific method over the short period of the past few hundred years. But while modern science and technology made possible unprecedented material wealth and health for some and fostered human aspirations, on the other hand they have also brought in their wake major environmental, cultural and social problems. This has resulted in a society built on systems, organisations and institutions which pollute the atmosphere and major waterways, cause global warming and dimming; destroy the ozone layer and lead to systems of farming the land which have led to millions of tons of topsoil being blown away each year, and forests to be logged in ways that leave nothing to future generations. Western deductive scientific methodology separates and compartmentalises the 'bits' and neglects the whole. The 'whole' is all too complex.

Humans are seen as separate from this whole and the broad ecology and 'civilization, it is believed, finally, will be able to control its biological destiny' (Hindmarsh and Lawrence, 2001:13). This is an underlying theme in the concept of 'progress'. This is very much a case of humans seeing themselves as a part of historical and technological rather than biological processes, as capable of distancing themselves from biology. This progress is viewed as being on a linear trajectory, with the environment being believed to be increasingly under man's control. Homo sapiens is viewed as being the conqueror of nature, separate from the biological community which includes the soil micro-organisms, the waters, plants and animals. Part of the wealth, richness and wisdom of Indigenous communities is that they see homo sapiens as the custodian of the land and as an integral part of the broad ecology. In western society

*[we] abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of mechanized man, nor for us to reap from it the aesthetic harvest it is capable, under science, of contributing to culture (Leopold in Hettinger, 1995: 268).*

Running parallel to this view of the place of humans in the broad ecology is the Western concept of human history. History can be a concept understood as a single, coherent, evolutionary process, when taking into account the experience of all peoples in all times. Such an understanding was most closely associated with the German philosopher G.W.F. Hegel. It was made part of our worldview by Karl Marx, who built on this concept of history from Hegel. It is implicit in our use of words like 'primitive or advanced', 'traditional or modern', when referring to different types of human societies. For both Marx and Hegel, the evolution of human societies was not open ended. They would 'end' when humankind had achieved a society in which humans were able to satisfy their greatest desires. Both Marx and Hegel pointed to an 'end of history': for Hegel this was the liberal state, while for Marx it was a communist society and 'this would mean that there would be no further progress in the development of underlying principles and institutions, because all of the really big questions had been settled' (Fukuyama, 1992:xii). Whether for the neo-liberal or the communist state, technology was seen as being a way of freeing humanity from some of the limitations otherwise imposed by nature. This view of freedom from the constraints of nature is in my view crucial as it is revealed as a hegemonic monocultural perspective. To refer to people 'living in the stoneage' (Sclove, 1995:7) in the year 2006 reflects a lack of a broader perspective of what it means to be human. There is no absolute yardstick by which to measure the human condition. One could of course choose a set of values which is what has been done for this thesis; the ones adopted human dignity, cultural diversity, peaceful co-operation and social cohesion, sustainability and social values relevant to the common good. These largely reflect the values espoused by the various publics involved in the case studies set out in chapter 8 below.

As Sclove (1995:7) suggests, technology has a profound role to play in altering the course of history. It has been argued that (Western) technology is implicated in perpetuating antidemocratic power relations and in eroding social contexts for developing and expressing citizenship. Sclove argues that to continue to neglect technologies' broad social dimensions virtually guarantees that we will remain ineffectual in addressing deep social and personal problems arising from our technology orientated society. Technologies help to constitute the present social order and thereby, he argues, constrain social transformations. Most would agree that

Western technology limits the options for social change direction, particularly when aligned with the neo-liberal market economic system. This is achieved in part by imposing a dominant worldview and value system which is incompatible with, for example, non Western Indigenous cultures and value systems, which are devalued by their very lack of concern for the value of measurable material wealth. Yet, if one considers the diversity of lifestyles, from the materially rich and highly consumerist to the traditional, non Western Indigenous Kapawi of the Ecuador Amazon in South America or Iban of Borneo, how does one judge which community's lives have more meaning, better social cohesion, greater moral authority, are more ecologically sustainable, have more dignity or better human values?

Many 'primitive' Indigenous societies see people as a part of nature, as guardians of the broad ecology for future generations and as conduits for the wisdom and knowledge from past generations, knowledge which is revered and treated as sacred. In many such societies, much of nature is sacred. Humans are subject to the laws of the traditional, spiritual world. Elders occupy a special position, having accumulated reservoirs of experience, knowledge and wisdom and gained compassionate insight and a sense of the enduring qualities and relationships around them to help to connect people to their past, their present and their future. Arundhati Roy (in the foreword to Chomsky's *For Reasons of State*, 2003: xv) illustrates one aspect of the enormous gulf between Indigenous and Western perceptions of humanity's place in the broad ecology:

*Never counted in the "costs" of war are the dead birds, the charred animals, the murdered fish, incinerated insects, poisoned water sources, destroyed vegetation. Rarely mentioned is the arrogance of the human race toward other living things with which it shares this planet. All these are forgotten in the fight for markets and ideologies. This arrogance will probably be the ultimate undoing of the human species.*

The constellation of ideas that has technologically 'advanced' humans to see themselves as independent from nature, separated in large part by their ability to control the natural world through the use of science and technology's knowledge, poses a considerable threat to the survival of human and other species. The political



economic context of neo-liberalism treats resources (the natural world) as something to be exploited for individual and immediate financial gain rather than conserved, at least in part, for future generations. At the same time the voracious appetite for energy and resources that is exhibited in underpinning a technologically sophisticated society is in turn supported by the imperatives of growth economics and the belief that science and technology will solve the problems of depleted resources, attendant pollution and the destruction of natural habitats<sup>41</sup>. Combined with capital and capital's international laws, it has, as is argued in Chapter 4 through a political economy lens, contributed to the growing gap between rich and poor, and the entrenchment of both the powerful and the powerless and the continuing and probably irreversible damage to the earth's biosphere<sup>42</sup>.

There is a need to approach technology through a broader framework. It can be argued in the specific case of genetic engineering technologies that they arise out of a particular political economic context. (The relationship between the structures of late 20<sup>th</sup> century global capitalism, trade and intellectual property laws and genetic technologies was already explored in chapter 4.)

It is clear that the relationship between technology and society is often complex. Hill made the case for exploring the 'culture defining power of technology' (Hill, 1988:69) and considered technology as a type of cultural text. Much of the social history of science has pointed to the social shaping or social embeddedness of the technological process. The technologies of the industrial revolution, according to Marx and Weber, were made possible by particular sets of social relationships and beliefs specific to the 17<sup>th</sup>, 18<sup>th</sup>, and 19<sup>th</sup> centuries in Europe. The absence of these conditions in other parts of the world meant that the techniques and processes of capitalist, technological production could not gain momentum there. These accounts are important to the arguments of this thesis: what are termed 'social determinist' arguments are seen as being more relevant than 'technological determinist' accounts.

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<sup>41</sup> For example, genetic engineering technologies will be able to clone endangered species, bring back to life extinct species; produce more food to feed the starving. Rather than talking about reducing energy and resource consumption, technology is seen as a tool to produce yet more and different resources.

<sup>42</sup> The 'rate of anthropogenic species extinction is hundreds, perhaps thousands, of times greater than normal background extinction rates, resulting in a possible loss of one quarter of all species on earth within fifty years' (Hettinger, 1995 ; 267).

Today however the latter dominate, even in some instances monopolise, debate about technology in general, even more so genetic engineering. Rarely is there debate about the economic determinism in technology development. In the US (and Australia), 'the political and economic system grants business corporations a structural political advantage over individuals, communities and consumer, labour and civic groups' (Sclove, 1995:45).

Vandana Shiva (1993:135) writes:

*In a wider context, where science is viewed as 'ways of knowing' and 'ways of doing', all societies, in all their diversity, have had science and technology systems on which their distinct and diverse development has been based. Technologies or systems of technologies bridge the gap between nature's resources and human needs. Systems of knowledge and culture provide the framework for the perception and utilisation of natural resources.*

She continues:

*[e]cologically and economically inappropriate science and technology can become causes of underdevelopment and poverty, not solutions to underdevelopment and impoverishment.*

The rapid and catastrophic degradation of the planetary biosphere has been the main catalyst for a radical reassessment of the power and limits of scientific insight and application. The warnings are seemingly everywhere; in weather and climate change, 25 billion tons of agricultural topsoil blowing away annually (Suzuki and Knudson, 1988: xxiii), abundant fish stocks disappearing, rivers becoming toxic waste.

In addition to the consequences for the biosphere and the economic divide between the rich and the poor, the entire range of technology's 'psychological, cultural and political effects is overlooked...and technology is assessed only from [the perspective of] the economic, technical, environmental, health and safety risks' (Sclove, 1995:7). Sclove adds that technology is implicated in perpetuating anti-democratic power relations and 'in eroding social contexts for developing and expressing citizenship... Technologies are not morally or politically neutral. Technologies do not just appear or happen; they are contingent social products' (Sclove, 1995:20).

Western technological development is a complex phenomenon with social, cultural, political and economic consequences. Such development has changed the way society operates and spawns other technologies and social structures. The introduction of the car is a simple example which has had enormous consequences – legal, social, town planning, economic, environmental and so on.

According to Winner (1997: 992)

*The creation of new technical devices presents new occasions around which the practices and relationships of everyday life are powerfully redefined, the lived experience of work, family, community and personal identity. In other words, we are discussing here something as fundamental as the basic cultural conditions that make us who we are.*

Using the example of genetic technologies, the complexities are well illustrated by ethicist Margaret Somerville (2000) who describes some of the possibilities in genetic reproductive technologies. She raises the issues of reproductive technologies including the ability now for in-vitro fertilisation, cloning human embryos, cloning our adult selves, using ova from aborted fetuses to produce children whose ‘mother’ was never born, designing our progeny through genetic manipulation and creating disease-proof children. She claims that genetic engineering presents humans with a power never before possessed (Somerville, 2000).

Technology is significant to society in its impact on social processes and yet as Winner (1986) argues, Western society has a myopic attitude to technology. It is seen as something external to our social and cultural processes, as something we use and which also is unstoppable.

The 1950s saw new technologies including an array of synthetic pesticides like DDT<sup>43</sup>. These were hailed as modern miracles in the war against pests and weeds, bringing

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<sup>43</sup> Dichlorodiphenyltrichloroethane is an insecticide especially effective against malaria carrying mosquitoes. It has been banned in many countries since 1974 because of its toxicity, its persistence in the environment, and its ability to accumulate in living tissue.

about the much celebrated chemical agriculture<sup>44</sup>. At that time no one predicted that the use of DDT pesticides would be magnified up the food chain to concentrations of hundreds of thousands of times their original levels. “Biomagnification” was only discovered when a high incidence of sterility in birds was traced back to pesticides.

It seems that it is impossible to forecast the long term impact of our technologies. If we cannot do so, how can we control or manage them well? The publication of Rachel Carson’s book ‘Silent Spring’ in 1962 which described the terrible consequences of DDT, launched a global environmental movement challenging the notion that humans were destined to control nature. However, that was not the end of the story of the use of DDT. The pesticide is still widely used in Third World communities which cannot economically support alternatives.

### 5.3 And so to genetic technologies

The lessons from DDT have not been learnt in relation to genetic engineering technologies more generally. This snapshot of one microcosmic parable in the history of science and technology carries with it a valuable lesson for all scientific and technological ‘breakthroughs’. It is a lesson which could well be applied to genetic engineering technologies, which are potentially more politically, socially and economically pervasive and powerful than any previous ones. As David Suzuki warned, ‘genetic engineering technologies are manipulating the very blueprint of living things....and the consequences could be monumental. But because the hazards cannot be specified and may take generations to know, we continue as if the hazards don’t exist’ (Suzuki, 2001). The biosciences generally, especially in conjunction with nanotechnologies, robotics and microelectronics, are technologies of profound and unique significance and power (Joy, 2000; Broderick, 1999). That such powerful technologies are additionally closely aligned with corporate interests and the forces of global capitalism, has to be of great concern in setting the future course of human experience on this planet.

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<sup>44</sup> Also the ‘Green Revolution’ which was hailed as a technological advance that would feed the world.

As with all new technologies, there are no clearly articulated core human values guiding the developments of genetic engineering technology. They are accompanied by only rather vague notions of saving lives, providing therapeutic benefits and being research imperatives. There are enormous ethical dilemmas and inherent dangers underlying such a technology especially in a culture which constructs science as 'neutral, objective and progressive; a human endeavour which remains...so steadfast in its reluctance to examine its own foundations' (Winner, 1986: 139). There is no agreed point of reference against which scientific discoveries can be assessed. Scientists and policy 'experts' are reluctant to state what the limits are to research and to applications of new technologies. Too infrequently do they apply any set of what might be described as 'common human values' in some sort of crude 'cost benefit analysis' in judging their research.

Most scientists explore the natural world by focussing on one small part of it, separate from the complexities that surround it. The approach is thus inevitably fragmented. Science can blind us to the possible future effects of these applications on our societies and ecosystems. Scientific 'progress' has contributed to our loss of any clear sense of our species' place in global ecosystems and of our biological kinship with other living things. Suzuki and Knudtson (1988) argue that we must not lose sight of this wider context as 'we continue to tinker with genes and shape the hereditary futures of species. We are in some ways incredibly short-sighted: so intent on rushing to exploit our newly acquired insights that we often do not have a clear idea of the long term consequences of our technologies' (Suzuki and Knudston, 1988:343). The underlying epistemological assumptions to genetic engineering, those of reductionist determinism, exclude any understanding of that wider context. It is thus the more worrying that more recent research in genetic engineering suggests that genes do not work in isolation, that genetic networks are subject to layers of feedback from both the organism's physiology and the relationship to its environment, that feedback can facilitate mutations, and that genes can transfer horizontally, outside the original host organism (Ho, 1998).

Scientists involved in cloning Dolly the sheep opposed the application of such technology to humans, clearly a possibility which one would expect the public to find unpalatable. However, some scientists and clinicians are now suggesting that somatic

cell nuclear transfer cloning technology might be combined with embryonic stem cell applications to provide potential sources of genetically identical ‘replacement’ cells for damaged or ailing tissues (so called ‘therapeutic cloning’) (Weasel and Jensen, 2005) with the argued objective of developing technologies for treating serious chronic diseases and preventing premature death.

The argument of ‘saving lives’ is never used to justify a much less radical method of saving lives, that is, a redistribution of economic wealth. Dayton and Alford in ‘*The Australian*’ (23 Nov, 2005:15), in reporting on the now discredited Korean ‘clone king’, Professor Woo Suk Hwang’s work, write of:

*Hwang’s extensive experience in cloning animals, including pigs and cows, to successfully clone a human embryo and collect human embryonic stem cells from it. The research demonstrated that a procedure called “therapeutic cloning” – also known as somatic cell nuclear transfer, or nuclear transfer for short – can be done reliably with human eggs.*

*And getting nuclear transfer working is critical to progress in ES [embryonic stem] cell research that is at the technical heart of efforts to use ES cells in the study of diseases such as Parkinson’s and Alzheimer’s and ultimately, to devise treatments for conditions such as stroke and spinal chord injury.*

Put in these terms, it would be hard to argue against the ends justifying the means, but when do we as a human community have the discussion about how far do we allow science to travel along this path and what is the acceptable cost (economic and non economic). There appears to be an enormous pressure, a rush, to adopt and further develop these technologies. Scientist Sir Ian McFarlane, the 2006 Australian of the Year, was urging Australia to get on with the legislation necessary to allow therapeutic cloning, on the grounds that Australia could be a world leader in this area of research. Why the rush especially when there remains so much uncertainty about the costs and benefits involved? Where are we rushing to? If the objective is to save lives or improve the quality of lives, wouldn’t it save more lives, be more morally

profound and meaningful, to be a world leader in disarmament, in peace studies, in human compassion, in finding ways in which Indigenous cultures can co-exist with non-Indigenous cultures, in refugee resettlement programmes, in wealth distribution, or in environmental sustainability technologies?

While the British scientific advisory system has worked on the principle of self regulation, 'science regulates science', studies of public attitudes have revealed a scepticism and lack of confidence in the rules and regulations governing biological developments (Levidow and Marris, 2000; Irwin, 2001;). Particularly in a globalised political economy, national rules and regulations have limited reach and are not able to prevent those determined to attempt for example human cloning. Even if there were public opposition to some technologies, those such as cloning are 'inevitable and out of the control of members of the public' 'The Australian' (Nov. 25, 2005:15). In that same article it was reported that Woo Suk Hwang, 'was recently dropped from an AusBiotech 2005 meeting because of an ethics scandal in which it was alleged his laboratory used eggs donated by a graduate student'. Yet such a scandal appears to be little more than a minor diversion compared to the bigger social ethical issues of Hwang's experiments in cloning animals.

Genetic engineering technologies, in combination with others such as nanotechnologies and robotics, have the potential for an amplifying effect on the power of the technologies, their profitability and sophistication. Such combinations reduce the prospects for public understanding and public access, and hence control or influence by the public. As a branch of the science of biotechnology, genetic modification techniques have the potential to manipulate and refashion nature according to the logic of the market place. This raises the question of the ethics and sustainability of changing nature to suit human needs and even more problematic, corporate economic 'needs'.

If it can be made, it will be, as the example of land mines suggests. Inventions which often are cruel, are used primarily against ordinary people, are hugely expensive to remove, are disruptive of agriculture and services but are profitable to the manufacturers are used, time and again. Our overuse of antibiotics has led to a serious

problem in the emergence of antibiotic resistant and much more dangerous bacteria. The causes of many such surprises, at least at a generic level, seem clear according to scientists such as Joy<sup>45</sup>: the systems involved are complex, with multiple interactions among and feedback between many parts. Any changes to such systems will result in effects that are difficult to predict. This is especially true when human actions are involved<sup>46</sup> or when the very blueprint of the ecology is tampered with.

Brian Tokar, director of the Vermont-based Institute for Social Ecology, draws attention to the fact that scientists, and even more so the corporate-types who are further into the development of this technology, refuse to acknowledge a limit to where they want to go (Tokar, 1999). Mae Wan Ho (2000) argues that the genetic engineering debate must be connected with the bigger picture, with holistic, ecological sciences and that the agenda must be recaptured from the corporations.

Genetic engineering protagonists often claim that genetic manipulation of plants and animals is part of a continuum of selective breeding which has been practiced for many thousands of years, from bread and wine making to animal selection.. Gene technology has been characterised as posing no additional risk to conventional growing methods (Biotechnology Australia, [www.ausbiotech](http://www.ausbiotech)). It is argued that selective breeding has been used for centuries to produce desired qualities in plants and animals, and that the changes affected in this way are much greater than the changes brought about by gene technology. There is, however, a substantial body of literature to suggest that in fact such claims are a deliberate misrepresentation of what is inherently unique about this technology (Ho, 2000). Breeding is the natural process of sexual reproduction within the same species or across species, in the case of some plants, that have very close evolutionary histories. Genetic engineering over-rides these constraints. Species that are closely related might be able to interbreed, like a donkey and a horse, but their offspring will usually be infertile (e.g. mule). This is a natural safety device, preventing the mixing of genes that might not be compatible and to secure the survival of the species. In the natural world, genes are not randomly

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<sup>45</sup> Joy 'Why the system doesn't need us any more' [www.wired.com](http://www.wired.com)

<sup>46</sup> One example of this is the Green House effect and the 'dimming' effect (ABC Four Corners, March 2005). The former is caused by the release of chlorofluorocarbons which destroy the ozone layer, and other pollutants, warming the earth's atmosphere. The dimming effect is a result of the release of carbon dioxides into the atmosphere, causing a blanket of pollution which helps protect the earth from the sun's rays.



inserted into a new location in the genome, as they are with genetic engineering. The various molecular checks and balances that exist to facilitate a gene's proper expression are not overridden by traditional breeding, whereas they are in genetic engineering. Genetic engineering is both faster and more precise, and combines genetic material from significantly different species, even between the plant and animal kingdoms, a process that is impossible through conventional breeding (Hettinger, 1995:273-4). Because of the speed at which these changes occur, there is no mutual adaptation or co-evolution of species within an ecosystem. It is difficult to predict what the impact genetically modified organisms (GMOs) may be on other species, and on the whole web of relationships that exist within ecosystems. Once genetically modified crops, for instance, are introduced into the environment, it may be difficult to prevent their genes (carrying characteristics such as disease and herbicide resistance) transferring to their wild relatives.

