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Editorial

American historian David Hackett Fischer's first visit to New Zealand happened to coincide with a by-election for a parliamentary seat. Fischer recognised the similarity of the candidates' campaigns to those of his homeland, but something about them was odd. As he thought about it, he realised that every speaker referred to fairness, whereas in America every speaker emphasised liberty.

Intrigued, Fischer started studying New Zealand's history. He found many similarities to that of the USA, but many differences. In his book *Fairness and Freedom: a history of two open societies – New Zealand and the USA*, (OUP 2011), he recounts what he found. It does not matter whether he is dealing with land settlement and reform, women's rights, education, relations to the native inhabitants, in every case he found similarities. Always the New Zealand experience was one in which the protagonists were reasonably cooperative, and fairness was most valued.

Fischer's analysis led him to the conclusion that both the USA and New Zealand were strongly influenced by the concerns that were prevailing in Britain, and in Europe more generally, at the time of first settlement. The USA was founded over a long period by disparate groups, many escaping religious persecution in their homelands, seeking the freedom to practise their religion – and often very intolerant of other religions themselves.

New Zealand was settled at the beginning of the nineteenth century, when philosophical concerns in Britain had shifted from freedom to fairness. Somehow both societies have retained their original emphasis. Of course there were

other differences. North America was very close to Europe and many more people were able to migrate across the Atlantic. New Zealand was at the end of the earth, and could only be reached after a very long sea voyage – and the cost of a passage was beyond the reach of many people. Added to which the USA had far more natural wealth than New Zealand. Even now it is probably far easier to think of fairness with a relatively small population that it is with a much bigger population.

It seems almost crass to bring climate change into the discussion, when we have such immediate problems to deal with as the shutdown of morning commutes, the loss of electricity. But this is exactly the time to start the harder task of remembering why this storm was so huge. We talk about life slowly returning to normal along the Eastern Seaboard, but ultimately, it never will. A new high-water mark has been set. In the aftermath, one fact stands out above all: seas are rising, and we are in the way.

Craig Childs
two days after hurricane Sandy
New York Times, 2 November 2012

Given all the above, it was refreshing to hear President Obama say, in the later days of the presidential campaign (post super-storm Sandy), 'our country works best when everyone gets a fair share and everyone plays by the rules'. This is a striking statement, an important statement, and one that is urgently needed at a time when in fact, inequality is on the rise in many countries, especially as the super-rich decide that they do not have to play by the rules. Blinded by their great wealth they

become greedier, accept outrageous bonuses, and think the poor are lazy and need to work harder.

Our current economic system is indeed rewarding the rich for being rich, and penalising

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others for not being rich. It is based on flawed logic and a flawed understanding of the natural as well as the human-based world. It acts as though there is no tomorrow. Economists make this quite explicit by discounting the future, to the point that it is better to consume today, than keep anything for the future. This is at odds with the ideas of hunter gatherers, and of many later generations of people. It was usually considered wise to provide for future generations, to leave enough of renewable resources so that they could renew themselves.

So why do economists discount the future? They believe that no one is willing to pay for something far off in the future, that people don't care about future generations, at least beyond their own children and grandchildren. On the face of it, many people would agree, let the future look after itself.

Kirk Smith, at the recent festschrift for Tony McMichael, challenged us all. What if, he said, you knew that you would live out your natural life span, but you knew there was an asteroid that would destroy the earth a month after you died? Would that make a difference to the way you live the remainder of your life?

Kirk's *what if?* challenged us all. Yes, if we knew the world was going to end soon after we did, then most of what we do would be meaningless. There would be no point in teaching children, no point in nursing the ill, or working out new medical treatments, no point in any of the sciences, and certainly no point in conserving anything. There wouldn't even be any point in amassing money. In fact, although our answers to economists indicate that we do not value the future, we really do value it highly.

Anyway, the future is already here. Given today's life expectancy, a baby girl born in Japan today has a high probability of living into the 22nd century. An Australian girl, born in 2016 will also be likely to live into next

century. So we will soon be meeting people who will live into that new century.

If the future matters, then fairness to the future means that we need to change our economic system, stop discounting it. Instead we must act to preserve what we can, so that future generations can enjoy the benefits which come from healthy ecosystems and also the joys which come from contemplating the sheer wonders of the natural world. It is a tragedy of world dimensions, when the ideal of liberty is misunderstood to mean that you only need to consider your own freedom, and the devil take the hindmost.

Jenny Wanless

Finding Zen in a patch of nature

... Science did not, however, give him his most enduring insight, which came while he was watching squirrels on a sunny December day. They were not frantic as usual, he writes.

"I watch them for an hour," he writes, "and mostly they loll in the sun, limbs sprawled." It is a scene that seems a warning against too narrow a reading of nature.

"Science," he writes, "deepens our intimacy with the world. But there is a danger in an exclusively scientific way of thinking. The forest is turned into a diagram; animals become mere mechanisms; nature's workings become clever graphs."

These loafing squirrels were something else. "They are alive; they are our cousins," he writes. "And they appear to enjoy the sun, a phenomenon that occurs nowhere in the curriculum of modern biology." Science is one story, he writes, true but not

complete, and the world cannot be encompassed in one story.

From the review of *Finding Zen in a Patch of Nature*, New York Times, 22 October 2012

This idea of freedom as the right of belonging inspires many virtues. One of them is the virtue of civic engagement... In the operation of that principle, it also invites us to do so in a way that respects the civic role of others. In yet another dimension of our being, the idea of freedom as a right of belonging to a community of other free people applies not only within our own time but across many generations. It asks us to remember that we are not the first or last generation to walk upon this earth. When understood in those terms, the idea of freedom is a right of belonging to a community that exists through time, and even beyond our time. This entails the virtue of stewardship. The responsibilities of mutual belonging make us stewards of the land, and of our society, for others who will come after us, and they in turn for their posterity.

David Hackett Fischer Fairness and Freedom: a history of two open societies New Zealand and the United States, 2011

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Where we are

The Forestry Building of the Fenner School of Environment and Society at the ANU.

From the building's entrance, turn left past the School's office and our office can be found on the right at the end of that corridor. But ring before coming as the office is occupied irregularly.

By car: There is very limited meter parking 200 metres to the north, near Union Court.

By bus: The route 3 bus from Civic drops you in Daley Road. Walk 100m south-east to the Forestry Building.

By bicycle: Abundant bicycle parking just outside our office.

Nature and Society Forum E-Journal

For this edition and the February/March edition NSF is trialling an electronic version of the journal. After the next edition, we will be asking members whether they would be happy to just receive the e-journal, or would prefer to continue to have a printed journal sent to them. This change is being made for environmental reasons (saving paper) but also to save some of the cost of printing and postage.

2°C is almost certainly *too high to be safe* and *too low to be possible*

David Roberts at TEDx

<http://www.youtube.com/watch?v=pznsPkJy2x8>

Coming NSF meetings

Wednesday 21 February 2013: Stephen Boyden: *Biounderstanding and ecological survival* 7:30-9:00 pm at the ANU's Frank Fenner Building, corner of Daley Road and Linnaeus Way.

The view will be put that the ecological survival of civilisation will require radical changes in the worldviews, assumptions and priorities of the dominant cultures of the world.

There will be open discussion on the pivotal role of concerned individuals, community groups and NGOs in bringing about this cultural transformation.

Wednesday 21 March, 2013: Julian Cribb: *Meeting the Twentyfirst Century Food Challenge* 7:30-9:00 pm at the ANU's Frank Fenner Building, corner of Daley Road and Linnaeus Way.

Julian will take us through the coalescing pressures from 216,000 more humans daily on a planet undergoing climate change and associated disruptive weather extremes, water shortages, energy shortages, depletion of fish and nutrients while less research and development is being directed to food production. He says "we are running out of just about everything you need to produce good food ... money is being transferred out of the rural sector into the urban sector all over the world."

Is doctors' fixation on treatment making us ill?

The growing ability of medical science to recognise illness has been so finely honed, its tests have become so sensitive, its definitions of ill health so broad, that more and more "patients" have been sucked within its ambit. And while its capacity to heal the sick is unquestioned there is growing anxiety about its propensity to harm the healthy.

... Almost four decades on ... medicine is engaged in an unwinnable battle against death, pain and sickness which is threatening our humanity. The BMJ suggested in a theme issue, "Too Much Medicine", published 10 years ago, that modern health care had "sapped the will of the people to suffer reality."

Birth, ageing, sexuality, unhappiness and death had been medicalised. The more a society spends on health care the more likely are its inhabitants to regard themselves as sick.

Independent, UK, 30 May 2012

NSF news

Education for Sustainability

NSF has a group of dedicated educators who have been very active over the last decade in promoting the inclusion of education for sustainability in the school curriculum and in the daily life of our schools. This team includes Val Brown, John Harris and Wendy Rainbird. Wendy retired from the NSF Board at the recent AGM, and at that meeting she presented a report on their activities.

A decade ago they ran a successful Teachers' Professional Development session, showing that education for sustainability and healthy living can be integrated right across the curriculum in ACT schools. One of the key teachers in this group was Vanessa Whelan, who has worked very effectively in this integration. A second session with Tony Hepworth used the teaching resource "Leaving Smaller Footprints", a copy of which was given to each participant. Tony discussed with the teachers his use of this resource and how they could use it. Feedback from the teachers was that it was very effective and promoted important discussions in class.

Another active group the NSF team were involved with was SHINE, Sustainability Happening in Education, which led to the ACT Sustainable Schools Initiative, AUSSI ACT. This group got the principle of incorporating Sustainability right across the curricula accepted at the ACT Department of Education level. Thanks to Vanessa Whelan and Jennifer Dibley, all ACT schools are now part of the ACT Australian Sustainability Initiative.

SEE-Change "2020 Vision: How Will We Change?"

Professor Bob Douglas and the NSF team initiated the first SEE-Change meetings. SEE-Change now has a range of groups doing many practical and policy-related activities concerned with living sustainably.

Recently NSF has been actively represented in the SEE-Change Project, "2020 Vision". This involved students in discussing, researching and creating a presentation for the festival of Young People's Ideas, which were then displayed in November 2011, in the ACT Legislative Assembly's rooms.

Work has continued through 2012, with an Assessable Senior College unit for years 11-12. These senior students will be facilitators in the Parliament of Youth, to be held in Parliament House in 2013. Representatives from a number of year levels from all ACT schools will be invited. Students are to develop Green Papers addressing the changes needed for the ACT and Australia more generally to reduce our Greenhouse Gas Emissions by half by 2020.

NSF and community workshops

The NSF team, joined by Geoff Pryor from the Australian National Biocentre, conducted workshops at the United Nations Association's "Switch to Green" Conferences held at the Canberra Conference Centre in 2008 and 2009. These concentrated on the changes needed for individuals and communities to live more sustainably.

The same NSF-ANB team conducted an Open Learning for Collective Decision Making workshop in June 2008. This was "an interactive workshop on collective thinking and

action which has been trialled in the areas of ecohealth, environmental management, health promotion, community development, professional extension and strategic planning. All of these areas have one shared concern: they require very different parties to come together to rethink their perspectives, if they are to contribute their distinctive capacities to collective transformational change. The parties brought together in collective thinking are individual change agents, community interests, specialised advisors, organisational powerbrokers and holistic or integrative thinkers. The workshop linked ideals, facts, ideas and actions in designing a potential sustainability action plan for responding to climate change in the ACT." (Val Brown)

The NSF-ANB team applied for and gained a \$30,000 Health Promotion Grant to conduct a series of Workshops on Sustainability and Health. These involved thirty local not-for-profit organisations from government, non-government, industry, health, finance, environment and community, and across all ages. The aims were to:

- develop a whole-of-community strategy for making the connections between sustainability and health in the city and its region;

SIR – It seems that the only way to save the planet is by global recession. The only way to save the economy is by global growth.

Which should be our objective?

Jeremy Chamberlayne, Letter to the editor, Daily Telegraph, London 5 September 2012

- establish a consortium of advocates for sustainability and health in the city;
- initiate a series of on-going projects furthering sustainability and health in the city.