#### 5.4 Genetic engineering and the future

Claims made of the merits and possible outcomes of the science are far reaching. While many genetic engineering protagonists have argued that genetically modified crops will be more environmentally safe, the results of GM trials for Britain's biggest crop, winter oil seed rape, show that 'wildlife and the environment would suffer if the crop was grown' (The Guardian Weekly, 2006 March 25-31:1). Many bizarre effects from transgenics have occurred – for example pigs, genetically modified with human growth hormone, had such a distorted metabolism and organ development that they could barely stand up, were cross eyed and could not live normal lives. Headless frogs, as precursors to the creation of organisms which could be harvested for the growing demand for human organs, have been created. These were some of the experiments that were made public. Much of the research is conducted in secret, and it is a reasonable assumption to say that failed or distressing results of at least some experiments are kept from the public eye under the veil of corporate secrecy.

The 21<sup>st</sup> century technologies, robotics, genetic engineering and nanotechnology, pose a different threat than the technologies that have come before (Joy, 2000, wired.com 8.04). Specifically:

*robots, engineered organisms and nanobots share a dangerous amplifying factor: they can self-replicate. A bomb is blown up only once – but a bot can become many, and quickly get out of control... The vision of near immortality drives us forward. Genetic engineering may soon provide treatments, if not outright cures, for most diseases; and nanotechnology and nanomedicine can address yet more ills. Yet with each of these technologies, a sequence of small, individually sensible advances leads to an accumulation of great power, and concomitantly, great danger (Joy, 2000).*

Amory and Hunter Lovins (1997: 247) write that ‘the new botany aligns the development of plants with their economic, not evolutionary success.’

As a society, for the future, we need to adopt a much more critical perspective toward the dominant intellectual traditions surrounding science that have ignored and contributed to the inequalities that exist in the world today. There need to be debates about the nature of science, its epistemological foundations, the possibility of a science of society and the role of science in maintaining or undermining systems of power. The concepts, methodologies and perspectives that define science express the interests of the particular social institutions where the governing of society takes place.

While the ‘science’ of genetics races ahead, the understanding of the social and ecological implications is in its infancy. Discussions in social policy have become dominated by maximising any benefits that may arise and minimising any drawbacks. Rarely are social scientists or futurologists involved in discussions about the effects of genetic technologies on, for example, public health. The social sciences have the tools to provide a critical approach to the understanding of genetic engineering technologies. Yet too seldom are they used; even less seldom are they called upon by the gene scientists.

Further there is a tension between the individual and collective use of the technologies. All societies accept some degree of restraint on the liberty of individuals in the promotion of the common good. In health care, genetic technologies are seen in terms of individual treatments, of saving lives. With genetic reproductive

technologies, it is individuals who most directly benefit from the use of the technologies; the broader ethical consequences affect us all, affect the moral norms and practices of our society, the social and family ties that link us to a greater entity than that of the individual. They will do so increasingly in the future.

Ovarian tissue transplants, for example, relate to the use of aborted foetuses as the source of the transplanted ovarian tissue. Should a woman with such a transplant conceive a child, this child would genetically be that of the foetus, not of the woman who received the transplant. Somerville (2000:35) argues that there is something profoundly cynical and dehumanising about using a foetus, which itself never came to live its life, as the source of a child – something that is deeply offensive to human dignity. She claims that the ‘future slippery slope to acceptance of ideas currently viewed with disgust starts with familiarity and overcoming dread, factors that can be linked to moral intuition’ (Somerville, 2000:56). She claims that genetic engineering now but even more so in the future presents humans with:

*a power never before possessed, whereby, the very basis of human life and its mode of transmission, including in vitro fertilisation, cloning human embryos, cloning our adult selves, using ova from aborted foetuses to produce children whose ‘mother’ was never born, designing our progeny through genetic manipulation and creating disease proof children, raises questions for the whole of the human community at a time when we can no longer assume the presence of trust in our society and its institutions.*

This is happening at a time when the traditional and sacred are devalued in favour of a rational, material science and technologically driven global monoculture. It is happening because of that technological drive to a global monoculture. The future on this front looks bleak.

## 5.5 Individualism and society

The US National Bioethics Advisory Commission’s Report on Human Cloning (2004) focuses only on risks to individuals. It singularly fails to take into account the requirements of protection and promotion of the common good. We have no way of

measuring and knowing the importance of familial connections to human society and to human wellbeing. There are many examples of social communities which have become dysfunctional when there is an interruption, destruction and disjuncture brought to the community. Perhaps a close and relevant parallel can be drawn from the example of the families of the Stolen Generation, the Australian Indigenous families whose children were taken from them and placed in white institutions. Many of the health and social problems faced by Indigenous communities today are attributable in part to this traumatic and disruptive practice. There are many examples globally of Indigenous communities being removed from the land and 'brought into the 20<sup>th</sup> century'. The breaking of traditional ties to the land and ancestral spirits, the community connections, the traditional economic and cultural contexts, results in people becoming marginalised with enormous social and health problems, high rates of suicide, anomy, violence, abuse of and neglect for the young. These should be a warning reminder that social relations are complex and that our family and community ties are important for our health and wellbeing. What we might lose through the adoption of highly sophisticated genetic engineering technologies, particularly in the area of human reproduction, may be something highly subtle and nuanced as Margaret Somerville suggests (2000), but extraordinarily important to human wellbeing.

A psychoanalyst, Monette Vacquin (2000), in speaking about developments in reproductive technologies, warned that 'each child has been anchored in time, through a generational line, through a sense of connectedness, a fundamental reference point. There is now an extraordinary rupture in human identification but achieved by something for which people will pay the unavoidable psychological price. The right to have a child has overtaken the respect for the child, respect for the child's undetermined future and the respect of generations to come'.

Rifkin argues that once we see our child as a programme, an ultimate shopping experience in a post modern world, it changes the parent/child bond fundamentally (Rifkin, 1998). He suggests that if we see all children as perfectible, are we then less proud of children who do not 'come up to scratch'? What happens to the child with the defective gene or indeed the defective anything? Contemporary society has ample evidence of how society treats 'the other', the 'them'. The short term benefits of

genetic engineering are not the issue, they can be conceded. If however, in our pursuit of perfection, of longevity and health for those with resources in the West, we lose our ability to feel the humanity of each other, we then cannot maintain our human identity or our culture. The prejudices and pressures on people in society now who have disabilities are significant. What will happen if parents have the right (and in time perhaps the responsibility?) of producing children without genes that can be classed as 'defective'? One only needs to consider how other species, for example, animals grown for food are treated in our society now (Singer and Mason, 2006).

Are we as a society so confident in our belief in science and 'scientific progress' that we are prepared to alter our species in the quest to breed perfect children, to gain health and an extended longevity? Can we truly believe that mixing the possibilities of science with the interests of profit will come up with the best solution? Should we not step back and examine and reflect on where we are, on what values we want to underpin the scientific/genetic enterprise and try to assess where it is heading? If all of this is being done in the name of the health of the public and the health of humanity, why are the public and the whole of humanity not engaged in the process of critical assessment? 'People are afraid to be sick and die, so we tell them about cloning; about gene therapy; about cell therapy and embryonic stem cells. This process works because people say 'great – cure my liver' (Rifkin, 1999). It is as if scientists and a compliant media are selling an idea; an idea that carries an urgency, and the whole process is then progressed ever so rapidly. Yet we do not know if the basic idea is good or bad. Somerville (2000: xiii) writes that scientific progress alone is a hollow victory without the moral and ethical progress that must accompany it.

Somerville (2000) continues to argue that, while health care has become an ethics laboratory for Western societies, at the same time, ethics committees have been captured by the science community and increasingly the corporate sector. Too often they are situated in the medical environment and use a more myopic medical ethics rather than a broader social ethics framework, a framework bereft of any epistemological or cross cultural perspective. This is clearly inadequate. Should the people who promote and partake of particular technologies and technology methodologies, people who are part of the particular Western science and technology framework, be the same people to judge the ethics of the technologies?

For many, part of the attraction of the Human Genome Project has been that the better understanding of genetics fits neatly within a paradigm of economic and political orientation in which globalisation and the dominance of the market have come to rule. Are we moving to a position where if individuals get sick we believe it is because of their genes rather than the environment in which they live or work? Such a view fits in well with the growing sense of extreme individualism that is permeating our society. Such a view fits in with the growing hegemony of neo-liberal cultural values and in turn US values under globalisation. Nelkin and Lindee (1995:194) argue the gene has become something of a 'cultural icon that ...intersects with important American cultural values'. In particular the benefits are sold in terms of the individual while the social and cultural are by-passed or ignored. Too little consideration is given to 'the threats implied by the changing roles of women, the perceived decline of the family, the problems of crime, the changes in the racial and ethnic structure of ...society and the failure of welfare programs' (Nelkin and Lindee 1995: 199). At the same time, the emerging biotechnologies provide a powerful instrument of social control through the bio surveillance of populations permitting classification of individuals on the basis of genetic risk (for insurance and other purposes), as well as a narrowing of the definition of what it means to be a 'normal' human being. Other dangers arise out of the globalised nature of the project. The Human Genome Project is itself a force for globalisation, but perhaps the greater danger lies in the assumption that the social relations arising out of the biotechnologies will be uniform across the globe. They are more likely to reflect particular historical and cultural contexts. The spectre of mono-culturalism led by these technologies and endorsed by the values of a hegemonic neo-liberalism raises its head. Society and culture are pushed into the background.

Significantly in this context, the first director of the Human Genome Project, James Watson was asked how the abuses of the past (eugenics) could be avoided in the future with the project. His reported response was that the state should stay out of the picture since historically (eugenics) abuses all occurred as official state policy (Suzuki, 2001). There is little comfort either way in the context of a hegemonic market economy ideology where state and corporate interests are aligned.

There are concerns in Western neo-liberal globalised society that the role of the state is minimised and that there is then a maximising of the opportunities for capital accumulation by the private sector. This then inevitably and consciously leads to market forces determining the processes of invention, innovation and diffusion. It is thus not that such thinking simply misses out on questions of the common good of humanity. It believes that the market delivers that common good of humanity. The so called 'technological imperative' turns out on closer examination to be an economic imperative, best pursued with minimal state intervention.

If the McKeown thesis<sup>47</sup> is accepted (and there are few who challenge it), then, historically speaking, improvements in the conditions of life such as improved water supply, cleaner air and shorter working hours have had more to do with improvements in life expectancy and improved health more generally than the specific results from the professional practice of medicine, or from sophisticated technological interventions. That then raises serious questions about misallocation of resources. This is not to say that the amelioration in the individual manifestation of genetic disease should not be pursued. The balancing of resource allocation however between individual and population health becomes a very difficult task when the whole politico-economic context in which these advances are taking place makes investment in population health problematical. The clear and present danger is that in the increasingly individualistically based economic system which is symptomatic of neo-liberalism, individual health ends dominate at the expense of population health benefits. In an increasingly medicalised world, that balance is already a difficult one. The focus on the individual in benefit assessment in genetic technology tips the balance yet further away from public health and the common good.

The nuclear, biological and chemical technologies used in the 20<sup>th</sup> century weapons of mass destruction were largely military, developed in government laboratories. In contrast, the 21<sup>st</sup> century genetics, nanotechnology and robotics have clear commercial uses and are being developed almost exclusively by corporate enterprises with profit as the driver. In this age of belief in the benefits of the market economy, technology, with science as its underwriter, is delivering a series of inventions that are

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<sup>47</sup> Thomas McKeown argued that the social determinants of health had a more significant impact on population health than all of modern medicine.

phenomenally lucrative but at the same time phenomenally risky. We are aggressively pursuing the promises of these new technologies without pause for critical reflection or critical analysis of the broader consequences and within the now largely unchallenged system of neo-liberal global market economics.

Joy writes (2000):

*The experiences of the atomic scientists clearly show the need to take personal responsibility, the danger that things will move too fast, and the way in which a process can take on a life of its own. We can, as they did, create insurmountable problems in almost no time flat. We must do more thinking up front if we are not to be similarly surprised and shocked by the consequences of our inventions.* (www.wired.com)

Ignorance about the ecological and health impacts of new technologies far outweighs the knowledge needed for their production. There are so many examples of technologies which if do-able are done, which become part of a cycle of myth creation, adding to the store of ‘proofs’ that globalisation, growth, development, individualism and capitalism are ‘good’ for society. The examples given by Arundhati Roy (and noted earlier) of the consequences of major dam projects in India and China, heavily backed by the World Bank, the leading neo-liberal economists and politicians, did not have the support of the people whose lives are affected, ‘The People’ who have fought for a different low tech path for survival, people who have not been given a voice in the decisions affecting their lives and livelihoods, people who have been prepared to give their lives for their right to a livelihood, to live on their land<sup>48</sup>. We readily see the ‘proofs’ in the rich world and we have learnt to blame the ‘failures’ on ‘the others’<sup>49</sup>.

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<sup>48</sup> See Arundhati Roy’s stories of such people in *The Algebra of infinite Justice* (2002).

<sup>49</sup> PM John Howard readily blamed the East Timorese for their recent troubles on ‘poor governance’ – not on the fact that East Timor is the poorest country in the world, has lived through 25 years of devastating violence, warfare and genocide that has left a people traumatised, that development aid agencies are in many cases more concerned with making a good investment than in developing the community, that the neo-liberal economic model is seen as the only acceptable model for East Timor’s development, that 80% of the population are unemployed.



There is a clear and urgent need for reflection. What are the implications for current developments in genetic technology? What is known? How great are the risks and benefits? Who is to gain/ lose?<sup>50</sup> What is possible? What is happening in laboratories?<sup>51</sup> What are the limits? Are there any limits and, if so, who sets them? Are they only technological or human and moral? There is a need for precaution for ecological and sustainability reasons; a yet greater need to reflect for social and psychological reasons.

What is the vision we have for humanity and the future of the planet? It is a big question, It needs to be asked and it needs to be answered.

In 1973 a group of prominent scientists called for a moratorium on certain types of genetic research due to unknown risks and hazards associated with the possible escape and proliferation of novel forms of life (Hindmarsh and Lawrence, 2001:36). Later, as many scientists got involved in the commercial application of the new technologies 'selling the tree of knowledge to Wall Street', the self criticism and self restraint of the scientific community faded away. Prominent scientists like Licbe Cavalieri, George Wald and David Suzuki have argued that the very power of the new technology outstrips our capacity to use it safely, that neither nature's resilience nor our own social institutions are adequate protection against the unanticipated impacts of genetic engineering. As bans and regulations delay research, tests and marketing in the North, it is very likely that biotechnology products will increasingly be tested in the South to bypass regulation and public control in secret and removed from public gaze. Biohazards are thereby exported to the Third World under the auspices of USAID.

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<sup>50</sup> Cavalieri, Suzuki, Rifkin, Wald, Joy, Shiva and Sommerville ask these questions

<sup>51</sup> The ABC 'Four Corners' program aired on Monday 12 June 2006 disturbingly illustrated the lack of moral or ethical code, of compassion for animals, in some research laboratories; in 'the Ethics of What We Eat' (2006) Peter Singer and Jim Mason show the enormous cruelty (and inefficiency) involved in the meat (poultry, beef and pig) industries. In other words, there appear to be no limits in our so called 'civilised' society.

## 5.6 Conclusion

This chapter has attempted to show that technology is not neutral, not in its impacts on society, culture and economy, nor on the values and belief systems of that society. In general terms, sophisticated expensive technologies have skewed further the benefits to the rich and influential, rather than helping the great mass of people. They have tended to take people further away from seeing themselves as part of the broad ecology and any sense of connectedness to other non human sentient beings and in doing so, have allowed societies to further damage our fragile planet. In arguing that technology is not neutral, this chapter has called for a recognition that technologies have to be seen as being based in explicit values and political and economic frameworks. Technologies such as genetic technologies, which this chapter has argued are enormously powerful, need to be viewed in a much broader and critical context if they are to be governed in any degree by a democratic framework, rather than by market forces.

In Chapter 9, the relationship is explored between research (in genetic engineering technologies particularly) and universities within the neo-liberal economic framework.

## Chapter 6

### Why genetic engineering?

#### 6.1 Definition of genetic engineering

I refer to genetic engineering throughout the thesis as GE, genetics or genetic technologies. Genetic engineering is defined as the ‘technology used to alter the genetic material of living cells in order to make them capable of producing new substances or perform new functions’ ([www.deh.gov.au/settlements/biotechnology/glossary.html](http://www.deh.gov.au/settlements/biotechnology/glossary.html)). It is faster and more precise than historical selective breeding and changes effected are much greater, including combining genetic material from significantly different species.

Genetic engineering embodies more than a biological process and its definition and understandings can be gained from a large number of different contexts. These include social, cultural, political, economic, ethical, psychological, epistemological, medical, ecological and legal frameworks<sup>52</sup>.

#### 6.2 Why genetic technologies?

To illustrate the tension between neo-liberal market economics and radical political economy, genetic engineering technologies have been chosen because of their pervasiveness<sup>53</sup>, because they are technologies which have a particular relationship to

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<sup>52</sup> For example, claims are made in ‘the ‘post genomic’ era that human life can be extended, in theory, to 400 years; or that by altering genes, diseases can be eradicated – such claims have the potential to transform concepts of health, illness and the body as well as expectations and practices of medicine and public health. It is now claimed that drugs can be ‘personalised’ to suit individual gene profiles’ (Bunton and Petersen, 2005:1); there need to be new legal frameworks including gene patenting laws, genetic privacy laws, bio-bank regulations and so on to regulate the new genetic technologies; there is a growing body of literature on the ethical implications of genetics – mostly in the realm of ethics in relation to individuals rather than broader social ethics.

<sup>53</sup> They are pervasive in the sense that all genes are capable of being manipulated by the technology; the technologies are used in medicine, animal husbandry, agriculture, human reproduction, pharmaceuticals, weapons; and they are pervasive in the sense of geographical spread – from Korea and China to the US, Europe, Africa and Latin America.

the global economy<sup>54</sup> and environment<sup>55</sup> and because of their ecological and biological transformative power<sup>56</sup>. Developments in genetics are numerous and multi-faceted, including genetically modified crops, human genetics, pharmacogenetics, bio-banks, to mention but a few. The candidate does acknowledge that in making an all-embracing critique of genetic technology developments there is a risk that comments become too generalised and difficult to substantiate. For the purpose of this thesis however, it was decided to focus on the broader common issues than to attempt to cover specific exceptions.

Changing technologies result in changing social<sup>57</sup> structures and without any contradiction to the first premise, particular social structures give rise to particular technologies. Genetic technologies are particularly significant in that they encapsulate a range of dimensions not common to all technologies. These dimensions are further elaborated in this text. They are used in the thesis to illustrate the problems more generally of democratic governance of sophisticated deductive ‘scientific’ technologies set in the context of a globalised neo-liberal political economy.

Genetic technologies have the power to change the blue print of all life on earth (Suzuki, 2001). They have also converged with the economic structures of globalisation to an unprecedented extent through both international trade agreements and intellectual property laws. They have the potential to impact on all aspects of life, on human reproduction, crop growing, animal husbandry, medicine and on the economic competitiveness of nation states<sup>58</sup>.

Genetic technologies raise many profound questions about the very nature of our society. They also encourage examination of the relationship ‘between capital, ideology, power, science and technology’ (Hollinger, 1994:155) between people,

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<sup>54</sup> Genetic engineering technologies are brought into and have influenced legal constructs in International Trade Agreements and Intellectual Property Laws.

<sup>55</sup> The risk to the environment from the use of genetic engineering technologies is yet to be fully understood.

<sup>56</sup> Genes represent the ‘blue print’ of all life – genetic engineering technologies are those technologies involved in altering the ‘building block’ structures of life forms.

<sup>57</sup> The term ‘social’ describes society in the broadest sense – including political, economic, epistemological and cultural aspects.

<sup>58</sup> See Ausbiotech – government statements on economic benefits of biotechnology. Some 40% of today’s world economy is based on genetic resources from developing countries, which contain 86% of known higher plants and 96% of the world’s farmers (<http://www.ausbiotech.org/>).

between nations, and between people and the environment. Genetic technologies have already had an enormous impact on social change. At the micro level, medical technologies are increasingly an integral part of medical practices. They can change cultural perceptions of disease and health (Rifkin, 1998), animal husbandry and agricultural methodologies. Changes are also occurring on the more global level as a result of the convergence of gene patenting laws and international trade agreements. The thesis argues that the privatisation of genetic engineering technologies in agriculture and animal husbandry threatens world food security as well as the security of (initially and particularly Third World) small scale farmers who will be forced to operate in an increasingly global market economy in which they can have little hope to compete successfully and over which they have no control.

This analysis in the thesis also proposes that the convergence of genetic engineering technologies, international intellectual property laws and corporate ownership will result in the colonisation of the last commons of humanity – the global gene pool, developed over thousands of years of evolution. It illustrates how genetic engineering technologies are altering the genetic integrity and modes of transmission of all species through transgenics<sup>59</sup> – with unknown psycho/social and ecological consequences. To place control of these technologies in the domain of the corporate sector, a sector which has failed to practice high standards of guardianship over the planet's resources to date<sup>60</sup>, must be of major concern to the global human community.