The outcome was a series of projects, many of which are on-going in various forms: a Youth Film Festival called Sustainability Scinema: an environmental learning precinct in West Kambah later known as CROWK, Concerned Citizens of West Kambah, with which the team is still involved; an indigenous Wellness Centre; graphic designs displayed on Action buses to encourage people to catch buses, ride a bike or walk, rather than driving; Factor of Ten, from the Environmental Art program at the ANU School of Art; Youth Leadership for Sustainability for the 18-25 year age group which has developed into ACTogether-WISE; Plan for Living in a Nurturing Environment as a Centre for the Jerrabomberra Wetlands.

NSF and other community engagement

NSF has been represented for many years as Environment Advisers for the ACT National Council of Women. Wendy is now the Environment Adviser to the Australia-wide National Council of Women. Significant resolutions have been passed at the annual conferences of the NCW on climate change; on controls on trading of Australia's water rights and on the need for a national land and water plan. Regular reports are sent to the state branches of the NCW on a range of environmental issues, such as prime agricultural land being used for coal seam gas projects, and the concerns about massive increases in shipping through the Great Barrier Reef to accommodate increasing levels of coal and gas exports.

Thanks go to Val, Wendy, John and Geoff for their considerable work in increasing public understanding about living sustainably. Thanks, too, to both Val and Wendy for serving on the NSF Board for a number of years.

Jenny Wanless

NSF's Biosensitive Futures Program

The Biosensitive Futures Program is based on appreciation that the future well-being of humankind will require big changes in our social system and lifestyles. This is because our society today is not ecologically sustainable – and if a society is not ecologically sustainable it cannot, in the long term, be sustainable in any other way.

The best hope for the future lies in a society which is really in tune with, sensitive to and respectful of the processes of life that underpin our existence – that is, in tune with our own biology and with the living world around us. We call this a *biosensitive society*.

We are human beings. We would never seriously consider building "the sustainable". One, the economy is to serve the people and not the people to serve the economy. Two, development is about people and not about objects. Three, growth is not the same as development, and development does not necessarily require growth. Four, no economy is possible in the absence of ecosystem services. Five, the economy is a subsystem of a larger finite system, the biosphere, hence permanent growth is impossible. And the fundamental value to sustain a new economy should be that no economic interest, under no circumstance, can be above the reverence for life.

*Manfred Max-Neef
Chilean-German economist
Economics Unmasked:
From power and greed to compassion
and the common good, 2011*

Biosensitivity will be the guiding principle in all spheres of human activity – individual and collective. It will mean biosensitive lifestyles, governments, technologies and cities, and a biosensitive economy.

However, there will be no significant move towards a biosensitive society until there comes about a basic understanding in the dominant cultures across the globe of the human place in nature and the important ecological and health issues of the present day. We call this *biounderstanding*.

The Biosensitive Futures Program therefore aims to contribute to necessary social change by spreading understanding of the story of

life on Earth and of how humans fit into that story, and of the major ecological and health issues of our time (biounderstanding). The program also supports a holistic vision of a society that is truly in tune with, sensitive to and respectful of the processes of life (a biosensitive society).

Activities include the production and targeted distribution of publications, an interactive website, YouTube presentations and inter-disciplinary workshops focusing on the social changes necessary to achieve ecological sustainability and biosensitivity.

NSF meeting report

Transforming Governance to Save our Species

The following paper by Peter Tait complements his presentation to the 17 October 2012 NSF meeting

The complete list of references for this article is available on the NSF website*

Part 1

In this series of articles, I describe humanity's current social and political situation and briefly sketch the historical evolution of this present. I will then propose reasons why we are experiencing both social and environmental degradation, and then outline some ideas for how to address it. In doing so, I will discuss governance which will entail a digression into democracy - what it is and how it might work. I then discuss change and combining all the treads, propose a pathway forward.

My journey started as a medical clinician. A medico's basic drive is to make things better. Working in Aboriginal health I quickly realised that health is more than just medicines; it is social and political. The primary health care model recognises the importance of curative, preventative and health promoting aspects of a health care system, where health is promoted, or not, by how we arrange society (World Health Organisation 1986). In health we use the analogy of the river; downstream are curative services. Moving up-stream one meets prevention and further upstream one gets to look at determinants of health and illness.

Thinking upriver, we can pose the question - What have current health issues (smoking, obesity, chronic disease) to do with environmental degradation (I mean beyond mining the oceans for krill and fish to extract omega-3 fatty acids)? Alternatively what has global environmental change to do with the determinants of human health, beyond that fundamental to a healthy society is a well-functioning ecosystem.

SIR – It seems that the only way to save the planet is by global recession. The only way to save the economy is by global growth. Which should be our objective?

*Jeremy Chamberlayne
Letter to the editor
Daily Telegraph, London
5 September 2012*

Several recent surveys show that people are aware that things are not right with the world (Pusey 2003; Australian Bureau of Statistics 2008; Leviston and Walker 2011; Leviston and Walker 2011). They show that they want government action, but we have also seen that action can be easily derailed by vested interests. People are looking for a way forward.

Numerous NGOs work in multiple sectors to address the many dimensions of our current crises, but no coherent integrated systemic solution is being presented. While there is no single magic bullet, there is a way forward, which I will begin to describe.

Firstly to briefly review the historical foundations (Fotopoulos 1997; Christian 2004; Attali 2009). The present situation has arisen out of the co-evolution

of several intersecting social strands that politically have seen the replacement of monarchies by 'liberal democracies', economic system that are more globalized and more corporatised, the replacement of totally faith based belief with a scientific approach. In the quest to widen the sharing of political power and the sharing of the

outputs of production including goods, services and profits, society has evolved in dynamic tension between individualist and collectivist approaches to social organisation.

Economic and social aspects have driven technological developments. Industrialisation has enabled capitalism to develop and this has reinforced a politically liberal standard while driving development of left wing alternatives. Capitalism, liberal democracies and labour politics are symbiotes; they rely on each other. All focus on increasing material prosperity through more production and consumption. All give the environment a lower priority than production. In other words their common primary interest is how to share out a growing pie, not where the ingredients are coming from nor the rubbish going.

However awareness is growing of the social and environmental downsides to this system. In the post-Enlightenment co-evolution of corporations, 'liberal' democracy and the nation state, there has been continuing tension between citizens and corporations about the role of government. Each sees government's role to protect its interests; and

* The PDF of this edition can be found at:
www.natsoc.org.au/nature-and-society-newsletter/2013

so government occupies a schizophrenic middle ground. However organisation, wealth and clever marketing usually win.

Taking the lead from Sir Michael Marmot (Marmot and Wilkinson 2006), we are encouraged to look further upstream, to what he describes as the 'causes of the causes'. Here we can begin to identify the common origins of the health, social and environmental problems that humanity is facing.

I argue that the major, fundamental problem is corporate behaviour. It is poorly regulated and a culture within corporations has arisen that takes little account of anything external to profit for shareholders.

In the co-evolution of corporations and the nation state over the past few centuries, corporate evolution into transnational entities has outstripped development of transnational governance arrangements.

That corporates behave this way is because we have a major failure of government and of governance. The reasons are complex: corporations avoid regulation; they use their wealth and power to influence governments. They support an economic system that philosophically and politically operates to further their interests (Harvey 2011).

That underpinning system is the neoliberal capitalist ideology that believes continued capital accumulation, reinvestment and continuing growth with economic and social relationships being transacted within an unregulated market. Those currently in power have promulgated this as the ideal for sharing power and wealth within our society, and governments and the people have accepted this. Yet it is clear from looking at the effects of application of neoliberal ideology, that it is not delivering happy nor healthy people. It is not recognising the constraints of the natural world on which society relies.

The focus on neoliberal capitalism as the problem is useful in analysing an aspect of the problem. The

need for continual growth in resource use, production, and wealth accumulation, operating within an unregulated 'market economy' model certainly drive the current detrimental situation. However there is a deep tension to be recognised here: capitalism's ability to mobilise capital, invest, innovate and accumulate wealth has helped improve material prosperity for much of humanity, and this gives it some standing. On the other hand the wealth is very unequally shared, its creation has required the oppression and alienation of a large proportion of people, its operations are seriously damaging the environment on which it ultimately depends, and its excesses and crises are driving much human misery and distress.

Therefore much of the reform discussion is about changing or replacing capitalism. However I argue that there are two problems with this focus. Firstly

while providing a good analysis, it tends not to provide any practical solution. Secondly by focusing on the system not the players it fails to address the fundamental issue; these behaviours are corporate behaviours (Pearse 2009). Large, particularly transnational, corporations have become social entities, with legal and political standing. Yet while people work within corporations, the corporation does not behave like people – unless that person is a sociopath.

Consequently I argue that a primary focus on corporate behaviour and regulating that behaviour by strengthening democracy will control capitalists and that the system of capitalism will evolve in response to that regulation.

Part 2

In this second of three papers, I discuss governance which will entail a digression into

democracy - what it is and how it might work. To return to the main path for making change, the first step is to propose a model of our current

[The GDP] counts air pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic urban sprawl. It counts napalm and counts nuclear warheads and armoured cars for the police to fight the riots in our cities. It counts Whitman's rifle and Speck's knife, and the television programs that glorify violence in order to sell toys to our children. Yet the (GDP) does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile.

Robert Kennedy at the University of Kansas, 18 March 1968

governance system. Governments regulate society, citizens and corporations, via effective legislation, regulations, and influencing social norms (Figure 1).

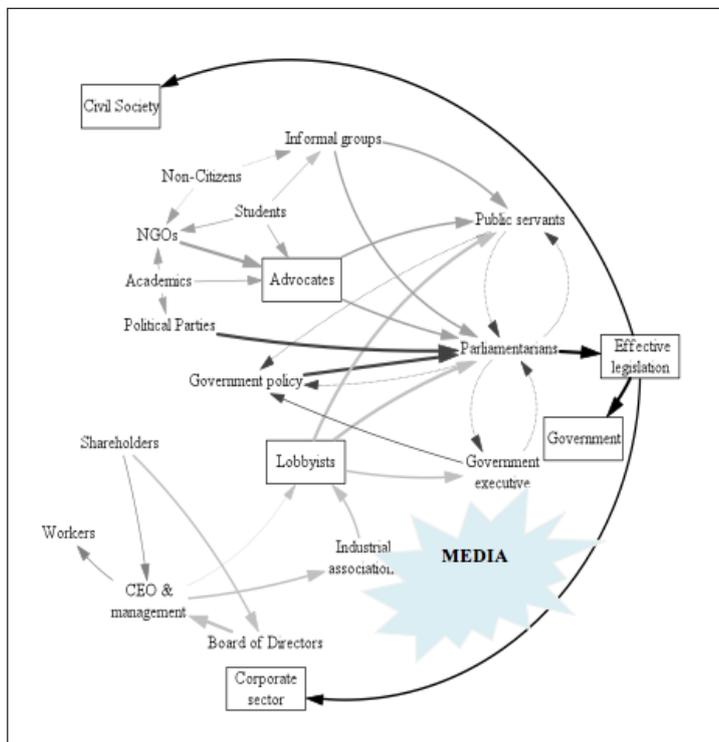


Figure 1

Citizen and corporate viewpoints differ on what the system outcomes need to be: citizens believe governments are there to protect their interests which include provision of social services, such as health care, education, and ensuring the common good, for instance environmental protection. Corporations believe governments are there to protect their interests which include creating the conditions for continuing expansion at less costs for greater profits.

A model permits greater system detail and influences (arrows) to be shown. Points where levers for change can be brought to bear can be identified. The media holds an interesting place: It is both a corporate and a mediator of information and opinion.

So, if the plan is to change government, a few questions arise:

- What do we want to change government into?
- Who is going to make the change?
- How are we going to do this?

The answer to the first question is not straightforward. I explore that next. Then there are options about a methodology for approaching the answers to the latter questions which I don't discuss here.

In considering what future government might look like, we face some choices. Some argue that in a time of existential crisis, we need to have a strong hand on the tiller of state; we need benign dictatorship. However what we know from history is that control over dictatorship is difficult. Second, experience with social determinants and primary health care theory shows disempowering people is counterproductive for health and wellbeing (Wilkinson and Pickett 2009).

Instead the main gains will come at multiple levels through strengthening democracy. So in deciding what form of government and what types of institutional framework, we need to explore the concept of democracy.