It is contended that the public have not been given the opportunity to assess genetic engineering technologies as responsible citizens, rationally and critically and in an informed and holistic way and in the context of the 'common good'; that the narrow discourse and limited consultation that have taken place have had little or no

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<sup>59</sup> Transgenic 'describes an animal or plant that contains genes from a different species, transferred through using techniques of genetic modification' Macquarie International English Dictionary.

<sup>60</sup> Examples of this lack of high standards of guardianship are far too numerous to document; a few illustrative examples include: Conzinc Riotinto and the decimation of the Indigenous people, land and environment in West Papua (from the Free Papua Movement at [http://en.wikipedia.org/wiki/Free\\_Papua\\_Movement](http://en.wikipedia.org/wiki/Free_Papua_Movement)); Shell oil exploration and extraction and subsequent destruction of a major internationally significant wetlands area of Nigeria (speaker at People's Health Movement Forum, Cuenca 2005); Nike's use of child labour pre a consumer led outcry in the late 1990's; of the copper industries' use of child slaves in the Congo <http://news.bbc.co.uk/2/hi/africa/5071172.stm>; the World Bank's promotion of capital intensive development projects – e.g. dam building which has resulted in enormous dislocation of millions of people and destruction of environments. (eg in Roy, A. 2004: Third World Network at <http://www.twinside.org.sg/>)

influence on genetic engineering development; and that public opinion has been ‘manufactured’ by market forces and sectoral economic interests and, particularly that which is contrary to and critical of the status quo, is repressed. Arundhati Roy (2003: viii) suggests that there is a ‘very real fear of (informed) public opinion’ in contemporary neo-liberal politics. This is evident in the assessment of genetic engineering technologies which are being ‘sold’ on the basis of their ability to feed the world<sup>61</sup>, to cure diseases and to promote longevity, with only minimal, piecemeal and fragmented discussions on the potential long term consequences and broader social ethical impacts of the technologies. If the altruistic claims about genetic engineering technologies are in fact true, there should be no fear in consulting a critically informed public on which directions the technologies should be developed. It is a tenet of liberal democracy that when something is going to change the existing social order significantly, ‘the people’ should be consulted (Winner, 1997).

It is not the purpose of this thesis to attempt to judge the micro benefits and risks/costs of genetic engineering technologies. Rather the intent is to illustrate the problems of a technology which has enormous, transformative and pervasive power being driven by corporate hegemonic market interests. Concerns are also addressed, arising from the fact that it is being assessed on a piecemeal basis and by the promoters of the technology and those captured by the technologies’ industry and ideology, increasingly outside any social contract between scientists (the ‘experts’), policy makers and the community. It is claimed that culture-defining technologies should be driven and assessed by the global community and further that this be done holistically and critically. It also needs to be recognised that such assessment should take place within a broad context, involving global and political economy, epistemology, ontology, deep ecology<sup>62</sup> and sociology. Any assessment of technologies needs benchmarks underpinned by sustainability<sup>63</sup> criteria and by clearly articulated social and cultural values. All of this needs to be set within an explicit

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<sup>61</sup> US Trade negotiator, Robert Zoellick claimed people have been eating biotechnology food for years (‘The Australian’ 4/7/03:9)

<sup>62</sup> The concept of ‘deep ecology’ was developed by Norwegian philosopher Arne Naess in the early 1970s (in Hawthorne, 2002:170-171). The concept has been used somewhat loosely in the thesis to capture the idea of humans being interconnected and a part of nature, not in any hierarchical/independent relationship to nature.

<sup>63</sup> Sustainability refers to the exploitation of resources without destroying the ecological balance.

theoretical and epistemological<sup>64</sup> framework and with a clear vision of a future social order that is encompassing of the whole of humanity.

That genetic technologies present a challenge for democracy is now clear. The biosciences in particular have given rise to calls for both greater transparency in the scientific enterprise and greater public engagement (UK Parliamentary Select Committee on Science and Technology, 2000). However, the public need to be engaged as critically well informed citizens. An example where this did not happen was the 2003/2004 enquiry by the Australian Law Reform Commission on gene patenting and human health which was conducted in a public information vacuum. Of the 75 submissions to that enquiry, only two (including the candidate's) were from 'disinterested' members of the public. The terms of reference were so narrow as to preclude a more critical and broader (ethical) analysis of gene patenting. The relatively small response to this enquiry is indicative of a profound lack of awareness of the impending, very substantial consequences of gene patenting laws and genetic engineering technologies. This failure to involve a critically informed public is problematic to the principles of democracy and to the challenges facing the human community in contemporary society.

### 6.3 Implications of genetic engineering

Ethicist Margaret Somerville (2000) claims that genetic technologies present humans with a new and unique form of power which raises questions for the whole of humanity about the very basis of human life and its methods of transmission. Somerville suggests that this situation is the more worrying as it occurs at a time when we can no longer assume the presence of trust in our society and its institutions. Questions arise regarding such wide ranging issues and far reaching ethical considerations as in vitro fertilisation, cloning human embryos, cloning our adult selves, using ova from aborted foetuses to produce children whose 'mother' was never born, designing our progeny through genetic manipulation and creating disease proof children (Somerville, 2000; Rifkin, 1999).

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<sup>64</sup> Epistemology is important in that it examines the scope, foundations and validity of knowledge.

Critics claim genetic technologies amount to a 'worst case scenario' of genetic determinism which fails to encompass the interdependence and complexity of the organic environment (Ho, 1999). For some, it is the amplification of combining of genetic technologies, nanotechnologies, robotics and microelectronics that is the major cause for concern (Joy, 2000). Others warn that the power of the technology outstrips the capacity to use it safely (Ho, 2004; Rifkin, 1998; Suzuki and Knudson, 1998). The new genetics are technologies with very far reaching and unknown potential consequences. They are complex, rapidly changing and multifaceted. They involve living organisms which, once released into the environment, cannot be recalled. This new genetics potential could have an enormous impact on society. In addition to genetic technologies already being embedded in medical practices and food production, it can be argued, that at a more global level, they will contribute to a further divergence between the interests of the developed and developing world, through a combination of the patenting of genes and international trade agreements.

Part of this latter argument is summed up by Suzuki who writes that:

*Over and over again, our intoxication with new technologies has been dampened by the discovery of far-reaching, unanticipated effects. Biotechnology will be no different but, because we are manipulating the very blueprint of living things, the consequences will be monumental (Suzuki, 2001:7).*

Some have argued that the Human Genome Project (HGP) is enabling a new 'stealth eugenics' which comes 'in a friendly guise, is market driven and insidiously permeates our society, not serving the humanistic interests it claims, but the commercial interests of corporates' (Rifkin, 1998). The risks<sup>65</sup> and benefits are such that the entire human species needs to be a stakeholder in the issue. At the same time, a 'certain climate is created' in which the 'tidal wave of progress brought on by the new biotechnology is (seen as) impossible to stem' (Ho, 2003), the gene genie is out of the bottle, and as some argue, paralyses opposition because of the presumed

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<sup>65</sup> The risks of genomic and biotechnology are impossible to predict, justifying adoption of the 'precautionary principle' where there are threats of serious, unknown or irreversible damage. Risk is currently assessed by the scientists within a narrow 'scientific' framework.



inevitability of 'progress'. The protagonists<sup>66</sup> claim 'genetic modification' is the latest in a 'seamless' continuum of biotechnologies 'practiced by human beings since the dawn of civilisation, from bread and wine making to selective breeding'<sup>67</sup>. As Ho (2003) and Rifkin (1998) outline, the promises to humankind are limitless: to feed the hungry<sup>68</sup>, to promote environmentally friendly transgenic sustainable agriculture requiring less fertiliser and pesticides; and most significantly, to revolutionise medicine<sup>69</sup> which will predict/eradicate/cure disease, cure infertility, overcome mortality, enable human cloning and make available individually designed pharmacologies but, of course, only for those people who can afford it.

#### 6.4 What the debates are about

For many critics, it is the whole of genetic technologies and their deductive, mechanistic extension to human health, agriculture and animal husbandry that constitutes the core of their concern<sup>70</sup>. For others it is the consequences of a technology being driven by corporate interests and the sense of inevitability of the technology that give rise to fundamental questions of democracy in a globalised, technologically sophisticated world. As the applications and repercussions of genetic technology are multifaceted and interdisciplinary, any assessment of this technology must also be multifaceted and interdisciplinary. Concerns have been articulated by organic farmers' organizations and the Australian GeneEthics Network<sup>71</sup>, for example, which provide counterbalance to the views of the protagonists. These organizations have in the main presented responses to components of the technology, such as genetically modified (GM) crops and food labelling, rather than to the technology in its full generic scope.

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<sup>66</sup> For example, the Australian Government funded Biotechnology Australia, an organisation according to Australian GeneEthics Network, is an apologist for biotechnology..

<sup>67</sup> Genetic engineering is faster and more precise than historical selective breeding and changes effected are much greater, combining genetic material from significantly different species; also allowing for no mutual adaptation or co-evolution of species with an ecosystem – the long term effect of which is not known. Ho, 1998:3

Ho (2003) summarises how rDNA technology differs radically from conventional breeding techniques Appendix 1. Claimants of the 'seamless continuum' 'theory' include Biotechnology Australia.

<sup>68</sup> George Bush (2003) 'The West Australian': Bush claims GM crops can feed the starving in Africa as he tries to dump unsaleable (to Europe) US GM produce in Third World Countries. Jim Peacock, head of CSIRO's Division of Plant Industry, in a speech given in August 1995, claimed that gene technology offered a means for agriculture to 'feed and clothe the world's growing population in an environmentally sustainable way' in Salleh, A.,2001

<sup>69</sup> Benefits of genetics in medicine and pharmacologies go largely unquestioned and frequently reported in media.

<sup>70</sup> Hindmarsh and Lawrence (2001); Barns (2000).

<sup>71</sup> <http://www.geneethics.org/>

Australian governments have joined in the rush to adopt genetic technologies. Policy and regulatory mechanisms have excluded public input (Hindmarsh and Lawrence, 2001) and are dominated by experts and ethicists who seek to provide a sense of legitimacy and security to the adoption of genetic technology. This policy community has operated through closed committees which have had rather narrow agendas, using somewhat esoteric language (or at least language that is less than easily accessible to the general public) and focusing on specific components of the technology rather than the overall situation with respect to genetic technologies.

The complexity of these issues then combines with the complexity of the science and technology. Corporate driven research, corporate marketing agendas backed by governments militate against a more coherent, independent, extensive and publicly inclusive assessment of genetic engineering technology. Such assessment requires attention to its hermeneutical<sup>72</sup>, epistemological dimensions<sup>73</sup>, the politics of global economy and property, global ecology, identity, risk, governance and food and biodiversity security. The technology is a product of Western instrumentalist culture and positivist science and raises questions ‘of a profound nature about society and the relationship between global capital, ideology, power, culture, science and technology’ (Hollinger, 1994:155). Of fundamental concern are gene patenting laws (and the potential insecurity these bring to inter alia global food supplies and pharmaceuticals), the TRIPS<sup>74</sup> agreement and its implications for democratic governance and global health and wealth distribution. (These issues were discussed at length in Chapter 4.)

Genetic technologies are significant in that the convergence of genetic engineering technologies, international intellectual property laws and corporate ownership will

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<sup>72</sup> In exploring the significance of the technology at a hermeneutical level, there is a recognition that beneath the promise of increased freedom, wealth and control, there is a deeper trajectory of increasing mastery over nature and people which is probably alienating and nihilistic (Barns, 2002:67) and perhaps unsustainable (Ibid:71); questions of what it means to be human; the last mortal generation; psycho/social issues, kinship disjunctures – eg through cloning or unborn mothers’ children, and so on.

<sup>73</sup> Feminist, Third World, Indigenous, critical theorists, ecological, holistic perspectives.

<sup>74</sup> TRIPS: Trade Related Aspects of Intellectual Property – an agreement which mandates countries wanting to be in the international trade loop to develop strong intellectual property laws. Apart from inequalities at the GATT negotiating table, the globalisation of intellectual property is also significant (particularly with genetics) in that it fails to recognise differences in beliefs about rightful ownership of ideas. TRIPS is based in the discourse of proprietarian International Property Rights which is the western individualistic view of ownership (Stenson and Grayl, 1999:2; Barwa and Rai, 2002:41). Furthermore, while the greatest genetic diversity exists in the South, most patents are held by the North (particularly the US).

affect what can be considered as the colonisation of the genetic commons – a commons which it is argued<sup>75</sup> should belong to the whole of humanity – the global gene pool, developed over thousands of years of evolution. Genetic engineering technologies are altering the genetic integrity and modes of transmission of many species through transgenics – with unknown psycho/social and ecological consequences. On another level, the convergence of genetic engineering, nanotechnology and robotics illustrates a deeper instrumentalisation<sup>76</sup> of nature and humanity, raising issues not previously confronted. The implication of this is that it is not enough simply to try to achieve greater public participation or consultation at the level of consumer choice. Additionally there is a need to address the deeper cultural significance of technology and how it affects our ‘moral ontology’ (Barns, 2002:119). This thesis will argue that to place control of these technologies in the domain of the corporate sector, which is not accountable to the public and which to date has failed to practice high standards of guardianship over the planet’s resources, has to be of great concern to the global human community.

#### 6.5. Why the public should be asked

This thesis demonstrates that the public have not been given the opportunity to assess rationally and critically genetic engineering technologies; that consultative discourse and processes have been too narrow and piecemeal and that they have often been conducted in a public information vacuum; that the consultation that has taken place has had little or no power or scope to alter the development of genetic engineering and that it has been conducted within a neo-liberal economic framework. It looks at why public consultation on such sociopolitically transformative technologies is not central to the development of these technologies. It argues that public opinion is ‘manufactured’ by market forces and, particularly, that contrary and critical views of the status quo are sometimes repressed. Despite suggestions that public consultation has taken on a new significance in determining social priorities in science and health, the thesis will give examples of scientists’ contempt and unwillingness to engage in broad and critical debate on genetic engineering technologies.

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<sup>75</sup> By Non Government Organisations representatives attending the World Social Forum launch of the Porto Alegre Treaty to Share the Genetic Commons in February 2002.

<sup>76</sup> Instrumentalisation – a term used by Barns, et al, 2000

The underlying values of the thesis are those of a social order based on democracy, the common good, justice, equity, diversity and sustainability. Given the significance of genetic technologies and the relationship of these to the political economy and power structures of our globalised world, the next chapter provides examples of how the public, the citizens of the world, can be engaged in discussions to determine what they want in public policy. These discussions are illustrative of examples of citizens qua citizens engaging responsibly in seeking to define a future social order that is encompassing of the values of a social order as set out above. Chapter 8 also includes examples of citizens clearly acknowledging, particularly in the Cuenca example, that the problem is not lack of knowledge on their part, but lack of power, the inherent conflict of interest between ‘the people’ and the global neo-liberal political economy structures. These examples contrast to an extent those covered in the literature review in Chapter 7 – where concerns cluster around the institutional arrangements for public consultation, the need to educate the public, and how the parameters for discussion are set but crucially all within the context of the status quo.

In the next chapter, the thesis gives an overview of a selection of literature on public consultation and how much of that literature is written within the context of the neo-liberal worldview, examining aspects of public consultation from a microcosmic perspective rather than contextualising the issues in the wider political economy perspective.

## Chapter 7

### Public consultation in the biosciences literature

This review of the literature on public consultation in the biosciences examines literature particular to genetic engineering technologies. The literature reviewed assumes a particular and largely uncritical focus – that arising out of a neo-liberal worldview. This chapter also briefly explores the relevant literature and policy documents, the construction of citizenship and the relationship between democracy, science and the public.

Because of the complexity and pervasiveness of genetic technologies, the selection of literature for this review has been broad. There is inevitably a very large body of literature that deals with the area surrounding policy issues in science and technology and the role of the public in influencing or failing to influence such policy. Selected from this literature relating to the governance of science and technology, is first of all that which is specific to policy on genetics and second that which deals more generally with policy on science<sup>77</sup>. Material in law journals; a sample of Australian government publications; and official UK, European and Australian government reports and parliamentary documents has also been drawn on. Books recommended by the WA Government's Premier and Cabinet's Citizens and Civics Unit (such as McIver, 1998; Clarke, 2002; Durant, 1992; and Hampel and Renn et al, 2000), as well as a WA government departmental publication (Consulting Citizens: a Resource Guide, 2002) specific to public consultation, have also been researched. Reference is made to two seminal books tackling the subject of technology and democracy (Hill, 1988; Sclove, 1995) and generic material on genetics and society (McMichael, 1994; Shiva, 1997; Rifkin, 1999; Ho, 2000), to provide a review of the substance and scope of the literature. Material produced by Biotechnology Australia (<http://www.biotechnology.gov.au/index.cfm?eve>), a publicly funded body promoting genetics technology has also been drawn on. In the thesis there are frequent references to the work of three activists and opponents of GE technology; namely Ho, Rifkin and Shiva (Ho, 1997- 2005; Rifkin, 1998 - 2000 and Shiva, 1993 - 2001) who provide

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a fairly comprehensive and critical analysis of genetic technologies and public consultation. Because of the ubiquitous implications of genetic engineering technologies, my literature review and research methodology must draw on an eclectic range of materials.

### 7.1 Citizenship, Democracy, Science and the Public

The literature reviewed contains a liberal selection of quotable futuristic scenarios such as the following:

*As society and the problems that face it become more and more complex and machines become more and more intelligent, people will let machines make more of their decisions.....because machine-made decisions will bring better results than man-made ones. Eventually a stage may be reached at which the decisions necessary to keep the system running will be so complex that human beings will be incapable of making them intelligently. At that stage the machines will be in effective control. People won't be able to just turn the machines off, because they will be so dependent on them that turning them off would amount to suicide.'* (Joy, 2000).

*Accelerated development through machine enhanced intelligence will drive huge breakthroughs in biotechnology, materials, genetics, nanotechnology, energy and travel. Biotechnology is progressing nicely at the moment but will accelerate in the coming decades. When my daughter was born in 1994, she was estimated to have a life expectancy of about 87. Less than six years later, doctors now suggest she might well live to 130, thanks to greater understanding of the human genome, and potential nanotechnology medical advances. Never before has life expectancy increased faster than people get older. By the time she dies, she will in all likelihood be able to have her mind backed up on the network, and upload into an android body. Her natural death will not be so traumatic for her children, and won't even be a significant*

*career problem.* Pearson, 2000:

<http://www.btinternet.com/~ian.pearson/web/future/driversofchange.htm>

The ability to change the future in irreversible ways, Hendry (2002:183) writes, raises the question of ‘who controls this knowledge and who decides?’ A common theme of policy on science and technology in a democracy is the maxim that science must be accountable to society. In much of the literature, such as Winner (1986), Nelkin (1995), Sclove (1995), Rifkin (1998), Peterson and Bunton (2002) and Wynne (2002) for example, there is a general consensus that it is a ‘fundamental tenet of democratic civil society’ (Wynne, 2002) that when ‘there are substantial changes being made in what people are doing and at a substantial investment of social resources, [the public must be asked] in advance about the qualities of the artefacts, institutions and human experiences’ on the drawing board (Winner, 1986:146). A key principle of neo-liberal rule is the importance attributed to active citizenship and the pervasive belief that people should play an active role in managing their own affairs (Peterson and Bunton, 2002). It is argued that, particularly for such a ubiquitous technology as genetic engineering, it is imperative that these are considered from a variety of perspectives. Science must not be the only voice. Thus the process of regulation should not be just about control but also reflect some of the complexity of issues surrounding the technology.

However, as Peterson and Bunton (2002:4) write:

*because the scale of genetic production and influence over the environment is predicted to be significantly greater than that of previous technological accomplishments, and while this shift makes it a significant topic of public health concern and risk assessment, it also makes it a conceptually more difficult one. The contemporary genetically modified environment would appear to be potentially more changeable, erratic, hazardous and contingent than ever before. It is more directly the outcome of human scientific/technical intervention and as such makes changing the thrust of the enterprise (and control and understanding) more complex.*

At the same time, research is being increasingly conducted in corporate competitive secrecy leaving the public unaware of what is going on. The precipitous rush into adopting genetic technology by governments not wanting to miss out on the promise of its economic benefits, confounds public assessment models. There is a lack of acknowledgement of these difficulties within the public consultation literature.

Nevertheless, in official government reports and publications, there has been a growing recognition since the 1990s, that the public must be taken into account in the governance of science and technology. The UK government's handling of the BSE<sup>78</sup> crisis for example precipitated a more general crisis of public confidence in science and scientists and in official policy processes. A UK House of Lords Select Committee on Science and Technology<sup>79</sup> (in 2002) emphasized the importance of increased openness and transparency in the treatment of science policy formulation, including the importance of recognising scientific uncertainty and the legitimacy of public values and concerns<sup>80</sup>.