What we think of as democracy isn't actually democracy. Burnheim calls it an electoral oligarchy (Burnheim 1985). Clearly western liberal democracies lack citizen involvement in any meaningful way. Elections do not a democracy make; beside minimising meaningful citizen involvement they give rise to unhelpful practices such as vote buying and pork barrelling, and are open to manipulation of majoritarian sentiment by vested interests (Burnheim 1985; Fotopoulos 1997).

Beyond hunter gatherer societies the only large urbanised 'actual operating democracy' that we have records for is republican Athens (and maybe Rome). Thus much of the literature about democracy discusses classical Athenian politics (Burnheim 1985; Fishkin 1991; Fotopoulos 1997). While recognising Athenian democracy was not flawless, we need to remember Winston Churchill's aphorism that democracy is [neither] perfect or all wise ... [and] is the worse form of government, except for all those other forms that have been tried.

What is democracy? Fotopoulos (1997) defines it as a state of freedom founded in individual and social autonomy that is self-reflective, and involves a structure and system for equally sharing power and the benefits of the economy. Various forms and structures have been proposed and from these emerge a set of common elements and principles whereby one can recognise 'real' democracy in operation and a set of mechanisms to enact those principles that apply to any good democracy

Public realm			Ecological realm	Private realm
Political realm	Economic realm	Social realm		

Figure 2

(Burnheim 1985; Fishkin 1991; Fotopoulos 1997; Ostrom 2009; Burnheim 2011).

The key feature of democratic governance is a methodology for making decisions. The most fundamental principle of democratic decision making is that decisions are taken by those who are going to have to live with the consequences of, those decisions. This is also a core primary health care principle.

A second set of elements recognise that decisions need to be made deliberatively, that is by people who have sufficient time and the technical and logistical information independently available to them, to consider consequences as a group as it effects their group 'enlightened self-interest'. Further the outcomes of decisions differ in importance, the geographic extent of their effect and usually have a set of consequences that extend into the future.

Society will also need a review and appeals process which will need to be established within the structure of the democracy. This would be a group of experienced, 'elders' like people recognised for their wisdom and impartiality.

The most vexatious issue in societies with large population is that decision making requires some form of representation. For various reasons even with modern communications, not every one may want to be or is able to be involved in all decisions. Indeed the volume of decisions in complex industrialised society suggests that this is not possible. Many less important decisions would not need mass input although occasion may arise when a universal referendum may be required. As mentioned, choosing representation by election is not useful. Representation of interest has to include a geographical and a temporal component. Prior content knowledge is not a requisite with use of deliberative methods.

Representation is decided from among those eligible by some form of statistical sampling method. Elections are replaced by a lottery. Eligibility for being a representative requires a set of criteria; an Ulrichian boundary critique methodology is one

process for developing the criteria (Ulrich 2005). Representation selection must avoid tyranny: that is groups of interests must be prevented from gaining undue influence or swaying decisions.

Representation needs to embody the principle of equality: that is every vote has the same value.

Examples of various forms of operating participatory and deliberative democracy are available; links listed at the end.

Fotopoulos introduces a much broader model of democracy: inclusive democracy, which is inclusive because it includes a series of connected realms (Figure 3). The distinguishing feature of this approach is that the institutional frameworks aim at the equal distribution of political, economic and social power and the elimination of any human

Figure 3
Meadows Leverage points
Paradigm level Introduce and operate in an alternative worldview
Governance level Reset goals Revise the system structure Change the operating rules
Feedbacks / Institutional arrangements Adjust positive and negative feedbacks
Make change within the system

attempt to dominate the natural world (Fotopoulos 1997).

Modern democracy will have to accommodate the consequences of the globalisation of our society and our economy. While the globalisation of corporations and their behaviour has contributed to the problem, David Dumeresq (Fenner School of Science and Society) suggests that corporations have resolved some of these governance tensions relating to membership (shares), decision taking

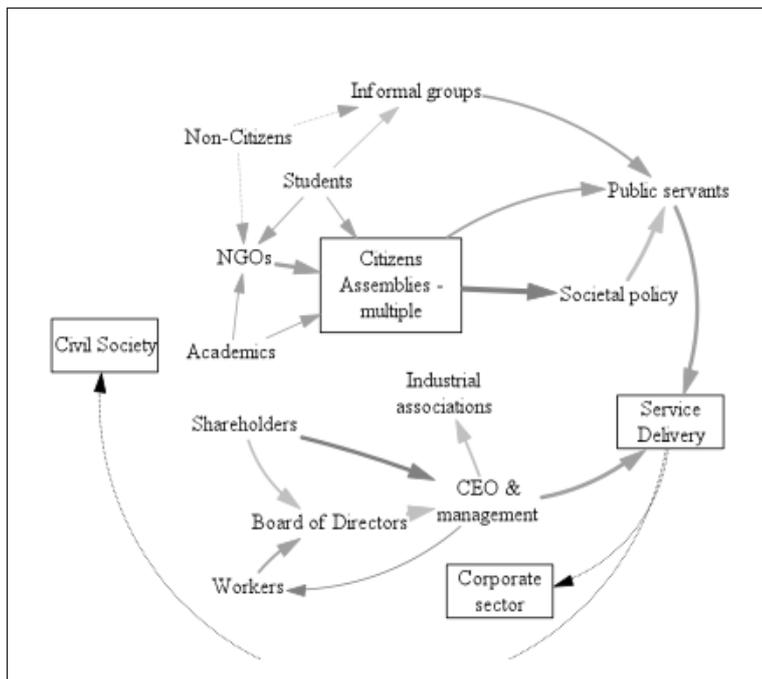
Participedia and New Democracy links

<http://participedia.net/methods/deliberative-polling>
<http://www.newdemocracy.com.au/>

across geographic and temporal dimensions, and perhaps limiting power and influence in their governance models. But the corporate governance model is only applicable if one member one vote and the other principles of democracy are fulfilled.

Part 3

In this final article, I discuss change methodologies and processes, and combining all the treads, propose a pathway forward. Returning to the program of change, we need to think in our current government model (Fig 1) about what influences we can affect, where to apply levers for change. Meadow's leverage points gives us a way for prioritising where we might apply our levers (Meadows 1999). In her model there are 12 levels for action for change; for simplicity I have grouped these into four meta-levels (Figure 4).



At the top she puts changing the dominant paradigm. We know that changing people's minds, attitudes and beliefs is the most difficult change to make. Experience shows that changing people's behaviour leads to changes in belief as they seek to rationalise new behaviour. Lower institutional and system levels are also important. Change here both supports and will follow from governance level change.

Therefore governance is the most effective level to be seeking to change.

Since we are thinking about systemic change, it is useful to have a methodology for how to go about change. Checkland gives one such model (Checkland 1985). Without dwelling on the details here, this exercise permits formulation of a clear statement of who is changing what to achieve what outcome. Such a statement clarifies both goals and processes, and permits development of strategies and tactics.

Before finalising this statement, different options are open to us in deciding how to change governance. Because words carry social meanings beyond their overt meaning, choice of word is important. The three usual words are: reformation, revolution or transformation?

Reform, both incremental and radical, carries connotations of building on but remaining with the status quo to some degree. It makes it easier for the status quo to reassert control.

Revolution has connotations of violence, of engendering resistance to the change it is trying to accomplish and a history of not being particularly successful at bringing about lasting change. So I argue for the use of transform –non-violently creating something quite different.

This finally permits creation of our transformation statement: *civil society (people and organisations collaboratively) will act to transform governance (government and institutional arrangements) to be more democratic, so that it effectively regulates corporate behaviour to ensure that we have an ecologically and a socially sustainable society for ourselves and our descendants.*

So returning to the governance system model (Figure 1), we can see where we can apply leverage to each of these

influence arrows to begin to effect change. We should note that simultaneous action is needed at several leverage levels and at many influence points to generate a momentum for system change.

While not attempting to change hearts and minds directly, it is important to educate and inform so people understand the reasons for and processes of transformation. Articulating a new worldview provides motivation for change and importantly can reduce resistance. We need to challenge the neoliberal worldview and highlight its failures as the frame for decisions.

The key message however is to emphasise government's role in regulating corporate behaviours.

Also the institutions and procedures of government and the political party system need reform in the short term to both augment the transformation process and undermine resistance. Transparency of political party donations, funding campaigns from tax revenue to reduce corporate influence; democratising methods of political party candidate selection; transparency of and regulation of corporate (and NGO) lobbying all require urgent short term attention.

Then corporates themselves require transformation internally to democratise their operations more. This can happen at Board level with shareholding reform and at operations level with various forms of worker democracy.

Finally we need to publicly define the role of the media: is it news? Is it news and opinion? Or is it entertainment / infotainment and opinion?

In terms of the method and practice of making change we actually know a lot. Therefore I

am not going to go into this in great detail. The point is that lots of organisations and individual people are taking very useful and beneficial action on many important social and environmental issues, but this activity has often been unsystematic and lacking in a grand strategic focus. Therefore thinking at a systemic, strategic (Global) level so synergies and collaborations can occur is a first step to improve effectiveness. The focus on governance reform provides such a systemic, strategic element.

Again much is happening to bring about transformation. The transition movements, Transform Australia and locally SEE-change are active in this space. A central common strategy in the process of making change is to work locally, and to collaborate with other local assemblages. In "acting locally" it is important to consider spatial scale, geographic and temporal aspects. In a diverse, mobile and highly communication-capable society geography is not the limitation it once was. It is possible to have a widely dispersed contemporaneous community. In fact it is likely for people to be active in several 'communities' that are both geographically (after all every one lives somewhere and in an energy constrained world will travel less) and temporally co-located.

Coming out of this discussion I can propose one possible new model of government with a democratic system of 'citizen' or other assemblies, effectively regulated democratised corporations and the common good safeguarded (Figure 4).

In conclusion, poorly regulated corporate behaviour is the problem. This is a governance system problem. To help coordinate effective action citizens, NGOs and all aspects of civil society need to understand this framing. Reforming governance to regulate corporate behaviour is a critical part of the solution. We need to encourage people to think of this as a governance problem so they can become active in movements to transform government. Personally we need to continue to build and promote strongly democratic governance arrangements into the processes of our work and home life, our projects, and in the culture of the

organisations where we work and play.

What I haven't discussed is a more detailed program of how to make the transformation within the current socio-economic system. Change is a constant work in progress.

There cannot be a more than

aspirational blueprint; making the change will be a dynamic process.

Peter Tait

Parasites?

Humanity is exhibiting the behaviour of what in a natural system would be described as a parasite – we are consuming our host. When a host dies the parasite dies as well. This characterisation, while accurate given our current behaviour, seems dark. An alternative would be to seek what is humanity's unique evolutionary niche and contribution to maintaining ecosystem function. This seems to be consciousness. We have developed the ability to think abstractly, to envision our own death, to consider time relatively and to communicate complex thoughts from generation to generation. So if we are to be conscious beings rather than parasites, we need to consciously design a fair, sustainable economy and society. Acknowledging that functional ecosystems are the basis of all life and therefore the basis of all wealth is the first step down a long path ... one that leads to sustainability, less conflict, and ultimately, survival for the human race.

John D Liu, SPA Newsletter, June 2012

NSF member Colin Samundsett introduces the author of the following article, Andrew Campbell.

Andrew Campbell made a good submission to the Productivity Commission some years ago. At about the same time, he gave a presentation to the Fenner Congress on landscapes (held at the Canberra Convention Centre). This was subsequent to his touring Europe, observing their assessment of productive/non-productive regions for EU agriculture regulation. He considered that Australia might profit from doing similarly; that Murray/Darling agriculture was non-viable long term in anything like present terms. In his assessment, perhaps it could be treated like the Iberian de-hasa (olives, pigs and acorns) with minimum allowable export of commodity. Campbell is on the Board of the Crawford Fund for facilitating international Agricultural enhancement across the globe (particularly in less-developed countries).

Coal seam gas: just another land use in a big country¹

(Reproduced with permission from *The Conversation*, 13 Oct 2012)

In 2011, the Australian Council of Environmental Deans and Directors (ACEDD)² asked Dr John Williams, former Chief of CSIRO Land and Water Division, to review the science on coal seam gas³.

John's report⁴, now released, is probably the most independent, disinterested nationwide analysis⁵ yet undertaken of unconventional gas in Australia. This report is entirely uncompromised by either industry or activist-group funding.