In a similar vein, a Western Australian Government publication by Caddy and Vergez (2001) in 'Consulting Citizens', argues that engaging citizens in policy-making is a sound investment and a core element of good governance. 'Consulting Citizens' suggests that governments need to tap into the community for wider sources of information, perspectives and potential solutions, and in doing so would improve the quality of the decisions reached. Furthermore, this publication argues that such processes contribute to building trust in government, improving the quality of democracy and civic society.

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<sup>78</sup> BSE (bovine spongiform encephalopathy – mad cow disease – dealt a severe blow to the credibility of scientific experts and politicians. Durant, 1999:313

<sup>79</sup> The BSE crisis in the UK and growing debate and policy activity around GM foods gave rise to a number of UK government publications advocating greater public dialogue and engagement. Also significant in UK – the UK Royal Commission on Environmental Pollution (RCEP) produced influential report in 1998 advocating much greater transparency and openness within decision making and stressed the importance of public engagement and participation – with emphasis on public trust. The RCEP highlighted the relationship between science and uncertainty, adding weight to arguments for more democratic and open treatment of science.

<sup>80</sup> This report compares most favourably with an Australian Senate Report '*A cautionary tale: fish don't lay tomatoes*' which is illustrative of the Australian official regulatory and policy community approach to the public.



There has been little evidence for example that the principles of public engagement advocated in this publication have been put into practice. As observed by Hindmarsh (Hindmarsh, in Hindmarsh et al, 1998) and other essays in Hindmarsh et al (1998), the history of gene technology regulation in Australia illustrates how the public has been consistently ignored<sup>81</sup>. In the development and operation of the Commonwealth Gene Technology Act 2000, Hindmarsh (2001) argues that there was (and continues to be) systematic exclusion of the public both in consultations (which have occurred between federal and state governments, industry and other ‘selected’ stakeholders) and through the definition of the policy community<sup>82</sup> and regulatory structures. The latter can be seen in the structure of the Commonwealth Gene Technology Regulator<sup>83</sup> and its relationship to the various stakeholders<sup>84</sup>.

Two issues papers undertaken by the Australian Law Reform Commission<sup>85</sup> sought public input into aspects of genetic policy<sup>86</sup>. One paper, already referred to in the introduction to this thesis on gene patenting and human health, had unfortunately narrow terms of reference and misses the important contextual issues of international trade agreements<sup>87</sup>, broader intellectual property issues and public assessments of genetic technologies. The enquiry was also conducted in a public information vacuum. It is reasonable to hazard the guess that no matter what the recommendations of this issues paper, the issues surrounding political/power of WTO membership and trade agreements will be more strongly determinative of Australian patenting policies. As Salter and Jones (2003:37) argue, ‘rhetorical concessions are always easier than structural ones...politicians and bureaucrats are practical animals

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<sup>81</sup> For example, in 1990 a House of Representatives Inquiry ignored 35% of the submissions – those of the public – in the final report implying public participation was seen as a hindrance to Australia’s capacity to compete on the international market.

<sup>82</sup> Dominated by closed expert committees

<sup>83</sup> Set up under the Commonwealth Gene Technology Act 2000; and criticised for being too close and accessible to corporate interests and only token access being given to the public.

<sup>84</sup> Also McDonald, J. (1999) writes that Australia’s first consensus conference held in March 1999 – amongst other problems – had no regulatory or policy weight.

<sup>85</sup> Australian Law Reform Commission Issue Paper 27, 2003

<sup>86</sup> The first ‘Essentially Yours’ looked at privacy, discrimination and employment issues; the second at genetic patents and health care. Such consultations are hugely important but have inherent weaknesses, some of which are: submissions will be dominated by ‘the experts’; there is no independent intellectual basis for informed and critical public knowledge development; the framework for consultation is narrow and prescribed.

<sup>87</sup> Parallels can be drawn from the relationship between US pharmaceutical companies and the Australian regulatory system whereby the pharmaceutical industry exerted enormous pressure (successfully) and influence on Australia through the free trade agreements to increase the price of drugs in Australia (See [www.bilaterals.org/article.php3?id-article=1119](http://www.bilaterals.org/article.php3?id-article=1119))

and will see what has political utility – provided that there is not too high a price in terms of a leakage of power when the discourse is translated into institutional governance form. If adopted, adjustments are likely to be pragmatic so principles of democratic governance are applied to the implementation of policy, but not to its agenda-setting’.

Furthermore, Salter and Jones (2003) write that we should be aware how the policy discourse, oppositional as well as supportive, could conceivably

*serve the rationalistic assumptions of the existing political culture and neglect the more intangible aspects that inform public mistrust.....the deeper more diffuse, analytically more elusive concerns than the simple cause-effect relationships (important though those undoubtedly are) on which official processes concentrate (2003: 39).*

That is, interested parties are ‘forced to participate in the dominant political discourse of genetics and risk; in effect, this reinforces and reproduces the legitimacy of dominant frameworks’ (2003: 39).

Jan McDonald (1999:258), Professor of Law, Bond University, writes that the scope of public participation is largely limited to ‘rubber stamping’ – with all the commissions of enquiry, parliamentary enquiries and public consultation exercised coming at the middle or end of policy development. In a similar vein, Jones and Salter suggest that the concept of transparency is one that is used to allow the public access to information after the decisions have been made - in other words, again, public opinion is irrelevant (Jones and Salter, 2003:34) rather than being integral to accountable democratic governance.

Paralleling the UK/Europe official public consultation discourse during the 1990s, a growing body of literature from the humanities and social sciences focused on the social construction and meanings of genetic knowledge and the public’s uptake of information provided by experts and clinicians involved in the technology. Peterson and Bunton (2002:6) write that

*arguments about people's right to genetic information are often couched in terms of the potential for such information to 'empower' the individual because it will give them more 'choice'. This is particularly influenced by the field of medical ethics which has dominated discourse on health and genetics issues. This individualistic orientation to genetic therapies and health services and the pervasive acceptance of the linear trajectory of progress and instrumentalist conception of technology, precludes broader critique of the substantive or constitutive nature of technology.*

These issues are explored in the literature by Winner (1986), Nelkin and Lindee (1995) and Wynne (2001). However, the disjuncture between people's individual power and that of the dominant corporate political economic nexus is not critically explored.

## 7.2 Power, knowledge and the public

As Peterson and Bunton (2002) argue, the power relations surrounding the discipline of science and the relationship between power and genetic technologies are usually considered outside the political and socio-economic contexts. While the issues of rubber stamping, availability of information, transparency and inclusiveness of the public are vital, the 'big' contextual issues - the ecology and global political economy of genetic technologies – are not addressed. Durant (1999), whose area of expertise is in public understanding of science and science communication, like many of the writers in this field, fails to address critically the core issue: the potentially irresolvable conflicting interests of corporate driven science and technology, markets and profits on the one hand, and democracy, the social contract and public interests, on the other.

There is one other dimension to the issue of power in this context and that is the question of the very different powers scientists and lay people have. This is explored by Durant who writes that, while there is no well articulated alternative to the deficit model<sup>88</sup>, there is a growing awareness of the unequal relationship between scientists and the public and that this needs to be addressed so that scientists and non scientists

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<sup>88</sup> The deficit model refers to the model which assumes that if the public had more knowledge (of science), they would understand the issues better and therefore be more supportive of the technologies.

can participate equally at the 'policy table' (Durant, 1999:315). However, while this thesis acknowledges the reality of this problem, conceptions of equality between scientists and non scientists as individuals around the 'policy table' are meaningless if these are considered independently of the growing relationship between researchers – the scientists - and corporate interests. Studies conducted to summarise academic/corporate ties in biotechnology suggest that these affect both the behaviour of scientists and the norms of academic research [Krimsky, Ennis and Weissman, (1991); Nelkin and Lindee (1995); Sclove (1995); Rifkin (1998); (Krimsky (2004)]. Packer and Webster (1996) argue that the emergence of a patenting culture in academic settings causes some university scientists to divide their professional existence between the two worlds of patents and academia. Jones and Salter (2003) argue that the more academic scientists become financially involved with industry, the more the divided boundaries between the public and corporate interest become blurred or not perceived at all. Furthermore, in the assessment of risk within the narrow scientific risk assessment framework, it is the technologies' protagonists who are assessing their own work. The public's conceptions of risk are broader. Adding to the risk are confidentiality requirements which are protected by corporate or investment proprietary intellectual property rights and by the exporting of risk and activities (to Third World, less regulated environments). Yet the potential repercussions and risks from genetic technologies are global, not just local. These issues are not addressed by the policy literature.

There is broad acknowledgement in the public policy literature that the key 'axis' of technology assessment hinged (and remains so) around the deficit model – knowledgeable experts and ignorant public, with public concerns conceptualised in the scientific/official/policy communities as being the result of public ignorance (Durant, 1999; Joss, 1999; Levidow and Marris, 2001; Irwin, 2001). According to the literature, attendant to this model is the view of science as an 'unproblematical' body of knowledge. Recent surveys have shown, however, that greater knowledge of science and technology (especially in biotechnology) among the public appears to lead (in Europe at least) to greater concern and not less (Irwin, 2001). Also, as Durant (1993) observes, scientists possess very detailed knowledge in a relatively restricted area of their specialist research. Beyond this they tend to have only very general knowledge. Barns (2000) sees the problem as lying not in people's ignorance

and apathy but the ‘incommensurability of discursive frameworks’: the technical discourse of the experts versus lay people’s discourse.

Somerville (2000) has observed that medicine and health care have become substitute forums for the creation of values. It is of considerable concern that the exploration of our moral universe is conducted within such a narrow, fragmented, deductive context by a small, self appointed sector of humanity who are largely protagonists for the technology. While the literature fails to critique adequately the role of expert bodies in determining the course of societies’ values (and their exclusion of the public), it does acknowledge the disjuncture between the role of experts and the lay public in the policy process. The deeper problems, however, lie elsewhere.

Attention is paid in the literature to the issues of representativeness of public consultation models (Irwin, 2001; Durant, 1998). However, the issue is more to do with whether the process is really a co-opting device, giving the impression of a shift in power relations but having no material effect on the final decisions (Ho, 2000, Irwin, 2001. Mechanisms such as citizens’ or consensus conferences, study circles, citizens’ juries, deliberative democracy, etc., and even lay representation on advisory panels, have broadened the definition of the policy community (Irwin, 2001; Sclove, 1995; Rifkin, 1998; Durant, 1998; and Joss, 1999). However, this thesis suggests that the mechanics of consultation provide little more than ephemera unless the power and underlying structures are recognised and are able to be challenged.

In summary, the literature agrees on the need for public consultation and dialogue on genetic technology decisions. Much of it acknowledges the gap between public participation in its various forms and the reality of power. What the literature fails to do is to explore and critically analyse this fundamental issue in any practical or theoretical way and recommend future possible directions. Considering the warnings of potentially dire consequences globally which emanate from genetic technologies, in the context of public consultation and public policy formulation more generally, is concerning. To understand the critical significance of genetic technologies, analysis needs to be contextualised within the broader hegemony of the global political economy and ideology. For example, the patenting of genes by private corporations will enable those corporations to enclose the genetic commons, to own, control and manipulate what amounts to the blue-print of life. This suggests a clear and distinct

conflict of interest between the corporations (with their concern for ‘the bottom line’) and the broad (including human) ecology. It is important to declare the stakes. To provide a context for public understanding and assessment of genetic technologies, it is fundamental that the relationship between genetic technologies, globalisation, power, capital and ideology is recognised.

### 7.3. Practical examples of public consultation in the literature

Europe has witnessed a number of highly publicized ‘consensus conferences’ and public consultation mechanisms set up to engage the public in the assessment discourse<sup>89</sup>. There has been a corresponding number of publications in the literature discussing these experiments (Anderson and Jaeger, 1999; Durant, 1999; Fischer, 1999; Irwin, 2001; Joss, 1999; Levidow and Marris, 2001). Policy models range from the traditional elite expert model using closed scientific expert committees<sup>90</sup> to consensus conferences where a citizens’ panel sets the agenda.

One can ask: ‘what is the purpose of public participation and consultation?’ Is it to provide a means by which the collective conscience is revealed or to facilitate greater understanding of conflict and power redistribution? Does participation provide society with a means for social change to occur or to establish social values and needs or wants? The objectives of these exercises are not really clear. They need greater scrutiny.

Irwin (2001) outlines the UK’s Public Consultation on Developments in the Biosciences (PCDB) which deliberately attempted an open dialogue with the public. Between 1997 and 1999 this government consultation aimed to build up a public assessment of the ‘biosciences’, including discussion of xenotransplantation, animal and human cloning, genetically modified organisms (GMOs) and genetic testing, in part prompted by the view that science/public relations had been badly managed in the BSE crisis. In 1997, in the UK, the government’s chief scientific adviser

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<sup>89</sup> In Denmark, scenario workshops, consensus conferences, future search conference.; in UK, ‘*citizen foresight*’ and ‘*uncertain world*’ experiments – Irwin (2001); ‘deliberative technology assessment’ in Germany - Joss (1999) .

<sup>90</sup> The preferred model in Australia and WA i.e. The West Australian Genetics Council, consists of clinicians and health service providers, Department of Health bureaucrats, an independent legal representative and two representatives from the genetic NGO support sector.

produced a set of principles for government departments concerning the use and presentation of scientific advice in policy making. This emphasised openness and consultation. However, Irwin (2001), like Shiva<sup>91</sup>, recognises that, despite public concerns, the economic pressures for continued science-based innovation are powerful. Irwin writes that the ‘search is therefore on for an approach to public engagement that will permit rather than impede scientific and technological developments (Irwin, 2001:3)’. He argues that there will be constraints over public participation if public discussion is seen to hinder innovation and economic competitiveness. There needs to be clarity about the objectives of exercises in public consultation. Outside the notion that the public must have a voice, there is a need for more investigation of the possible consequences of what might happen if the public wants a moratorium, for example, on GE technology. The literature is strangely silent on such matters. By not giving expression to such a possible future, the literature is in fact endorsing only one future, that is, a future with genetic engineering.

In the *Uncertain World* experiment described in Irwin (2001), public ambivalence to GMOs was evident, but there was also a sense of inevitability and fatalism regarding such technologies. This report also highlighted that there were grounds for concern that the UK regulatory culture overall might be concealing from view public concerns of major significance for the future.

The *Citizen Foresight* (also in Irwin, 2001) experiment addressed the future of the agricultural and food system using a random selection of 12 British citizens who came together for 10 weekly meetings (and some 30 hours) to listen to evidence, ask questions and draw conclusions. Members of the panel then chose which particular topics they wanted to discuss. Expert witnesses appeared at the direction of the panel, so that they could define for themselves what they regarded as relevant expertise (Irwin, 2001).. In summary the main conclusions of the citizens’ panel were that GMO crops are unnecessary, that all foods should be labelled as GM or GM-free, that agriculture should be transformed away from intensive methods towards low usage of

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<sup>91</sup> Shiva (1993):120 ‘the divergence between the imperative for private profits and people’s well-being is expected to grow. Corporations will attempt to adjust society to their need for profits’. Hettlinger (1995):303 writes ‘the significance of...gene technology (is) such that it is inappropriate for (its) development...to be lead by profit motives – especially looking at where it has lead in the past in respect of the environment and ‘nonhuman nature’.’

pesticides and ‘artificial chemicals’ and that food distribution is currently in the hands of too few supermarket companies (Irwin, 2001). The results of such consultations, unless taken into account in policy, end up as academic exercises and participation can be seen as either an alienating or co-opting exercise – either way, not the basis for change.

In some contexts (Denmark and the Danish Board of Technology), such mechanisms as consensus conferences have arguably helped to shape the use of technologies and the allocation of research funds. It seems however that they have been of limited value in changing the technological culture or the social dynamics surrounding the directions of genetic engineering technology (Joss, 1999).

Overall, the public consultation literature raises very legitimate and important issues but it appears to lack a deeper theoretical analysis of public consultation and governance in relation to genetic technologies. There is little intellectual or theoretical rigour to explore beyond public consultation followed by business as usual (Irwin, 2001). This thesis suggests the problem lies in the failure to critique dominant ideology, hegemonic culture, power relations and the conflicting interests of the public and a corporate-driven genetic engineering technology.

Ho (2002) sees the consultative mechanisms employed throughout Europe as being ‘highly publicised’ events, carried out to reduce public anxiety. However, beneath the democratic façade, she maintains that the public were made only dimly aware of the arguments of the critics who ‘deplored the tampering with nature’ and the ‘scrambling the genetic code of species...by introducing human genes into animals, and animal genes into vegetables’(Ho, no date)<sup>92</sup>. She argues that ‘the warnings of unexpected effects on agriculture and biodiversity, the dangers of irreversible ‘genetic pollution’, warnings of ‘genetic discrimination and the return of eugenics...were marginalised. So too were condemnations of the immorality of the patents on life – transgenic animals, plants and seeds, taken freely by geneticists of developed countries from the Third World, as well as human genes and human cell lines from

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<sup>92</sup> <http://users.westnet.gr/~cgian/ho.htm>



Indigenous peoples.’ Ho (1997) suggests that such public consultation mechanisms are a tool used to give the public a false sense of security.

In much of the literature, the theories and practical intricacies of exercises in public consultation ignore the core problems of power and conflicting interests. The exploration of the relationship between capital, ideology, power and technology is undemocratic as is the relationship per se. Given the combination of the powerful commercial interests involved in the development of GE technologies, often secured by patents and their potential impacts on humanity in the most pervasive of ways, it is reasonable to assume that open public debate is a necessity. There is no hurry especially when there remain many uncertainties with this technology. Patents, by their nature, are fundamentally mechanisms to facilitate private/corporate ownership and to remove it from the public realm. This issue of patenting is thus a pivotal issue in genetic technology development. With the huge financial promises the new ‘gold’ of the future offers private companies, the limited role and effectiveness to date of public consultation of genetic technologies and the close connections that often obtain between business and government, it would be overly optimistic to expect that the public can exert significant influence over the broad directions of the technology through public consultation mechanisms. Change is needed as the thesis will go on to demonstrate. (The issue of patents was more fully explored in chapter 4.)

For the purposes of this chapter, it is sufficient to argue that patent holders are unaccountable to the public, being located largely in the private corporate multinational domain. The enormous power of the multinationals in pursuing their commercial interests in the face of threats by humanitarian interests has been witnessed in relation to drugs and HIV AIDS treatments<sup>93</sup> and again in recent World Trade Organisation negotiations on pharmaceutical patenting. Just as the reductionist genetic determinism has excluded the wider context of genetics, the public consultation literature has failed to address this fundamental conflict between economic power and concepts of democratic public policy input. Without addressing that, the political economy of genetic engineering, the underlying inherently irresolvable conflicting interests are effectively ignored.

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<sup>93</sup> ‘Cheap AIDS Drugs Under Threat’. <http://yaleglobal.yale.edu/display.article?id=5459>

A second major omission in the literature is in the definition of ‘the public’, the stakeholders in global genetic technologies. Clearly that can be seen in all sorts of different ways. The literature is however rather silent on this issue – ‘the public’ being an at best loosely defined entity.

Much of the literature<sup>94</sup> covering public consultation exercises and official policy relates to practices in Western industrialised democracies. This is a significant limitation. The ‘public’ is thus confined to Western nations. However, it is highly relevant in this context that we live in a globalised society in which capital, culture, science, technology, trade and ideology know no boundaries and the consequences of genetic technology are both international and local. The health (and wealth) status of one nation cannot be isolated conceptually or practically from others. At the same time, the multi-nationals peddling the genetic technologies are often more powerful and wealthy than individual (Third World) governments and yet are democratically unaccountable to national governance structures. This combination marks a sharp divergence in the interests of the First and Third Worlds.

Vandana Shiva (1993) highlights the inherent conflict of interests in regard to genetic technologies and the public in third world countries. She writes that there is a nexus of knowledge and power in the dominant system because

*as a conceptual framework, it is associated with a set of values based on power which emerged with the rise of commercial capitalism. It creates or as a minimum exacerbates inequalities and domination in the way such knowledge is generated and structured, the way it is legitimized and alternatives de-legitimized, and by the way in which such knowledge transforms nature and society. Power is also built into the perspective which views the dominant system not as a globalised local tradition, but as a universal tradition, inherently superior to local systems (Shiva, 1993:10).*

Shiva continues:

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<sup>94</sup> Excluding Third world network literature, Shiva and Ho for example

*the Western is a local tradition which has been spread world wide through intellectual colonization* (Shiva,1993:10).

Shiva claims that there has been no challenge to the assumed superiority of Western systems. Thus she argues that Kuhn<sup>95</sup>, who has shown that science is not nearly as open as is popularly assumed, still failed to address the commitment of the scientific community to only Western methods and models which treat all else as an inferior primitive state of knowing' (Id:11).

#### 7.4 Summary of the literature

In broad summary, the key points to emerge from the literature are as follows:

1. The role and views of the public are missing from the scientific and Australian policy/ regulatory/ parliamentary report literature<sup>96</sup>. By contrast, much attention has been given to the public in European/UK official literature<sup>97</sup>, albeit from the perspective of a deficit model of understanding and in a way to permit rather than impede GE technology development (Levidow and Marris, 2001 and Irwin, 2001).
2. The policy literature focuses on the public and consultative mechanisms, addressing questions of representativeness, stakeholder definition and consultative methodologies. At the same time it fails to address adequately the deeper underlying theoretical issues arising from the global political economy of the technology and the relationship between capital, ideology, technology, culture and power. This literature also fails to acknowledge how genetic technology developments are being increasingly obscured from public scrutiny and hence accountability and control. This 'category' of literature provides interesting insights but tends to be more descriptive and hence omits consideration of social/economic/power relations.
3. Social activists critical of the technology, Rifkin, Ho and Shiva, and general social/political critical commentators such as Chomsky, provide a more radical and action-orientated analysis of the technology and its relationship with the public. This body of material includes criticisms of consultative

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<sup>95</sup> Thomas Kuhn *The Structure of Scientific Revolutions*

<sup>96</sup> For example 'A cautionary tale: why fish don't lay tomatoes'; The Australian Senate 2000

<sup>97</sup> European parliamentary reports.

processes from the perspective of ideological hegemony managed within a dominant power structure. It thus provides a basis for more radical social change.

One could pessimistically argue on the basis of the literature review that there appears no means to democratise, stop or call a moratorium on genetic technologies. The alliance between capital, technology and complicit governments is allowing genetic technology development and change to occur at break-neck speed, while the public response is 'apathetic, reactive and video centred' (Winner, 1986:264), lulled into inaction by a sense of alienation, powerless or inevitability, or by marginalisation and exclusion from the global economic structures, or belief in the promises (of genetics protagonists) of immortality and food for all.

The relationship between genetic technology, governance and democracy is complex and multi-layered. The short term benefits of genetic engineering have been well promoted in an uncritical media, supported by a society which appears to believe in the 'truth' of the linear trajectory of progress and the paramount rights of individuals to access whatever medical and pharmaceutical technologies are available. As Chomsky (1969:153) writes, in industrial society it is 'obviously far from true, that the mass of the population have nothing to lose but their chains, and there is no point in pretending otherwise. On the contrary, they have a considerable stake in preserving the existing social order.' Needless to say, the global social order is one which structurally and ideologically excludes a billion people, the very poor, from the most rudimentary definitions of democratic civic engagement on questions of the future course of human history. Furthermore, the public are largely unaware of the longer term risks and costs posed by genetic technology, but through uncritical media stories have been well sold the short term benefits of genetics.

Over sixty years ago, Walter Lippmann discussed the concept of the 'manufacture of consent' in the practice of democracy (Chomsky, 2003:211). In the same vein, Gabriel Kolko noted 'from the turn of the (last) century to this day (the public mind) was the object of a cultural and ideological industry that was as unrelenting as it was diverse: ranging from the school to the press to mass culture in its multitudinous dimensions' (Ibid). As Rifkin says, 'an idea is sold, we don't know if it is good or

bad, and the whole process is rapidly progressing. People are afraid to be sick or die, so they are told about gene therapies and embryonic stem cells and it works because people say ‘great, cure my liver’ (Rifkin, 1999 speaking on the:video Clone Inc.)

This brings us to a fundamental question that underlies this literature survey and indeed this thesis. Do we have a functioning democratic society in which concepts such as public consultation have any real meaning? Can we have this if the dominant ideological and power paradigm is not articulated or examined? Chomsky writes that in this context ‘privileged intellectuals in the universities and elsewhere can contribute to protecting and advancing democracy, freedom, and human rights’ (Chomsky, 2003:324). Co-incidentally and unfortunately, the humanities and social sciences, the very disciplines which provide incites and support to different perspectives, are disciplines in decline<sup>98</sup> while science, which is being drawn away from its social contract with society by its unprecedented alliance with the corporate sector, is becoming the only intellectual paradigm valued by capital. As Cook-Deegan (1994: 254), a scientist associated with the Human Genome Project, writes:

*our infatuation with biology, unlike that of a century ago, is occurring at a time when the humanities and social sciences have a declared moral bankruptcy, thus depriving us of a vital part of the collective memory we need to regulate and resist our increased capacity for genetic manipulation....the cumulative effect of the ways such knowledge is likely to be interpreted for and by the broader public will push us, like sleepwalkers, toward the biologizing of our lives in both thought and practice.*

Given the pervasiveness of the technologies (Bunton and Peterson, 2005), their enormous transformative power with respect to creating new and altering existing life forms (Suzuki, 2001) and the convergence of the technologies with intellectual property laws and international trade agreements, the thesis seeks to demonstrate that genetic engineering technologies are illustrative of a fundamental problem for democracy.

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<sup>98</sup> ‘Paddy McGuinness, the journalist asked by former federal education minister Brendan Nelson to vet “wacky” grants at the Australian Research Council, said the humanities could be excluded from the council’s funding scheme with “little loss to society”. (Bernard Lane, ‘The Weekend Australian’ March 4 – 5 2006:3 )

Genetic technologies in many ways encapsulate one of the major issues of the twenty first century – sophisticated technologies converging with corporate interests within the neo-liberal political economy context. Australia lacks an independent intellectual focal point to connect the issues, to foster considered debate, to provide legitimacy to underlying concerns and to provide a basis for action around socio-political structural change. In accordance with both Chomsky’s perspective of academic responsibility to society and critical action theory, this thesis will propose a study course that will provide an intellectual basis to counter the current ideological hegemony of genetic technology protagonists. The course will be such that it will provide tools which can be generalised to other technology developments in Western society.

In summary, the literature reviewed falls into the trap of covertly assuming a methodology that arises from a neo-liberal worldview. The next chapter outlines examples of practical experiences in engaging the public in developing values and policies they would like to underpin contemporary technological and social developments.

## Chapter 8

### The public

#### 8.1 Introduction

This thesis argues that there is a need to involve the public in certain public policy decision making processes. The question of consulting the public is thus central. Some examples of how to do it are the subject of this chapter. Three examples are set out at which the candidate was present.

The first was organised by the candidate as part of the work for this thesis. It was intended to provide something of a background to the thesis at several levels. First it was to allow the candidate to experience first hand how such a form of deliberative democracy might work. Second it was assumed that there would be some learning about what might be described as ‘the politics’ of staging such an event – what were the difficulties involved in getting funding and organising the event generally, how easy was it to attract speakers and participants, were some stakeholders more interested in attending than others, what lessons were learned from the perspective of this being a case study in participative democracy, what was learned for policy on genetic engineering and finally, if attempting to embrace the public again on such an issue, what would be done differently and thereby better. Finally, the agenda for the forum was set by ordinary citizens – an agenda that was much broader than any other consultative process on genetic technology observed or researched by me – including a session which examined genetic technologies generally in a global, political economy theoretical context.

In essence the forum was a venture into the political economy of public discourse. As such it had a bearing on how this thesis then developed.

The second example is one for which the candidate was an invited observer. This was a health service public consultation which was in two parts: first a citizens’ jury; and second and immediately after that a public forum into which the results of the citizens’ jury were fed This was only the fourth time that a citizens’ jury had been

held in Australia covering health, all of the previous ones also being in WA.. My key interest was in the way in which the citizens' jury worked as an example of deliberative democracy. The prime question was how this process compared with the public forum '21<sup>st</sup> century genetics' (as mentioned above) and what the relative advantages and disadvantages were of the two processes.

It was a well organised and professionally run event. The total cost was in excess of \$70,000 which did not include the cost of the health service staff involved in its planning or at the event. It had been developed and planned over a lengthy period of over two years and had a national figure as the facilitator for the public forum (Dr Norman Swan of the ABC's Health Report). It was also intended to repeat the event every year or every second year.

The final example is a very different example of deliberative democracy. This was the People's Health Assembly (PHA) in Cuenca in Ecuador which the candidate attended as a member of the Australian delegation of fifteen people. This was an international gathering and only the second time that the PHA has been held. It was organised by the People's Health Movement which is primarily a grassroots activist organisation which seeks to bring people together from around the globe to influence public policy on health and health services. It has a major focus on the health of the world's poor.

The PHA has particular concerns with respect to the impact of neo-liberalism on health and a number of the talks were based on the political economy of health and society. As such this event provided two most useful sets of information which are immediately relevant to the thesis. First this was a more overtly activist form of consultation with the public, with many of the participants being quite heavily engaged in political activism. In this sense they were not a random selection of the public. Second, PHA delegates were drawn from a wide range of countries with a varied set of interests and very different cultural backgrounds. What was apparent however was a remarkably common concern regarding the influence of the corporates at the expense of the interests of citizens on many of the issues debated and in many of the countries represented. None of the delegates represented any of the global 'power' organisations such as the World Bank or World Trade Organisation; rather many represented small peasant farmers, Indigenous communities and Third World



marginalised peoples. While only a limited number of papers dealt specifically with genetic technology and patents, there were many which echoed the sorts of concerns which have been able to set out in this thesis. While there is no intent to argue the relevance of this thesis to a broad international audience – that would require research that the candidate is not well placed to undertake – nonetheless the experience gained from attending the PHA influenced ideas presented in this thesis, such as a belief in ordinary citizens to understand, debate and find solutions to the world’s problems of environmental destruction, poverty, injustice, and so on. There were very common experiences amongst delegates from different countries and walks of life in relation to the marginalisation of the poor, the threats to food security, the rights to land and culture. There were common interpretations of the root causes of economic and environmental problems – the problems associated with corporate globalisation and neo-liberal hegemony, and the declining power people have to control their local environment, land and livelihood – and the political environment in which they live. This points to the theme of the thesis: that lack of knowledge and of technical language of citizens is not the problem in public involvement in policy development; rather the problem is the lack of power, the inherent conflict of interest between ‘the people’ and the convergence of interests of corporates, governments, ideology and science through global neo-liberal political economy structures.

This chapter thus reports on the candidate’s own involvements in these three practical situations in hearing the public’s voice. It sets out the details of each and indicates how it affected the candidate’s thinking with respect first to public consultation per se and secondly other aspects of the thesis, in particular the set of values that were eventually adopted and which were in essence endorsed in various ways and in various degrees by the three consultations. These were human dignity, cultural diversity, peaceful co-operation and social cohesion, sustainability and social values relevant to the common good.

## 8.2 ‘21<sup>st</sup> century genetics: widening the debate’

This first example focuses on a public forum in October 2004 titled ‘21<sup>st</sup> century genetics: widening the debate’ which was organised primarily by the candidate. The objectives of this October 8<sup>th</sup> 2004 forum were to:

- Attempt to widen the ‘genetics’ debate
- Locate the debate at a university which had a growing program in biotechnology research and development
- Bring together different non government organisations (NGOs) which had an interest in some aspects of genetic engineering – either as solutions to health problems or from a conservation/ecology perspective
- Include a cross cultural perspective on genetic engineering – this was limited to a particular example of the use of genetic engineering
- Bring together proponents and opponents of genetic engineering technology in the interests of fostering intellectual debate
- Provide a broad agenda for discussion and assessment of genetic engineering technologies
- Give an opportunity for members of the science community to present their perspectives regarding some of the broader issues of genetic engineering.

### 8.2.1 Participants and programme

The forum came about primarily as a result of the candidate’s belief that universities have a responsibility to society to help to broaden and stimulate critical debate on important socio-political topics. This is drawn from Chomsky’s (2003:192) argument that universities are ‘crucial institution(s) in the formation of social attitudes...and a potential base and agency in the movement of social change’<sup>99</sup>.

The forum was conducted in collaboration with the Health Consumers’ Council of WA, the Conservation Council of WA, the Australian GeneEthics Network, Murdoch University’s Institute for Sustainability and Technology Policy and the Genetic Support Council of WA. The forum consisted of a number of plenary sessions and workshops<sup>100</sup>. Sixty people attended the forum.

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<sup>99</sup> Students for a Democratic Society (1962) quoted in Chomsky op cit.:192

<sup>100</sup> Lotterywest, the Perth Convention Bureau, Interfoods, George Kailis, myself and the registrations met the costs of the forum. The main items of expenditure were on the international and interstate travel of key speakers, particularly the keynote speaker, Mae Wan Ho, from London. The cost to the the candidate was considerable (but very worthwhile) – about \$8,000 - but it must be recognised that this would certainly be enough to dissuade the majority of people from conducting such an exercise.

It was organised mainly by the candidate supported by an advisory committee of representatives from the collaborating organisations.

### 8.2.2 Issues

Feedback from participants suggested that most had found the forum excellent with strong support indicated for holding more of such events not only on the subject of genetic technologies but on other topics where the public might want to have a say.

From the point of view of this thesis, the forum is of particular interest in that it highlighted some of the issues of public engagement, of the science communities' view of critical public debate, and of a number of speakers' emphasis on the need for greater public dialogue and discussion in relation to genetic engineering technologies. Thus, as indicated in the introduction to this chapter, the underlying politics and power issues surrounding the forum are worthy of some further consideration.

Firstly, an important message from the forum made by a number of speakers was that there is a need for greater accountability, openness, public consultation and discussion in relation to genetic engineering technologies. Jeremy Taeger from Greenpeace International spoke of these issues, particularly in relation to the Australian Office of Gene Technology Regulator (OGTR) which is the country's regulatory watchdog. Taeger provided a critique of the Australian genetics regulatory framework and argued that in particular the Regulator came from an industry background involved in genetic engineering technology development and commercialisation compromising the perception of its independence (Taeger, October 8, 2004). He further argued that industries' connections to the OGTR were too close (particularly in comparison to the public's access) and privileged and that the public service had lost its independence and role of servant of 'the people' becoming instead a somewhat politicized institution. Gavin Mooney, a Professor of Health Economics from Curtin University, spoke about the problems of genetic engineering technologies being developed within a neo-liberal political economy context in which not the people, but market forces determined the direction of the technologies' developments. Bob Phelps, the Director of the GeneEthics Network, spoke as an educator and campaigner who worked to promote debate and understanding of the economic, environmental, social and ethical

impacts of gene technology and its products. Michele Kosky, Director of the Health Consumers Council spoke on the topic 'Human genes into pigs: who asked the community?' illustrating that socially profound experiments were being carried out by the scientific community without consent from the broader community.

The values that emerged in discussion at the forum which might be used to underpin future public policy on genetic technology reflected the desire of participants to see public policy driven more by what might be termed the common good (in essence social values) rather than the narrower and more selfish objectives of the science community and more especially of the corporate sector. Social cohesion needed to be protected. There was concern over the need to respect human dignity in policy on genetic technology not so much in its development but in its use. While less attention was paid at this forum to issues of culture (more so in the next case study and especially at the third forum), some recognition of the value of respect for cultural diversity did come through.

### 8.2.3 Analysis and discussion

What is particularly relevant to this thesis is the 'politics' surrounding the forum. Prior to it, attempts had been made to engage participation of representatives from the Murdoch University biotechnology sector. Invitations to them were declined. Yet they felt able to criticise the forum for being 'biased', 'one eyed' and run by 'Luddites'. The head of one of Murdoch University's biotechnology departments contacted the Vice Chancellor of the university, arguing that the university should not be 'sponsoring' such a forum (even though the forum was not being sponsored by the university) and further should not be allowing it to be held on its premises. A geneticist whom the candidate had known previously contacted me, without knowing the content of the forum, and accused me of organising an attack on the good work of medical geneticists, saying that the people involved in such an exercise were 'Luddites'. The head of the WA Agriculture Department's Biotechnology Sector also rang me prior to the forum, and proceeded, rather aggressively, to attack the forum before asking what it was about. Upon being invited to participate, this person declined. Several social workers involved in genetic counselling declined

participation on the grounds that the issues were too political and might raise problems in their employment.

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Only two participants at the forum were representing the ‘biotechnology’ sector. After the forum one of them published in a biotechnology newsletter very personally scathing accounts of some of the individuals who presented papers at the forum – failing to respond to the content but focussing on the speakers’ appearances and presentation styles.

There are clearly limitations to such events – apart from the personal financial costs for anyone wanting to undertake a similar project. Firstly, the issues being dealt with are very broad; in essence they relate to the values underpinning a particular type of society. This is especially difficult at a time when there is an overwhelming sense of inevitability in the ‘linear trajectory of progress’, a part of the ideology which assumes science is value neutral and is leading to improvements in the quality of life of humans. The subject, genetic engineering, can appear very much removed from the day to day issues confronting those people who have some sort of ‘social conscience’ about the type of society in which we want to live. A number of people who rang to register their interest in the forum asked if they would be able to understand the discussion. Such concerns are understandable as the language of science can be very esoteric and excluding, even though the *social* science (the scope of this forum) is not.

The politics surrounding the forum were worrying to me. While the candidate had anticipated that there would be some reservations in some quarters about the holding of the forum, the hostility that emerged was surprising. More worrying was the lack of willingness on the part of those who voiced concerns and criticisms of the forum to even to engage in debate by attending it. That desire to exercise that degree of control over the debate or more accurately to try to stifle debate cannot be healthy for the future of the technology nor for any sort of public accountability for its directions.

The purpose of the forum was primarily to use it as an example of a broader, more critical approach to public consultation on gene technology. The event however exposed some of the very real problems surrounding the elitism of science and of the scientists in genetic technology and their unwillingness to engage with the public. It

also highlighted the reluctance of some professionals working in the area of genetics to become involved in the broader issues of the technology for fear of being drawn into a political environment. This unwillingness to engage on such topics is in itself a political statement.

There are clearly difficulties in developing independent, publicly driven forums, certainly much greater than with forums conducted and financed by governments, universities or biotechnology sectors. The lack of resources is one constraint but the politico/cultural milieu is perhaps a more overwhelming and less recognised problem. The latter perhaps reflect a society whose shared meanings are captured by short term rewards, advertising, materialism, 30 second news grabs, reality TV and socially comfortable and conservative discourse. There is a tendency to believe that if a technology exists, we should be able to use it. Further there is a pervasive belief that all (bio)medical research is good research. The lack of opportunity to make a critical assessment of the issues relating to genetic engineering technology in medicine was a definite shortcoming for the forum. The issues of GM crops and food labelling are much more in the public knowledge domain and they appear more straight forward and less emotive.

On the positive side, the forum was highly successful in bringing to a university representatives from the NGO sector and members of the public together to discuss an issue of public importance. Many of the papers presented were thought provoking and informative and very much appreciated by the audience.

Recommendations and further actions that came from the forum included that:

- a. The National Health and Medical Research Council (NHMRC) establish a fund for the public to set at least some of the agenda for debates on genetic engineering and also on medical research more generally;
- b. A project be developed to review the NHMRC and the medical model for GE technology assessment
- c. A review of the OGTR be established questioning why government agencies are conducting politically sanctioned campaigns to educate the public on the 'benefits' of potentially high risk technologies

without adequate consideration or open community debate about the potential costs, risks and issues;

- d. An effort be made to examine the independence of Biotechnology Australia which is a government statutory body but which is an unwavering advocate of animal and plant biotechnology as a way of boosting the Australian economy;
- e. A summary of the forum be made available to the Western Australian Department of Health and the Agriculture Departments.

While the response of key policy makers to the forum (who asked a lot of questions about the motivation of the forum but failed to attend) was disappointing, the candidate's longer term response is to propose a tertiary course on genetic engineering technologies which will provide an intellectual/knowledge basis for a broader assessment of these technologies and their impact. A broad course outline (suitable for university, on-line or summer school delivery) is set out in an Appendix 1 at the conclusion to the thesis.

### 8.3 The South West Area Health citizens' jury and public forum

The '21<sup>st</sup> Century Genetics' Forum, my first case study, can be contrasted with a well resourced public consultation process used by the South West Area Health Service (SWAHS) in Busselton, Western Australia in 2005.

This process involved first of all a Citizens' Jury which was held in Busselton on Monday 24 October 2005. It was followed by, and the results used to inform, the Health Forum which was held on Tuesday and Wednesday 25 and 26 October.

This section explains the background to the citizens' jury, sets out the values and principles it came up with, describes the citizens' evaluations of the process and presents a short conclusion.