1. <http://theconversation.edu.au/coal-seam-gas-just-another-land-use-in-a-big-country-10535>

2. Australian Council of Environmental Deans and Directors, <http://www.acedd.org.au>

3. <https://theconversation.edu.au/explainer-coal-seam-gas-shale-gas-and-fracking-in-australia-2585>

4. <http://www.acedd.org.au/?q=node/8>

5. <http://www.abc.net.au/local/stories/2012/11/08/3628589.htm>

The report makes two key findings. One, environmental risks (especially groundwater) are serious and neither decommissioning wells nor replenishing aquifers have been properly considered. And two, this is just another land use that needs to be regulated like the others; it shouldn't be seen as a bogeyman, nor should it enjoy exemptions from laws that other land uses have to comply with.

Williams asserts that thorough, independent risk assessment is essential if policy is to respond appropriately to cumulative impacts — positive and negative — of CSG exploration and production.

John Williams and colleagues conclude with a provocative question:

Do we want degraded and collapsing landscapes? If the answer is "Yes" then we appear to be well on the way. If the answer is "No" then we need to seriously reconsider and re-think how we make decisions about how we use our landscapes.

The approach they recommend is to work out what the landscape can sustain: how much degradation can the landscape incur before it starts to lose function? Current development approval processes should be updated to assess CSG (or any other) developments only on the basis of landscape limits and the expected cumulative impacts of the existing and proposed

developments.

Environmental impacts & risks: death by a thousand cuts?

Most community concern to date has focused on potential hydrological impacts⁶. The Williams report finds that risks are indeed significant, especially if:

- storage ponds (holding extracted water) overflow in rain or flood
- large volumes of water from coal seams are released into streams

6. <http://www.abc.net.au/local/stories/2012/11/08/3628589.htm>

- dewatering of coal seams lowers the local water table, changes flow in other aquifers, or causes land subsidence
- extracted water needs to be replaced at decommissioning.

John Williams also notes the potential biological impacts of CSG operations include:

- clearing patches and corridors of native vegetation for gas wells and pipelines
- fragmentation of wildlife habitat and isolation of populations
- increased risk of spread of feral animals, predation, weeds and diseases
- contamination or loss of water from aquatic ecosystems.

Many of these potential impacts may be relatively minor if gas well operations are sparsely distributed. In practice, wells are often spaced less than 1000 metres apart. Where gas operations impose densely on the landscape, they can be expected to compound each other. They may generate new impacts we can't currently predict.

Inadequate regulation

Industry and government assurances about environmental management are upbeat. But some environmental, community and farmer groups in Queensland and NSW have raised concerns⁷ that on-ground oversight and regulation of the CSG industry is playing catch-up⁸ at best.

Williams describes the piecemeal and often toothless regulation across state borders and the exemptions that CSG operations enjoy from, for example, native vegetation laws. In NSW, if CSG projects are defined as State Significant Developments they are exempt from a wide range of controls and approvals required for other land uses.

Queensland has more experience with CSG and its framework is more mature, recognising the issue of

7. <http://www.kateausburn.com/2012/06/04/csg-in-the-pilliga-forest-a-case-study-with-lessons-for-nsw/>

8. <https://theconversation.edu.au/better-coal-seam-gas-regulation-needed-to-keep-australia-safe-1488>

cumulative impacts from multiple projects. But it still struggles with analysis at a landscape scale. Neither state has a Strategic Environmental Assessment Plan for CSG, nor has a comprehensive Social Impact Assessment been undertaken.

Cleaner than coal?

One of the main arguments for CSG and other unconventional gases is that they are considerably cleaner than coal. It's true that they don't produce detrimental by-products such as sulfur, mercury and ash. And during combustion they provide twice the energy per unit weight with half the carbon footprint.

But they do produce methane, a potent greenhouse gas with 25 times the global warming potential of CO₂. Assessment of fugitive methane emissions from CSG and shale gas production should be based on robust scientific observation and

prediction. No independent Australian field studies have been done to date.

In its greenhouse emissions impact, gas is no better than coal if the gas must be converted into and back from a liquid before it can be burnt. This happens with CSG shipped overseas. But burning domestic gas instead of coal avoids the liquefaction step, and consequently produces less greenhouse gas emissions overall.

Non-renewable resources comprise approximately 95% of the raw material inputs to the US economy each year. America currently uses nearly 6.5 billion tons of newly mined non-renewable resources per annum (2008)—an almost inconceivable 162,000% increase since the year 1800—which equates to approximately 43,000 pounds yearly per US citizen.

*Chris Clugston
Scarcity: Humanity's Final Chapter
2011, p2*

Industry claims⁹ a 70% reduction in greenhouse gas emissions from burning CSG instead of black coal. A recent NSW Parliamentary Inquiry¹⁰ concluded that CSG emissions are, at worst, likely to equal those from coal.

Again, a full life cycle analysis of CSG operations, including managing the environmental externalities of dewatering and disposal of wastewater, would be required in order to compare net greenhouse gas emissions with coal or any other energy source.

Just another land use

A key conclusion of the Williams report is that CSG is in one sense just another land use. It competes

9. <http://www.appea.com.au/csg/key-issues/cleaner-energy.html>

10. <http://www.parliament.nsw.gov.au/Prod/parlment/committee.nsf/0/318A94F2301A0B2FCA2579F1001419E5>

with production of energy, water, food, fibre, minerals, and human settlement, and with the need to maintain biodiversity to underpin the ecological functioning of the landscape itself:

Gas production, just like other existing and accepted land-uses, poses risks to the condition of nearby water, soil, vegetation and biodiversity. It has the potential to reduce the capacity of renewable natural resources to supply human, as well as ecological, needs.

The surface footprint of CSG operations to date is modest compared with agriculture, or even irrigation. But superimposed on those it is still very significant, and long-term underground impacts may dwarf surface disturbance. Unresolved technical issues are a legitimate concern, especially around groundwater impacts and issues associated with both the disposal/re-use and replacement of large volumes of water.

Farrago

Oil from algae

A research team at the Australian National University has found that with just one mutation in a single gene, the green algae *Chlamydomonas*, a pond scum, can produce about ten times as much oil as its unmodified relative. The oil is an excellent source of energy-dense fuel. Better still, the algae can be fed directly with carbon emissions from factories and other industry.