#### 8.3.1 The background

Citizens' juries are a form of deliberative democracy (Coote and Lenhaglan, 1997; Smith and Wales, 2000). This form of democracy is described by Wakeford (2002) as follows. 'Having the potential to be a tool of social justice and the legitimisation of non-specialist knowledge as much as a method of participatory research, citizens' juries are a radical alternative that could contribute to the reigning-in of the unaccountable exercise of power'. This need to embark on this 'reigning-in of unaccountable power' is a central theme of the thesis.

Citizens' juries comprise normally a group of non-experts, often randomly selected citizens, who meet together for some hours over a period of a day or more to debate some problem or issue in public policy. They are presented as a group with information by some specialists or experts in the relevant field and allowed the opportunity to quiz them. They are given time to deliberate and reflect on what they have heard before being encouraged to try to seek some consensus on particular issues.

They began life in the US but have since been used in a number of countries especially the UK but also in Australia. The range of topics is very diverse and includes global climate change, physician assisted suicide, traffic congestion pricing ([www.rachel.org/libarary/getfile.cfm?ID=518](http://www.rachel.org/libarary/getfile.cfm?ID=518)) and environmental decision making as well as topics closer to the theme of this thesis such as genetic testing and genetically modified food ([www.food.gov.uk/gmdebate/citizens\\_jury](http://www.food.gov.uk/gmdebate/citizens_jury)).

In this instance a group of citizens was randomly selected from the electoral roll for the South West of West Australia (with additionally two Aboriginal people chosen separately). There were initially about 30 people who responded to requests for expressions of interest. Information was sought from them as to their gender, age group and geographical residence. They were overall slightly biased towards older women and the major town in the area (Bunbury) was over-represented. A jury of between 12 and 15 is optimal (to enable everyone to have an opportunity to participate fully) for the period available for them to deliberate – that is, one day. The 30 expressions of interest were reduced to 13 ensuring that the final jury was a representative mix of age, gender and geographical location.



The purpose of the jury was to allow the SWAHS to tap into the community's preferences for the principles they wanted to underpin SWAHS' decision making.

The jury was brought together on the evening of Sunday 23 October 2005 mainly to 'break the ice' and be given a little more information about what was involved in the jury process. The participants were asked to consider themselves as being citizens of the South West – not from Bridgetown or Albany and not to bring their own personal baggage with them. Primarily however, that evening session involved socialising over a meal. They were also given an example of principles not in health (as it was thought that to use health might bias them or lead them in their deliberations) but in education. The sorts of principles set out by the facilitator (who was an academic, independent of SWAHS and who was introduced as such) included such issues as good citizenship; understanding of civic society; training for the work force; etc. This provoked discussion of these education principles and to some lesser extent health care principles but with the facilitator standing back and not interfering in the latter discussion.

On the morning of Monday 24 October 2005 the participants were reminded that they were to act as citizens of the South West. They were told that what they came up with would be used in two ways. First the principles would form the basis of the deliberations at the Health Forum on the subsequent two days. This Health Forum which was concerned with a few selected operational issues for SWAHS (such as operational planning of mental health services) consisted of 260 people from the South West. They were a mix of non-experts who had previously volunteered to be on reference groups to assist in planning services for various disease/conditions (about 130 people) and other public services in the region (about 70 people), local politicians and dignitaries (30), various consumer representatives (20) and the members of the citizens' jury. Second the principles were to form the foundation on which SWAHS would plan in future. In these two contexts their findings were to be sacrosanct. The citizens' jury was my focus so that nothing more is said here about the Health Forum.

The participants in the citizens' jury were presented with information by 'experts' (senior SWAHS staff including the chief medical officer, the deputy CEO, the head of population health and the chief accountant) on the health of the people in the South

West and relevant demographic information; the services currently available; the resources available and their current deployment; safety and quality issues; and the organisational and other constraints that SWAHS faces. They were also given the opportunity to quiz the experts who presented the information. This took the group up to lunch time.

In the afternoon the jury was given time to reflect and discuss as a group what principles they wanted to underpin the decision making of SWAHS. The process involved an initial reflective discussion in the group on what they had heard and on which they were encouraged to deliberate. They were reminded by the facilitator about the education principles with which they had been presented and encouraged to think about the equivalent for SWAHS.

This took most of the afternoon with the facilitator encouraging the involvement of all but seeking to avoid leading the group in their deliberations. This process, in so far as it merited such a description (and that is not meant pejoratively), involved mainly, though not uniformly, the group discussing some aspect, for example, priorities for fairness across different population groups. The facilitator would then draw out from the group what they meant in as concrete terms as possible (for example what did they mean by equity? who did they consider to be disadvantaged? were group A more disadvantaged than B? what should be done about disadvantage? etc.).

While there was considerable debate about some of the finer points of the principles, there was remarkable consensus on the headlines and indeed much of the detail as well. In all instances however a consensus was reached and a list of principles agreed.

### 8.3.2 The principles

The jury established eight principles as listed below. The only one where reaching a true consensus proved difficult was the first, on fairness. The difficulty here was only at the level of geographical fairness as some of the jurists at this point tended to put

their own town hat on and abandon their 'South West Region' hat. Prompting by the facilitator and some of the jurists eventually overcame this difficulty.

- Fairness

The principle on which the citizens placed most weight was fairness (equity). They defined this in terms of equal access for equal need, where equal access involves equal opportunity to use health services. The barriers to using health services were seen as many and include money, distance, racism, etc. Equal access is where people perceive the barriers they face to be equally high; need is taken to be capacity to benefit (i.e. how much good can be done) and benefits to disadvantaged people get weighted more highly (e.g. higher weighted health gains for Aboriginal people). The jury had a particular concern for the most disadvantaged, especially the health of Aboriginal people.

At the same time the jury acknowledged the "trade-off" or competition between equity and efficiency. They felt that the current balance between the two would be improved if more weight, especially geographically, were placed on equity and less on efficiency.

- Efficiency

Efficiency was seen by the jury in two ways: first in terms of doing things as well but more cheaply or doing more with the same resources; and second it was about doing as much good as possible with the resources available.

The citizens were of a view that the second type of efficiency needs more emphasis i.e. there needs to be more consideration given to priority setting across different programs. For example should SWAHS spend more on maternity care even if that means less on care of the elderly?

With one notable exception they were less inclined to argue for higher priorities and increased spending for any specific areas. They were more concerned that some sort of priority setting was done explicitly. The exception was services for the mentally ill.

Where they would make savings if these had to be made was through hospital rationalisation. They believed that the current deployment of resources to and in hospitals and emergency departments was potentially inefficient and asked that SWAHS examine ways to rationalise these. They suggested for example that some of the hospital buildings might be converted into aged care facilities or to provide services for the mentally ill.

- Trust with respect to safety

A third principle or set of principles related to quality, safety and risk management. In this context their strategy was one of trust. They trusted SWAHS to ‘take care of’ these issues on behalf of the South West community.

- Prevention

The next principle was prevention of illness. They wanted a higher priority for prevention (as opposed to cure or treatment) but were concerned with ‘value added’. By this they meant that, where other organisations (e.g. the Cancer Council, Heart Foundation) were already involved in prevention, SWAHS should avoid duplication and concentrate on prevention that would not otherwise be pursued.

In discussing health promotion within the context of prevention they saw the objective of such health promotion as being about promoting informed choices about health issues.

- Self-sufficiency in SWAHS

On the principle of self –sufficiency in the provision of health services within the South West, they had no strong views but felt that total self–sufficiency did not make sense. There was debate about which sorts of cases might reasonably be treated locally and which might go to Perth. They agreed simply that the extent of self –sufficiency must and should vary by condition.

- Holistic care

The jury expressed concerns about ‘body parts’ medicine and saw an increasing role for holistic health. In this context they considered the Aboriginal Community

Controlled Health Organisation (ACCHO) type model as being a useful one for all patients and not just Aboriginal people.

- Transparency and accountability

The citizens supported transparency in decision making in SWAHS as exhibited in the holding of the citizens' jury.

- Community engagement

Finally they endorsed the principle of involving the community in establishing the principles on which SWAHS should base its decision making.

In the context of values emerging more generally from this forum and how these might have a bearing on the thesis, the key point of interest is that the very establishment of the citizens' jury had a profound impact on the citizens involved at a number of levels. Most relevant however in the thesis is that the citizens were very much of the view that they were there to serve the common good, that social cohesion across different social groupings and concern for the disadvantaged were important values. They also emphasised the need for respect by the health service for human dignity.

### 8.3.2 Citizens' evaluation

After the event the participating citizens were mailed a questionnaire asking them to evaluate various aspects of the jury process. Most responded by mail. The four who did not were interviewed over the phone. There was thus a 100% feedback to the questionnaire.

The general response of the citizens to the jury process was one of satisfaction, approval and indeed enthusiasm. With respect to what was thought to be the best aspect of the whole process, several points were made. What emerged as a general picture however was that the very opportunity to have been involved as responsible citizens in the exercise was the key reason for their satisfaction. They recognised that

there is a legitimate role for responsible, well informed citizens. They were particularly pleased that SWAHS recognised that as well.

### 8.3.3. Conclusion

The Citizens' Jury was by any standards, a successful experience in getting the public's voice. The participants were able to act as citizens and were comfortable to play this role; they believe they do have a role to play in health service decision making; they were able to reach a consensus on a clear set of values and principles; and they felt the process was enjoyable and worthwhile. Perhaps the key findings beyond that are that they wanted more for prevention, more for Aboriginal health and more for the mentally ill. Foregoing spending on hospitals and emergency departments was their way of SWAHS being able to pay for these.

It is also relevant to note that in the subsequent forum the principles that the jury came up with were overwhelming endorsed by the members of the forum. They then used them to help in the forum's deliberations which were more concerned with operational planning for SWAHS in a few selected areas.

### 8.3.4. Lessons for this thesis

The SWAHS public consultation process was a very good example of consulting citizens in a critically informed and meaningful way. The process showed clearly that citizens do want to be involved in decisions affecting social institutions and services to their community, that they could responsibly and enthusiastically take on the challenge of behaving as informed, socially responsible and socially representative players in decision making processes on behalf of the wider community and for its good. The process of consultation was important – it educated people to act critically and in good faith for the community, rather than individual benefit. The process brought a degree of integrity to the policy process that is often lacking with government's making expedient decisions or decisions meeting narrow sectoral interests. The fact that the process involved the establishment of core values on which the decisions were to be based was fundamental to the success and integrity of

the process. The major shortcoming of this process was that it did not necessarily translate into the policy making process for the South West.<sup>101</sup>

#### 8.4 The Peoples' Health Forum in Cuenca

The candidate attended the second Peoples' Health Assembly forum in Cuenca, Ecuador in July 2005. The event is of relevance to this thesis in that the forum, organised by an internationally elected committee, represents an international grassroots peoples' movement – it can be most starkly politically juxtaposed to such international or global organisations as the World Trade Organisation's 'global' meetings which represent the global corporate and power interests and which exclude 'the people' from a seat at the table.

The People's Health Movement (PHM) is a

*global coalition of grassroots and health activist organisations dedicated to addressing the burden of preventable disease globally but in particular that carried by developing countries. The goal of the People's Health Movement is to re-establish health and equitable development as top priorities in local, national and international policy-making with comprehensive primary health care as a key strategy to achieve these priorities (<http://phmovement.org>).*

Fifteen hundred people from more than 82 countries attended the July 2005 Forum which gave particular voice to the Indigenous peoples of the world, women, the exploited and impoverished, the marginalised and the poor. The forum heard many people's stories of oppression, injustice, environmental degradation of the land by global oil companies; of genetically engineered crops causing sickness; of the indiscriminate and sweeping aerial chemical spraying of people on the border of

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<sup>101</sup> The candidate participated in another 'public consultation' process in 2006 for the WA Neurosciences Network – a poorly constructed half day 'consultation' on setting priorities for resource allocation to provide services to people with neurological conditions – this process lacked any value base setting, discussion about limited resources and resulted in a vying for services amongst people with a personal interest (either as sufferers, clinicians, condition specific support groups). The result was an ill-informed and arbitrary process of priority setting by people who were looking to meet their own needs. The results of this ill informed process, the candidate understands, are being fed into the health planning in neurosciences.

Columbia and Ecuador as part of 'Plan Columbia' – a US inspired and funded operation allegedly to destroy coca crops by aerial fumigation; of wars fuelled by the arms traded from the Western industrialised countries and Western political interests; of Western aid which strengthened the military rather than developed the health, welfare and education of the people; of the effects on local communities of TRIPS, GATT and the WTO<sup>102</sup> (more discussion of TRIPS, GATT and WTO is presented later in the thesis). A number of Indigenous people from Ecuador spoke of the destruction of their land, water, their culture, the Amazon basin and their livelihoods by the international oil company Texaco<sup>103</sup>. Several of the people who spoke were illiterate but had a deep knowledge, a broader, more sustainable, more compassionate worldview than many of the industrialised nations' leaders. These people understood the problems of their communities.

One Nigerian poet and teacher, Nimmo Bassey, spoke of the enormous wealth of the African continent, of the effects of political and economic colonialism and also the impoverishment and disenfranchisement of a whole continent of people. He spoke for example, of the problems faced by the Ogoni people of Nigeria as a result of the destruction of their wetlands by the Shell Oil Company<sup>104</sup>. A number of people attending gave personal testimonies of their (communities') life situations and their (communities') struggles, and in doing so always spoke of their communities, not just their individualised experiences, hopes and fears, and of their place in the global community. People were given space to have a voice.<sup>105</sup>

The sense of solidarity, common humanity and sharing amongst people attending the forum was inspiring. The sharing of values and commitments was between people who do not even speak the same language or practice the same religion, but who

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<sup>102</sup> TRIPS – Trade Related Aspects of Intellectual Property (see thesis chapter 6 for further explanation of these institutions); GATT – the General Agreement on Tariffs and Trade; WTO – the World Trade Organisation

<sup>103</sup> In a 20 year period (1971 – 92) Texaco discharged into the environment in Ecuador 17 million gallons of crude oil and 20 billion gallons of toxic waste. Six hundred open pits filled with toxic waste were left in surrounding communities in Ecuador (which flooded into surrounding areas during the tropical rain season). Vol 11/No 2 Apr/Jun 2005 [www.ijoh.com](http://www.ijoh.com)

<sup>104</sup> Another Nigerian playwright and Ogoni activist, Ken Saro-Wiwo was executed in Nigeria, when he supported the Ogoni peoples of the Niger Delta against the environmentally destructive actions of the Shell Oil Company.

<sup>105</sup> Even so, one Indigenous speaker had been prevented from leaving his country of Colombia to speak at the assembly, apparently this Indigenous, poor, illiterate activist was considered a political threat to Colombia – a nation state well buoyed by US military aid.



share the same hopes for the world. The formal outcome from the forum was the Cuenca Declaration. Few people if any at the forum had any power within the neo-liberal global market economy system – but there was definitely a sense of ‘people power’, of solidarity, community, respect for diversity, connection and comradeship. It is particularly important between people from Western industrial societies and people from Third World countries.

Perhaps most significant is that the People’s Health Movement represents an international body of people committed to clear goals and ideals of how society should be just, sustainable, peaceful, inclusive, valuing diversity and difference of language, culture and economic systems. To have a model and a coalition of people with shared meanings working towards common ideals is important in a world that is in many instances, short of ideals and shared community values. The people inside the forum were not so different from the majority of people in the country hosting the forum<sup>106</sup>, nor were they a gathering of people who needed an enormous array of security to protect them from ‘the people’ as is increasingly the case with the World Economic Forum – a forum in which security from the threat of ‘the people’ is a major cost and concern.

The forum also strongly gave the message that the answers to poor health and poverty are political, economic and social – not technical, and the political and economic models imposed under the ‘reforms’ of neo-liberalism resulted in the loss of language and cultures, of economic systems, of control over livelihoods and local economies, of environment and of a place in the world.

The values underpinning this forum were many and varied and perhaps reflect more than the other forums the fact that this was international. They were again about the common good and social cohesion but questions of cultural diversity, sustainability and peaceful co-operation were very much to the fore. These are again reflected in the thesis.

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<sup>106</sup> Contrast this to meetings of the world’s powerful, the WTO, G7 and so on which require enormous security. The People’s Health Assembly and the World Social Forum meetings have no security – to protect them from ‘the people’, although governments see these movements and individuals attending them, as a threat.

## 8.5 Conclusion

This chapter has given a short description of three very different events which have provided a voice for people in how they would like to see the world run. The predominant common theme to come out of each event is the fact that ‘the people’ do want to have a voice, do behave as responsible, conscientious and well informed, reflective citizens, people with a commitment to community values and interests and to the common good, if given the opportunity to participate in deciding the future directions of human social and economic life. This chapter illustrates that ‘the people’ do have the skills, the capacity and the commitment to know how to build a better, more equitable, sustainable and just world. This thesis has argued that it is the governments aligned with sectoral, corporate, status quo interests who do not want ‘the people’ to have a meaningful voice. This reflects the very deep structurally conflicting interests in the global political economy.

## Chapter 9

### Science and the role of universities in neo liberal societies

*Progress in the [ social] sciences lies through controversy, which should be sharpened and not veiled' (Myrdal, 1974, in Amoroso 1998: viii).*

#### 9.1 Traditional roles of universities in democratic society

In his book *Science in the Private Interest*, (2004 ), Sheldon Krimsky argues that in the US (but the parallels with Australia are very great) there is a distinctly new social context for all levels of research and research institutions - that of academic commercialism (which) is in large part accepted as an unproblematical and favourable trade off of values, where conflicts of interest are manageable through policy guidelines and are in any case impossible to eliminate and where the basic integrity of the university can be protected. Krimsky contends that

*'the most significant loss in permitting academic scientists to pursue technology transfer, to establish new companies in partnership with the university, to exploit intellectual property of scientific knowledge is that it turns the university into a different type of institution. The greatest losses are not to the academic professions or to the scholarly publications, but rather to the social role played by universities in (public) life (Krimsky, 2004:3).*

In the candidate's own contact with researchers in WA involved in clinical neurological research, she has been provided with anecdotal evidence that much of their time is spent doing drug trials for pharmaceutical companies – to cover the cost of their basic, less profitable, clinical research. Another significant portion of time of scientists is spent writing submissions for research grants from private corporations.

Chomsky, in reflecting on the challenges facing humankind in the world today, suggests that it is a matter of great urgency, both for ourselves and for world society, that our institutions and ideology be subjected to serious critical analysis. He argues that universities must be a primary object of such analysis, and at the same time might provide the 'institutional form' within which it can be freely conducted (Chomsky, 1970:308). If they are to serve the common good, and not to betray public trust, universities need to be able to function as free (and uncompromised) institutions. Chomsky sees the fundamental value of universities as their being committed to the 'free market place of ideas'. This role of the university is a legacy of classical liberalism and democratic ideals. This chapter contends that in the academy, it is this legacy which is under threat from the growing symbiosis between corporate and university interests.

There is also a deeper, more complex and not unrelated issue in relation to universities and education. This is that all mainstream educational systems tend to reinforce to a large and pervasive extent, the structures of the society of which they are a product. This level of investigation is outside the scope of my thesis, but is nevertheless relevant in an epistemological and globalising cultural sense. Writers such as Paulo Freire (1970) expose the role of 'banking' (rote, decontextualised, ahistorical and uncritical) education used by oppressors (colonialists, ruling classes, etc.) against the oppressed, the disadvantaged, the working class and the marginalised. This form of education serves to preclude the development of a critical awareness of the situation of (oppressed) people in the world. In the global political economy, 'banking education' and mainstream educational institutions, including universities, end up supporting Western deductive market driven science and, with that, a particular ideology and political economy. Delving a little deeper, one can conclude that there is a clash of epistemologies between that of 'scientific' knowledge and other ways of knowing – ways that can be learnt from different frameworks and different worldviews. There are different methodologies employed in the disciplines found in the (Western tradition) social sciences and humanities and the pure sciences and those adopting the perspectives, worldviews and methodologies of non Western cultures. It is to be noted that the literature on the sociology of scientific knowledge, for example, has a 'recognition that it is not only scientific practices and cultures

which are inherently social, but so too is the knowledge produced within such domains' (Solomon et al, 2001:11).

While these issues of what constitutes legitimate knowledge are hugely important to the subject of this thesis, it is outside its scope for further investigation at this time. Given the traditional role of university institutions in Western society, this thesis provides a critique of how this role is altering as a direct result of changes being brought about by neo-liberal economic forces. The threat to what amounts to the freedom and autonomy of universities has developed in an educational context which increasingly separates (falsely in my view) the values of science from those of the humanities and social sciences, disciplines which provide a framework for a more objective, broad, humanistic, theoretical and historical assessment of the direction that science and technology are taking in society. It then in recent times has chosen to value explicitly the former over the latter to the detriment of both. The idea of the 'linear trajectory of progress' is an example of one of the concepts which has resulted from uncritically self endorsing the path of science and technologies and giving these developments a positive spin, and a seeming inevitability which takes on the appearance of independence from human direction and intervention.