The team is investigating closed systems called photobioreactors which will capture the carbon dioxide from heavy industry and feed the algae at the same time, to optimise algal growth and oil production. The next step is to tweak the algae to make them secrete the oil into the water in which they are living. If this is successful, then the oil and water can be easily separated, rather than having to go through an energy-intense process of refining.

The oil would be suitable for aircraft and other modes of transport.

ANU Reporter, Winter 2012

The powerful agave

The Central American succulent, the agave plant, has long been known as a source of alcoholic drinks and of fibre for making ropes, but may soon be an important source of biofuels for Australia.

Dr Daniel Tan, of the Faculty of Agriculture and Environment at the University of Sydney is investigating agave's potential to grow on marginal dry land and to serve as a source of both first and second generation biofuel. First generation fuels are made from the sugars and oils extracted from the plant, second generation ones are obtained from the formerly waste products, such as stubble and refuse.

Agave has several advantages over other crops used for biofuels. It can sequester up to 7.5 tonnes of CO per hectare per year. It also has a high positive bioenergy rating, creating five times the energy required to produce the fuel. And possibly best of all, it will grow on marginal land, and so should not take up land that is needed for growing food crops.

Parts of the plant are also useful for human consumption and medical purposes. These include sugars that are used in the treatment of diabetes, and bifidobacteria which are used in probiotics, to help

people with gut problems.

Sydney Annual The 2011 Report on Achievement & Philanthropy

Wine and climate

Wine growers in Europe are considering climate change in their plans. Some are planting vineyards at higher altitudes, or higher latitudes. Some are changing the varieties of grapes they grow. Some wine growing areas are facing the prospect of going out of wine altogether.

Wine production in Britain is expanding and producing wine for local consumption and for export. Britain is now producing prize winning sparkling wines.

Also, in Australia, one Victorian winery, looking to the future, is planting vineyards in Tasmania.

The Science Show, ABC Radio National, 13 October 2012

... while global industrialism and its extraordinary levels of societal wellbeing are understandable human objectives, they are also physically impossible objectives. Our historical reality of "continuously more and more", which we have experienced since the dawn of industrialism, is being displaced by our new reality of "continuously less and less".

Chris Clugston
Scarcity: Humanity's Final Chapter
2011, p2

Single action bias

There's a well-documented phenomenon known as single-action bias, where people do one thing and move on," he said. "People don't explicitly think, 'I've recycled a cup and solved global warming,' but rather once they've done an action like recycling, they feel consciously or subconsciously like they've done their part."

Gernot Wagner, author of "But Will the Planet Notice: How Smart Economics Can Save the World," 2011 in the New York Times 19 October 2012

Wave energy

According to *Australasian Science* (October 2012) CSIRO's Wealth from Oceans Flagship report shows that wave energy could make a significant contribution to powering southern

Australia. Many alternative sources of energy are plagued by the fact that they are intermittent, but wave power is more consistent than either solar or wind. For example, at Cape Sorell in Tasmania low wind conditions exist for 42% of the time, but the wave equivalent is only 13%. In addition, because the southern swells are generated by storms hundreds of kilometres away, accurate forecasts of wave energy are possible 36 hours in advance, giving time for back-up sources to be brought online.

Although South Africa and Chile are also exposed to the Southern Ocean, Australia has the longest coastline and the greatest potential for energy generation from it. So if Australia wants to utilise this resource it is going to have to invent the technology. It will need Government investment and incentives such as premium prices for renewable energy to get it going. The great challenge for wave power generation is producing equipment that can withstand the pounding it will receive.

The ABC's *Science Show* (20 Oct 12) reported on a prototype Australian wave power device now operating at the National Maritime College at Launceston, where it is not subject to the full force of the Southern Ocean. It utilises an oscillating water column to generate electricity. Its clever new feature is that as the water level rises and falls and air is pushed out or drawn in at the top of the chamber, the turbine continues to rotate in the one direction.

Narrowing leaves

The narrow-leaf hophbush, which grows throughout the Flinders Ranges, is showing the effects of a heating climate. As the hophbush has been collected in many botanical surveys, it provides a good record of changes. The plant had leaves averaging 4-5 mm across (with a range of 2-9 mm) in the 19th century – the warmer the habitat the narrower the leaves.

Adelaide University's Dr Greg Guerin has found that the hophbush's leaves have narrowed by two millimetres since the 1880s. As the region has warmed by 1.2pC since 1950, without any change in the rainfall, this is consistent with adaptation to a hotter environment. Guerin is thinking of experimenting to find out whether the narrowing is the result of natural selection, or whether it is the result of flexibility in the responses of individual plants.

Australasian Science, October 2012

Dunes on the move

The deserts of northern and north western China are moving eastward. In 2001 it was estimated that dunes had already overrun 500 square miles of farmland, and four thousand villages were in

danger of being engulfed. The ancient Silk Road trading town of Dunhaung has 1,600 foot high dunes threatening it. Advancing sand is now less than 150 miles from Beijing.

The government has initiated a seventy year tree planting project, the 'Green Wall of China', a 2,800 mile shelterbelt of trees, in the hope that the roots of the trees will consolidate the terrain and halt the advance, by cutting off the sand supply.

The problem affects many countries. Afghanistan has lost over a hundred villages in the Sistan Basin, Iran has lost over 124 villages. Desertification is a growing problem in Yemen, India, Brazil, Mexico, Kenya and Nigeria.

Gavin Pretor-Pinney, *The Wave Watcher's Companion*, 2010

The truth is seldom sweet; it is almost invariably bitter.

Alexander Solzhenitsyn



Contributions for the next edition of *Nature and Society* are invited now from all members. They should be sent to the editor, Jenny Wanless, 22B Jensen St, Hughes ACT 2605, ph 02 6281 3892, or to our office by 21 January 2013.

Contributions may be sent on paper or electronically. Electronic submission is preferred.

Items in *Nature and Society* do not necessarily reflect the opinions of the majority of the Forum members, but are published in the hope of stimulating thought and discussion about biosensitivity.

Jenny Wanless and Keith Thomas prepared this edition together with the named contributors; Jenny and Keith also provided the unattributed items and the quotations.

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