Gabriel Kolko noted 'from the turn of the century to this day (the public mind) was the object of a cultural and ideological industry that was as unrelenting as it was diverse: ranging from the school to the press to mass culture in its multitudinous dimensions' (Chomsky 1988c [1984]: 136 ). However, on one level it can still be argued, as Chomsky does, that in this context 'privileged intellectuals in the universities and elsewhere can contribute to protecting and advancing democracy, freedom, and human rights' (Chomsky 1988: 324). The degree of convergence of university and corporate interests which is developing today is qualitatively different. This is in part due to the growing power and predominance of corporate influence, the decline in government funding of universities and the growing convergence between governments and corporate interests. However it is also the result of the demise of both the social contract and of the commitment to the common good, the supremacy of 'individualism' and the privatisation of knowledge in a knowledge-based economy.

Universities have in the past played an important institutional role in supporting independent and unbiased public debate. They have been an integral part of the public commons, making an important contribution to society's intangible wealth – its intellectual, cultural and knowledge richness - as well as being important to the flourishing of democracy. The editor of the *Medical Journal of Australia*, Van Der Weyden, writes that

*Public trust in universities and research institutes is embedded in notions of intellectual integrity and independence. Crucial to this trust is the belief that these virtues are protected by an environment that values intellectual freedom, an unfettered exchange of information and ideas, and the pursuit of research for the public good. Of late, however, this trust is threatened by the increasing involvement of industry in research funding and a blurring of research ideals and corporate interests.....*

*.....as our governments, universities and research institutes increasingly pursue policies which blend research creativity and corporate capital, there is no reason to believe Australia will escape placing research integrity and public trust at risk (van der Weyden 2001:396-397).*

The candidate's contention is that the university has become entwined in a triangle of government, corporate and university faculties which compromises the universities' role of providing independent critical intellectual thought. This is happening at a time when governments are changing their roles in relation to society, over-riding their social contract with the community and abrogating their responsibilities as trustees for the community and, in myopic fashion, converging the economic and even social interests of the nation state with those of the corporate sector.

Universities and formerly government funded independent bodies such as the CSIRO<sup>107</sup>, Australia's premier science and research facility, are being pressured to develop financial linkages and dependencies to the private, corporate sector. Even non government organisations and the charity sector are being pushed into developing 'partnerships' with the corporate sector (an example of this being John Howard's

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<sup>107</sup> Commonwealth Scientific Industrial Research Organisation

Community Partnership programme)<sup>108</sup>. All of this is happening at a time when governments are politicising the bureaucracy, are increasingly depending on expert knowledge in their decision making and experts in their turn are increasingly dependant on corporate investment to fund and underwrite their research work.

In examining the role of education in citizenship, the American philosopher, Martha Nussbaum, writes

*When we ask about the relationship of a liberal education to citizenship, we are asking a question with a long history in the Western philosophical tradition. We are drawing on Socrates' concept of "the examined life," on Aristotle's notions of a reflective citizenship, and above all on Greek and Roman Stoic notions of an education that is "liberal" in that it liberates the mind from the bondage of habit and custom, producing people who can function with sensitivity and alertness as citizens of the whole world (Nussbaum, 2002:308).*

Eva Cox (1995:76) contends that universities are no longer funded as repositories of knowledge and debate. As a result there have been substantial losses to both the social capital and independent thought of universities. Cox writes that 'as academics depend more and more on research funds from industry, independent advice from academics becomes hard to find, particularly when it might jeopardise future corporate funding. Furthermore, she argues that government funding policies are turning 'academic disciplines into production lines where the joy of learning is lost.[even although] the joint pursuit of knowledge is an important source of social capital' (1995:76). University courses, according to Cox, are now almost entirely defined by quantitative outputs and their relevance to employment and industry. As a consequence not only do universities lose their status as bodies of independent and impartial knowledge but as their departments turn to private enterprise for their funding and for the higher remuneration of their academics, they become less likely to attempt to nurture science in the public interest.

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<sup>108</sup> Thus many health NGOs are partnered up with pharmaceutical companies for example but only if the 'cause' is big enough or 'sexy' enough to boost the good appearance of the corporate. Richard Dennis, speaking at a public forum in Perth in May 2006, addressed how the commercial and party political interests of the current government's funding policies are used to silence dissent in the NGO sector.

In her introduction to the book *University Inc. The Corporate Corruption of Higher Education* (2005:x) Jennifer Washburn writes that in the US the ‘single greatest threat to the future of American higher education (is the) intrusion of market ideology into the heart of academic life’. She writes that ‘this development...took root in the late 1970’s (in response to competition from Japan)’ when ‘a powerful nexus of political, economic and industrial forces began pushing America’s universities to forge closer ties with private industry, convert themselves into engines of economic growth, and pump out commercially valuable new inventions’. She argues that the problem is not university–industry relationships per se, ‘it is the elimination of any clear boundary lines separating academia from commerce’ (Washburn, 2005:x).

There are two broad categories of issues arising out of this growing entwining of university/corporate interests: the use of public funds to underwrite private (academics) profits and the threat to the role of the university in supporting critical and impartially informed public debate.

To tackle the second issue first, universities have in the past played an important institutional role in supporting independent public debate. While one can argue that any society’s institutions are products of that society and reinforce its status quo, there was still room in the cultural milieu of universities prior to the 1970s and ‘80s for the existence of critical radicalism and innovative social thought. However, the university is becoming increasingly compromised in its role of providing independent critical intellectual commentary. This is a direct result of the closeness of the universities’ relationship with corporate interests. This trend runs parallel and collusively with the growing ideological basis of Australian government policy (educational, health, immigration, technology and so on). There are many worrying consequences of this. In the context of this thesis, it is of particular concern when one considers the hugely social, environmental and economic impact of potentially controversial technologies such as genetic engineering .

Robert Jensen, from a US School of Journalism (University of Texas, <http://uts.cc.utexas.edu...>) writes that, in his time as a professor, the pressure on faculty ‘to become grant writing machines has increased considerably...(and this) has



the effect of discouraging scholarly work that challenges the society's most powerful institutions and ideologies'. He claims that promotions are increasingly becoming linked to successful efforts at 'hussling' money. (The links between journalism, democracy and corporate influence are another story and even if related to the themes of this thesis are too large to handle here.) In a similar way it is contended that the political/social aspects of science and questions about scientific 'objectivity' are closely linked to political and economic interests. This is the case both in the sense of the scientific value paradigm being hegemonic in describing the world in a culturally particular way and in the sense of how particular decisions about scientific developments are made.

## 9.2 Declining government funding

As a result of globalisation, pressures are mounting for all Australian universities to commercialise and to market their courses more aggressively in Australia and overseas. Universities risk losing important values when they have to focus on attracting corporate dollars, in turn developing a corporate ethos that does not fit easily with scholarly, professional values.

While currently corporate funding amounts to a relatively small percentage of university research grants (in the US about 7% but not available for Australia), that percentage is expected to grow rapidly in years to come – particularly in the areas of medicine, biology, chemistry and engineering. The concern is that this could lead to ethically compromised research and university decisions. In Australia, the former Federal Education Minister David Kemp, outlined his policy push on increasing corporate/university research linkages thus:

*To capitalise on the benefits that knowledge brings us, stronger connections need to be made between the producers of knowledge and the users of their research building on a strengthened effort in basic research, this exchange of knowledge between researchers and the users of research must be a defining characteristic of Australia's high education research system. This will involve greater participation of users in determining priorities for funding and performing research.....the culture of university research should be more*

*entrepreneurial...to harness the full cycle of benefits from their endeavours through commercialisation, where appropriate (Kemp, 1999: 4-5).*

The changes that have occurred and will occur due to the commercialisation of universities have been and will be fundamentally important to democracy. However, as Krimsky argues, the 'last quarter of the twentieth century has seen the commercialisation of university science, particularly in the areas of biomedical and health sciences, more aggressive and more pervasive (Krimsky, 2003:x). In 1968, James Ridgeway (1968) published '*The Closed Corporation*', a book that exposed the myth behind the 'ivory tower' of academia, certainly in the US but Australia is now well down the same route. Ridgeway documented how professors set up their own companies and used public resources for private gain. The professor-entrepreneurs were beginning to change the character of the modern university (Krimsky, 2004:28).

During the 1980s, a

*series of federal and state policies (in the US) established incentives for private companies to invest more heavily in university research, a move that provided opportunities for universities to benefit directly from the discoveries of their faculty. The two basic approaches – namely university-industry partnerships and patenting – are encapsulated by the phrases 'technology transfer' and 'intellectual property rights of basic research' (Krimsky, 2004:30).*

Krimsky writes that a

*decade of aggressive university-industry partnerships was stimulated, in part, by the Supreme Court in *Diamond v. Chakrabarty* (1980), which ruled that genetically modified bacteria were patentable in-and-of-themselves, apart from the process in which they are used. This ruling opened up the floodgates for the patenting of cell lines, DNA, genes, animals, and any other living organism that has been sufficiently modified by humans to qualify as 'products of manufacture'. With this ruling by the US Supreme Court, the US*

*Patent and Trademark Office extended intellectual property rights to segments of DNA whose role in the organisms was not understood. This decision meant that university scientists who sequenced genes had intellectual property that they could license to a company or that could serve as the catalyst for forming their own company (2004:30).*

Krimsky also states how the US congressional Office of Technology Assessment (now defunct) anticipated that the relationships between universities and the private sector would affect academic standards.

Jan Currie in writing about turning Australian universities into corporate enterprises, using the examples of Melbourne, Monash and Murdoch Universities, records the view of one Arts staff member from Monash:

*The commercialisation of Monash and the rapid growth of managerialism have created a university where the conditions that created that reputation can no longer be sustained...corporate entities are not in the business of providing for the public good or the pursuit of knowledge for its own sake. They are in the business of creating processes which maximise profit (Currie, 2002: 17).*

Furthermore, Currie adds that Vice Chancellors have become like corporate CEOs and university vision statements read like 'corporate vision statements'.

A further problem which exists in many countries including Australia is that the free flow of academic knowledge is at odds with one of the key principles of corporate business, that is the issue of 'commercial in confidence'. In the former the free spread of information to one's colleagues is the currency of freedom; in the latter in a competitive market "colleagues" are competitors so that holding information and in turn withholding information is the stuff of profit making.

Another factor cementing the convergence of interests between the universities and the corporate sector is intellectual property rights and patenting regimes. Scientists are increasingly having to register their research findings under intellectual property

laws which result in publicly funded research being taken out of the public domain and placed in the private, confidential, competitive domain. Academic researchers, and particularly those associated with biotech and pharmaceutical companies, are linked to private corporations, enabling the publicly funded research results to become the private profit of the researcher or their satellite company.

It is difficult to find hard evidence on the extent to which researchers in the fields of medicine and biotechnology have patented their research findings for personal gain. It is however significant and is a rapidly changing aspect of research in these areas. It is also an aspect that would not be counted in the statistics on corporate sponsored research (when the patent would benefit the corporation). Medical heroes such as Dr Fiona Wood, Australian of the Year in 2005, have made a large personal financial profit from their work in the public hospital/university research setting (e.g. on skin grafting for burns victims).

Meanwhile, Packer and Webster (1996) argue that the emergence of patenting culture in academic settings causes some university scientists to divide their professional existence between what they see as the two distinct worlds of patents and academia. It then becomes inevitable that academic scientists are separated from the ideals of serving the public and the idea of promoting and promulgating research that is in the interests of the society.

Yet oddly, while corporations, such as pharmaceutical and biotechnology companies, attempt to portray themselves as exemplars of free enterprise, they operate in anything but a free market. Much pharmaceutical research is dependent on taxpayer-funded, university-based research which is then syphoned off into private companies that are given monopoly patent rights over their products, often extending over 20 years.. At the same time, such companies often pay little taxes, as they can deduct not only their research and development costs, but also their marketing costs, or what Bollier suggests is a form of welfare for big business, cloaked in market rhetoric (Bollier, 2003).

George Monbiot (2005: 3) in an article titled 'Free market does not exist' writes that

*there is nothing unusual about handouts for private companies. In his book 'Perverse Subsidies', (2001), Professor Norman Myers estimates that when you add the direct payments US Corporations receive to the wider costs they oblige society to carry, you come up with a figure of \$2.6 trillion or roughly five times as much as the profits they make. As well as the \$362bn the OECD countries were paying ... (for activities masquerading as farming) they were shelling out about \$71bn on fossil fuels and nuclear power and a staggering \$1.1trillion on road transport. Worldwide, governments pay companies \$25bn a year to destroy the earth's fisheries, and \$14bn to wreck our forests.*

Monbiot's examples, while not directly related to the university/corporate relationship, are nevertheless illustrative of the power and preferential treatment that corporates can attract in democratic societies – and at a time when budgets for welfare, aid and community development, and indeed university funding and research are being severely reduced.

When publicly funded research at universities is privately patented and profited from, universities also lose a potential source of significant income for the university. It is especially problematic for this to be the case when universities are crying poor, having to increase their student fees and to enter into relationships with the corporate sector to maintain their economic viability. One case at the University of Western Australia last year revealed how a University Medical Professor and department of surgery chief was accused of developing a cancer treatment while he was a university employee using university resources, then patented the cancer treatment and sold it to a share market listed Sirtex Medical company. The university alleged that the Professor, Dr Gray, obtained intellectual property rights and benefits flowing from them in breach of his contractual and fiduciary duties to the university (*The West Australian*, April 1<sup>st</sup> 2005:3). Such conflicts of interest are inevitable. They are almost certainly not uncommon, as researchers working for universities also develop private or publicly listed companies in addition to their university funded roles ( see.

### 9.3 Corporate funding of universities and the shift in priorities

The merging of industry and university research agendas is problematic also in relation to whether there is here an inappropriate use of public funding. Do taxpayers get a good return on their investment by giving away to the private sector the intellectual property derived from government funded research? Is there increasingly an underlying assumption that the public interest is parallel to or submerged in or reflected in corporate interests? With the accelerating commercialisation of biomedical research, problems arise for universities partnering with corporates – conflict of interest, allocation of resource issues, teaching graduate students, the secrecy of research findings, shifting research priorities, publication of research results and the struggle to remain economically solvent. There are numerous documented examples which illustrate the downside of university-industry collaborations. The internalisation of the values and interests of corporates amongst university heads is a further dimension of this issue.

Certainly there are relevant examples locally in Perth WA with, for example, Curtin University collaborating with Alcoa and Woodside Petroleum. Curtin University has been attempting to draw up guidelines both operationally and ethically to protect itself from being compromised by these two corporates. The university has been supporting research on environmental impact assessments of Alcoa's mining operations at Wagerup in WA – where Alcoa has been accused by some local groups of damaging the environment and the health of some of the local community at Yarloop. For such research to be credible, it would have to be completely independent of Alcoa funds. Whether guidelines dealing with such potential conflicts will be more than window dressing remains to be seen.

There is a further critical problem. In this age of growing corporate sponsorship of university science, the scientific, industrial and public interest is blurred or not perceived and the ethical norm of scientific practice, disinterestedness, is lost. A number of studies have shown how scientific findings have been heavily skewed toward supporting the interests of the corporate funding body. The pharmaceutical industry is most notorious on this front, even 'engaging' academics to put their names to articles written by the industry to be published in 'scientific' journals, as revealed by Richard

Smith (2003), the former editor of the prestigious British Medical Journal. It is reasonable to assume that it will be the case that scientific 'objectivity' – in the sense of both the scientific paradigm and as a hegemonic value-explicit paradigm which describes the world in a culturally particular way - becomes increasingly closely linked to political and economic interests.

A further important issue in publicly funded research passing over to the private sector – into corporate, competitive secrecy – is that the public do not really know what is going on. Within the publicly funded university setting, there was at least the perception of accountability, of transparency, of limits to what was ethically acceptable – even though for some of us, the line was drawn rather too widely or too late. In the case of genetic engineering technologies which raise enormous ethical, cultural and ecological questions, this lack of public accountability is highly problematic for society. In the private corporate sector, proprietary interests prevent public knowledge of what 'is going on'. In Western industrialised societies at least, there is some attempt to regulate what happens in laboratories. In a global economy, what is regulated out of one country, can readily be taken up in another less regulated one. With profit (and hence also competition) being the dominant motive, the change in, for example, biotechnologies is happening so fast, that it is difficult for regulators and hence regulations, even in ideal conditions, to keep up with developments.

Given the central and continuing contribution of scientists to regulatory activities, within the global context, we must ask what the role of science is in policy discourse. A study conducted to summarise academic-corporate ties in biotechnology suggests that these affect both the behaviour of scientists and the norms of academic research (Nelkin,1995; Nelkin and Lindee,1995; Sclove,1995; Rifkin, 1998; Krimsky, 2004). Trust in science involves a social contract between scientists and the public. The price of intellectual autonomy and support through public monies is continual public scrutiny of the scientific process and its results.

Public education policy, intellectual property law and the strong but short term interests of driving a growth economy, have forced universities into being institutions

as much for profit as for knowledge and the betterment of society. Openness and sharing of knowledge are among the victims.

#### 9.4 Consequences for the biosciences

Ironically, the humanities and social sciences, the very disciplines which provide tools for developing different perspectives, are being devalued in our society and are in decline in universities, while science and technologies are becoming the only intellectual pursuits valued by government and capital and increasingly it seems, in the wake of that, by university authorities.

Howard Kaye, a sociologist at Franklin College, has observed:

*As our latest attempt at dropping some moral anchor, biology may prove as ambiguous and unsuccessful as previous scientific moralities – and perhaps even more harmful. Our current infatuation with biology, unlike that of a century ago, is occurring at a time when the humanities and social sciences have declared moral bankruptcy, thus depriving us of a vital part of the collective memory we need to regulate and resist our increased capacity for genetic manipulation.....the cumulative effect of the ways such knowledge is likely to be interpreted for and by the broader public will push us, like sleepwalkers, toward the biologizing of our lives in both thought and practice (Kaye, 1992:83).*

The human genome project was initially presented by scientists, not disease group advocates, and its impetus came from technology rather than any specific disorder. Many of the promises arising out of the human genome project and such technologies as therapeutic cloning and stem cell research are possibly reckless in terms of the hopes they raise. They also raise research investment capital which might be better spent elsewhere.

The leading causes of death and suffering in developed nations have changed from infectious disease to chronic disease. Tuberculosis, typhoid, pneumonia, polio, meningitis, small pox, yellow fever and other infections have given way to cancer, heart disease, stroke and Alzheimer's disease. These are either life style and/or



longevity related conditions. For many of the world's population, disease and premature death are related predominantly to the social determinants of health (Wilkinson and Marmot, 2003) including poverty, inequality (Wilkinson, 2005) and injustice. An argument can be made that intellectual property rights and gene and pharmaceutical patenting will add to the problems encapsulated under the social determinants of health – that is, the convergence of these technologies together with a particular political/economic framework will further exacerbate the conditions leading to economic exclusion and marginalisation of a greater number of humans.

Enormous expenditure on medical technology has resulted in only small benefits to the health of the human population. Likewise, sophisticated genetic engineering crop technologies have not contributed to a decline in hunger and poverty, but have resulted in a growing gap between those with little or adequate food and those with much, perhaps too much. Today, 2 billion people live in poverty – that is without adequate conditions for a healthy life. Conversely, in the US for example, about 20% of the population suffers from diseases of having too much - obesity and a materially 'soft' sedentary lifestyle (Eursafe 2001 <http://www.eursafe.org/pdf/plenaryprpts.pdf>). While this comparison may be somewhat simplistic, it is nevertheless strongly indicative of the core problems of health, that disease and premature death are political and structural issues, not solely or even primarily medical issues. Medicine treats the symptoms – it rarely addresses the causes.

It follows that if genetic engineering technologies are seen as important factors in health and economic wellbeing, it is important that they are kept in the public domain or as a minimum decision making around their development is kept in the public domain and not controlled by corporate interests.

Scientific discovery is a political and social process. Medical researchers are of sufficient numbers and have an articulate voice to be a political interest group. These and genetic engineering scientists and technicians are the same people who sit on ethics committees judging the technologies within narrow and often esoteric medical ethical frameworks. They have captured the moral and ethical framework and locus within which the technologies are assessed. That is not a political economy ethic.

Bollier (2003), Krinsky (2003) and Cockburn and Henderson (1998) (in Bollier, 2003) all give evidence of publicly funded research that has been sold to private corporations before being placed on the market at hugely inflated costs and the reaping of substantial benefits to these same corporations. In the pharmaceutical industry, a number of studies have 'confirmed the paramount role of government research in developing medically significant drugs. For example, a 1995 study found that eleven of the fourteen new drugs that the industry identified as the most medically significant of the past quarter century had their origins in government-sponsored work' (Bollier, n.d.).

Public funding is invaluable to medical and pharmaceutical research. An example is one of the most lucrative drugs on the market - paclitaxel, also known as Taxol, which is used to treat breast, lung and ovarian cancers. \$US32 million of public funds was used to develop this drug which was then sold from the public domain to Bristol-Myers who were given exclusive access to the government funded research, including raw data and new studies. The cost of manufacturing Taxol, according to Bollier (2001) is about \$US 500 per patient for an eighteen month treatment regimen. Bristol-Myers Squibb charges more than twenty times that amount, earning between \$4 and \$5 million a day on Taxol. In 1999, the drug generated an estimated \$US1.7 billion in sales for the company. There are numerous examples of this trend in practice and research which suggests that scientists are compromised in their commitment to do research for the common good as opposed to research which will result in profit.

Scientists closest to it were the first to express concerns about the emergence of the genetic technology in its early beginnings (Shiva, 1993:96; Hindmarsh and Lawrence, 2001). In 1973 a group of prominent scientists called for a moratorium on certain types of research because of unknown risks and hazards associated with the possible escape and proliferation of novel forms of life. Later, as many scientists got involved in the commercial application of the new technologies 'selling the tree of knowledge to Wall street' (Shiva 1993:96) – the self criticism and self restraint of the scientific community faded away (100). Prominent scientists like Licbe Cavalieri, George Wald and David Suzuki have argued that the very power of the new technology outstrips our capacity to use it in safety, that neither nature's resilience nor our own

social institutions are adequate protection against the unanticipated impacts of genetic engineering. As bans and regulations delay research, tests and marketing in the North, biotechnology products are increasingly being tested in the South to bypass regulation and public control in what are secretive circumstances removed from public gaze.

Ignorance about the ecological and health impacts of new technologies far outweighs the knowledge needed for their production. With less powerful technologies such as fossil fuels, it took 200 years to realise that the burning of these has unanticipated side effects. Union Carbide – ‘we have a hand in India’s future’ – killed 3000 people in December 1984 when gas leaked from Carbide’s pesticide plant in Bhopal. Shiva (2003) argues for ‘biodiversity intensification’ and not the ‘intensification of genetic engineering which will otherwise result in global monoculture. There is thus a need to avoid the ‘excesses of freedom of choice’ (Mooney, 2004:2), not only in neo-liberalism but also in genetic engineering. There is also a need to bring relevant communities and their preferences to the decision making table of genetic technology and indeed of universities in their ethical consideration of research and scholarship. Individual choice in the neo-liberal market place will not be based on the broad humanitarian values of for example social justice that are needed to ensure that genetic technologies serve the common good. As our universities are driven more and more into the arms of corporates for their funding, so the case for ensuring that they serve the public as they have done traditionally and not the interests of the corporates grows.

## 9.5 Conclusion

Protecting the integrity of university research institutions is important in a world which is confronted with a vast array of complex issues some of which may impinge on the survival of the human species. Universities are places where there has long been the expectation that people can speak truth to power for the betterment of society. The effort to reconcile the values of academic science with the values of business enterprises misses the problem (or sidesteps it at best) of the hidden loss to society as a result of a hybrid, less independent institution. When universities and government supported non profit research institutions are turned into private

enterprise zones, they lose their status as independent and disinterested centres of learning. They also no longer provide as favourable an environment for nurturing public interest science and science in which the public can have a sense of trust.

There is a role for universities in widening the debate about genetic engineering. Whether they are already so captured as to be unable to perform that role is a moot point. Certainly Australia needs an independent intellectual focal point to connect the issues, to foster debate and to provide legitimacy to broader concerns about genetic technology. This issue is considered further in the conclusion to the thesis.

## **Chapter 10**

### **Conclusion**

The issues dealt with in this thesis are complex and important. The science and technologies are complex; the potential consequences of adoption and a proliferation of genetic technology are complex and largely unknown; and the issues surrounding consulting and engaging a diverse public, which (in the West at least) perceives short term individual benefits in (a medical for example) technology and which has an interest in maintaining the status quo, are complex. While to advocate radical structural, ideological, economic and political change in the development of these technologies is unrealistic in terms of democratising the decisions making surrounding them, the human community cannot meaningfully assess these technologies unless there is some major change to the existing broad social ethical indifference that pervades the field.

It has been the contention of this thesis that public involvement is limited, is situated in too narrow frameworks, is fragmented and in so far as it exists at all is largely meaningless in terms of having any power in determining the future course of the development of genetic engineering technology. Real, critically informed and empowered public consultation would seriously question and possibly threaten the direction genetic technology development is taking.

In this thesis, the significance of genetic engineering has been established from the perspective first of what it means to be human in the context of the broad ecology and second of the effects on the political economy of the globalised world. It has been illustrated that genetic technologies, like all technologies, develop and derive their meanings from and within a particular political, economic and social context. The inter-relationship of both the concepts and the reality of globalisation, neo-liberalism, ideology, technology, governance and the public were explored in relation to genetic engineering technologies.

It has been argued that there are significant problems and contradictions in assessing genetic technologies – problems of power, democracy, globalisation and hegemonic neo-liberal ideology. What assessment has taken place has been by and large piecemeal and uncritical, lying outside any historical or theoretical framework and not set against any clearly articulated set of social and cultural values, or futuristic scenarios.

Within this context, it has been suggested that public consultation mechanisms conducted within the neo-liberal ideological and economic framework, provide no more than a veil of legitimacy to fragmented questions which are couched within a very narrow context. The aims of what limited public consultation has taken place are in turn very limited and have not even begun to address issues of how to build consensus, determine what is the collective conscience, to facilitate conflict and power redistribution and to guide social change. As a result it could be argued that such consultation has been merely a tool to ‘manufacture consent’ for what are in essence undemocratic, highly profitable but high risk/ limited benefit technologies.

This thesis has argued that it is necessary to critique science/technology more generally in an historical and theoretical context and to do so against some core social values. Fundamentally given the social indeed global importance of developments in this field they need to be seen against a background of where we want to go as members of the human community.

The 8<sup>th</sup> October 2004 genetics forum (see chapter 8) resulted from a belief that universities have a responsibility to society to critique and to provide an intellectual basis for assessing (technology) changes to society and to contributing to the ‘greater good’. It was also an exercise in which the NGO sector, representing a small section of the community (and largely ‘sold’ on the benefits of the technology), was involved in setting the agenda and terms of reference for assessing genetic technologies, and for testing the ability of the ‘scientists’ and policy makers to engage on the broader and more challenging contextual issues of genetic engineering technologies. The hostilities from the ‘science’ community toward such a forum are symptomatic of their dis-ease either with their lack of ‘control’ of the ideas, language and agenda, or with having to engage in complex issues outside their narrow and less explicitly

politically challenging, though nevertheless, value laden, fields of expertise. If genetic technologies are being promoted as being ‘for the greater good’, and the ‘science’ of genetics is argued to be value free, this is a contradictory and problematical stance.

This thesis places the development of the new genetic technologies in an international context, linking their development to global economic processes and Western neo-liberal hegemony. It illustrates that Western dominance, or bio-colonialism, is manifest in patenting regimes and the private commodification of genes.

There is no absolute moral authority to guide the human species. The thesis suggests however that it is imperative that acknowledgement is given to the wider implications and values inherent in the adoption of particular technologies. It is important in democratic society that decisions are made by a critically informed (global) community within the context of clearly articulated values. This needs to stretch beyond the rather narrow focus of Western science and philosophical thought to incorporate the values and preferences of ‘the people’, ideally world citizenry, but recognising the need for both cultural diversity per se but also the variations in values per se that follow in the wake of acceptance of cultural diversity. Policy makers and governments need to broaden the policy community, to democratise the agenda setting process for critical and contextualised enquiry and to bring the funding and governance of genetic engineering technologies into the public arena. Chomsky argues that there is no point in having visions which cannot be realised (Chomsky, 2003:308). The world however is not sustainable without some higher moral vision for the human community, some commitment to changing an inequitable, hegemonic, undemocratic and uncompassionate world order, a belief that change is possible and a belief that we are all responsible.

Something has to be done to mobilise (particularly Western) public opinion<sup>109</sup>. It would appear that narrow vested interests can invariably make a case for production of a particular technology – while smokescreens are constructed over the costs to society. A case in point is the creation of the first atomic bomb (to protect democracy,

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<sup>109</sup> The public opinion of many of the poor, Arundhati Roy would argue, is already mobilised; movements such as the World Social Forum, the Peoples’ Health Movement, and other such movements would suggest that there is much substance to this claim.

peace and security), which led eventually to the creation in excess of 100,000 atomic bombs – and which has probably brought us no closer to greater democracy, peace and security. Despite international agreements to disarm, many countries continue to expand their nuclear stocks with the United States leading the way. The atomic bomb was qualitatively different in that it did clearly threaten the survival of humanity. Even so, the first atomic bomb was enough to augur an inevitable proliferation of these weapons. Nuclear weapons were seen as a necessity for international authority and security with very few scientists expressing moral objection<sup>110</sup>.

This thesis places the development of the new genetic technologies in an international context, linking it to global economic processes and Western neo-liberal hegemony. It has argued that Western dominance, or bio-colonialism, is manifest in patenting regimes and the private commodification of genes. There will be no push from the West to change these rules as the rules clearly benefit the West.

About half the world's population, 3 billion, live on less than US \$2 per day and of those, about 1 billion live in extreme poverty of below US\$1 per day (UNDP, 1998). Eight hundred million people are malnourished, 30 million die from hunger each year (Asian Human Rights Centre, 1999

[http://www.infochangeindia.org/AgricultureItop.jsp?section\\_idv=10](http://www.infochangeindia.org/AgricultureItop.jsp?section_idv=10)). Between 1989 and 1998, the share of the poorest fifth of the world's population in global income dropped from 2.3 per cent to 1.4 per cent. By the late 1990s the fifth of the world's population living in the highest income countries had 86% of the world's GDP compared to 1% for the bottom fifth. At the same time, the low income high health societies of Cuba, Sri Lanka, Kerala State and China all have life expectancies much higher than other low income countries due to: political and social commitment to equity, equitable distribution of primary health care and public health facilities, and enough food and encouragement of Indigenous agricultural activity. What this suggests is the need for political solutions and that basic needs rather than 'growth at all costs', and sophisticated technological solutions controlled by distant democratically unaccountable corporations, will result in the greatest health/food supply solutions. Furthermore, societies characterised by co-operative, sharing and

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<sup>110</sup> Joseph Rotblat, the Polish scientist working on the Manhattan Project, was the only scientist to resign. (Background Briefing 20/03/05)



working together for the common good have the best outcomes in terms of human health and welfare.

Will genetic technologies contribute to improving health/food supplies for the poorest 50% of the global population, or just the wealthiest few? Would that same investment in a global campaign to improve health/food supplies have a greater global impact – directly for the poor and indirectly for global security, stability and the global human ‘psyche’ (feelings of compassion, connectedness, trust and security, caring and sharing, rather than the extreme individualism which is developing in Western societies)? If the political economy of genetic technologies results in greater disparities of wealth (e.g. flow of capital from the South resulting from patents held by the North, reliance on more sophisticated and expensive food/medical technologies), or threats to biodiversity sustainability, what weight should be given to possible micro benefits in relation to unknown macro costs? Such questions need to be addressed by the human community rather than having unelected corporations, researchers and complicit governments determining the agendas for changes in the course of human history and polity.

A cornerstone of corporate interest in genetic technologies arises from gene patenting – a legal and economic system which is antidemocratic, exploitative, ethnocentric and hegemonic, particularly in the area of Indigenous, Third World and community-held knowledges, medicines, plants and seeds. The global community needs the opportunity to engage in informed public debate, to be able to establish socially and ecologically sustainable policies that have public confidence, to be able to set limits and to guide directions to genetic technology developments within the context of pursuing the broad interests of humanity.

In accordance with both Chomsky’s perspective of academic responsibility to society and critical action theory, this thesis proposes and has mapped out a framework for study course to provide an intellectual basis for local activists to counter the current ideological hegemony of genetic engineering protagonists. This is a very humble and inadequate offering, but it is a small attempt by one citizen to broaden and deepen the discussion about one particular group of technologies and to relate them to the ‘bigger picture’. (See Appendix 1.)

The patenting system that has developed in conjunction with the Trade Related Aspects of Intellectual Property agreements should be dismantled and genes and genetic technologies treated as public goods to be researched and developed into foods/medicines/pharmaceuticals through universities and publicly funded research institutions. The patent system was never intended for use to privatise and exploit the genetic inheritance of all humankind. The results of the publicly funded research could then be sold to manufacturers under a competitive tender arrangement to be developed as marketable products. In such a system, research priorities could be set by a body representing community interests, not corporate interests. Given that more than 50% of the costs of producing some pharmaceuticals is in the marketing of the products, this system would be more efficient and result in much more affordable end products.

There are a number of measures which fit into the category of rights for Indigenous and non-Western peoples that also need to be implemented but are outside the scope of this thesis, such as:

- Protection of sovereign rights of non-Western communities
- National and international frameworks to strengthen non-Western knowledge systems, languages and cultures, community ownership of land and community/collective innovations which prohibit claims for private ownership
- Recognition of the need to self determination for Indigenous people and non-Western communities: for cultural security and diversity of cultures and languages
- Recognition that human fulfilment rather than accumulation of commodities is the central quest of the human community
- *Sui generis* legal regimes to enable communities to own and control local and Indigenous knowledges.

In conclusion is a quote from the Indian writer and activist, Arundhati Roy, who captures the essence of this thesis in her description of Indian people marching against the construction of yet another gigantic technological fete, a dam at the Maheshwar dam site:

*From the previous evening, people from all over the valley had begun to gather in a village called Sulgaon. They came in tractors, in bullock carts, and on foot. They came prepared to be beaten, humiliated and taken to prison.*

*We set out at three in the morning. We walked for three hours – farmers, fisherfolk, sand-miners, writers, painters, film-makers, lawyers, journalists. All of India was represented. Urban, rural, touchable, untouchable. This alliance is what gives the movement its raw power, its intellectual rigour and its phenomenal tenacity. As we crossed fields and forded streams, I remember thinking – this is my land, this is the dream to which the whole of me belongs; this is worth more to me than anything else in the world. We were not just fighting against a dam. We were fighting for a philosophy. For a worldview (Roy, 2002:159).*

There is a need for a different worldview to that of neo-liberalism and the dominance of a corporate driven market economy. A worldview in which all sentient beings and species are respected, are nurtured and cared for, have an intrinsic value and place without exploitation in the broad scheme of things. A worldview which is openly political and openly espouses values based in justice, equality and respect for the broad ecology, which promotes diversity of species, cultures and economic systems.

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## Appendix 1

### COURSE PROPOSAL

#### THE POLITICAL ECONOMY OF GENETIC ENGINEERING

##### **Course Aim**

This multi-disciplinary course, drawing on political economy, social science, international and intellectual property law, philosophy, anthropology, science, futurology and psychology would aim to inform participants in how to create a more democratic context in which the common good might be served better than currently in future genetic engineering technology developments.

##### **Outcomes**

If there is nothing to fear from genetic engineering technologies, then it could allow that fear to be reduced or minimised; if there is something to fear, such a course would better equip us as citizens, to tackle the issues.

The more tangible outcomes would be

- a more informed citizenry;
- an increased probability of getting the public more involved in debates about and policy regarding developments in genetic engineering; and
- the prospect of influencing the direction of developments in genetic engineering to serve the common good better.

##### **Target Audience**

This is the public in general but also those particularly interested as lobbyists in influencing and democratising policy not just in genetic engineering but more



generally. Public policy makers would also be targeted especially those involved in genetic engineering developments but not restricted to them. Attempts would also be made to try to attract some of the scientists working in the area.

## **Major Themes**

### 1. What is genetic engineering?

A broad understanding of the biological processes of genetic technologies.

What is its significance in biological, ecological, medical, economic, epistemological, hermeneutical terms? What are its risks?

### 2. Neo-liberalism and the political economy of genetic engineering technologies

This topic would explore the impact of different political economic and worldviews on assessing the value of genetic technologies.

### 3. The Human Genome Project (HGP)

The Human Genome Project has been hailed as a 'staggering advance in the biological and medical sciences' which can bring huge medical benefits, but is a technology also fraught with high potential risks and questions of a profound nature about society and humanity. Some have argued that the HGP is enabling a new 'stealth eugenics' which comes in a friendly guise, is market driven and insidiously permeating our society, not serving the humanistic interests it claims, but the commercial interests of corporates'. What are the deep and pervasive concerns people have with genetic therapies, xenotransplantation, human cloning, predictive testing or the ability to prolong life indefinitely. What are the limits to adopting genetic technologies in healthcare and who should decide? In health, will it provide universal significant health benefits?

### 4. Patents

What are patents? What is TRIPS? What can be patented in the field of genetics. Will the privatization of genes and genetic research pose a threat to democracy? Does patenting foster/hinder research? What is the relationship between corporate, government and research institutions? What does gene patenting mean for international food security and access to drugs and medical technologies.

5. Health, whose health and how best to achieve it

Will the increasing reliance on sophisticated technologies in health provision result in better healthcare outcomes. Can the experts, clinicians and research scientists - those that partake and promote the technology – make an unbiased assessment of the technology and its risks. Has the drive for commercial/scientific success blinded researchers and developers to the risks and moral implications of their work? Does the proliferation of expert/ethics committees give ‘legitimacy’ to genetic technologies? Is the medical model (at a time when the humanities is not highly valued) adequate in assessing genetic technologies. What if any, limits should be placed on using genetic therapies in health care?

6. What it means and takes to be human

What are the psycho/social implications of medical genetics. What are the differences between Western, feminist, Indigenous views on humans’ place in the broad ecology and how do genetic technologies fit into these different worldviews.

7. Biotechnology, biodiversity, sustainability

The use of gene technology in food production is expanding. Protagonists claim genetic biotechnologies will feed the world, promote sustainability and biodiversity. Opponents argue the risks of releasing genetically modified organisms into the biosphere are so great as to outweigh any possible benefits. What are the differences between selective breeding and genetic engineering? What risk cover will insurance companies give for GM releases into GM free zones? Who will pay for GM accidents affecting biodiversity? If as much money was invested in low technology agricultures, would the productivity be less or more, and what methods are more sustainable/equitable? What is the relationship between GM seed producers and pesticide companies? Is there an unacceptable level of risk if giant corporate conglomerates owning the genetic blueprint for seed /food production.

#### 8. Patents and trade related aspects of Intellectual Property

What will be the impact of genetic technologies on the Third World as a result of patenting and world trade agreements. Will this result in the destruction of local sustainable agricultural methodologies, seed supplies, crop and food diversity. Also, examine the motivations of the West (US) providing GM food aid to African countries facing famine. Is this threatening future independence of these countries or their ability to benefit from GM free trade potential. Will GM agriculture feed the world or is the solution to hunger and poverty multifactorial/political/economic rather than technical? What responsibility does the first world have toward the third in technology transfers. Most patents are held in the North, most biological diversity or genetic patentable material comes from the South. Will this result in a further colonization of the South, a further flow of capital to the North and a further entrenchment of technical knowledge in the North. What are the consequences of the Western Pharmaceutical companies pirating and patenting third world and indigenous remedies, medicines and genes?

#### 9. Genetic technologies and the media

The reporting of medical 'breakthroughs', public expectations, health budgets, access and equity issues. Is there a lack of critical, analytical reporting of well funded, powerful, sophisticated media biotechnology campaigns. Is the establishment of Biotechnology Australia as part of a multi-million dollar national biotechnology strategy to promote the benefits of biotechnology in Australia contrary to the long term interests of developing Australia as a sustainable society. If genetic technologies are for the common good, why are the common people excluded from the decision making processes regarding the technology.

#### 10. The public

Examine different models and their advantages and disadvantages. Look at examples of public consultation in Europe and North America, and different global forums for public participation. Is public consultation a means of 'manufacturing consent' or does it have some real input, some power, into the future course of genetic technology. Are the dissident voices heard in these consultative mechanisms, or is the search for the public's voice a process which inevitably involves such compromise in the interest of a unified voice, that

conservatism is inevitable. How to develop critical awareness amongst the public, using all the tools of a multidisciplinary approach. Do more critical, radical models offer a better solution in determining the future course of humanity. How can the public be engaged in complex technical issues or are the issues more to do with core values and ideas about society. If the short term benefits of genetic technologies are conceded in a world in which (Western) individual rights are paramount, are other directions possible. Concept of the 'social contract' and socially responsible science and technology versus an economic rationalist approach to social and economic planning.

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