

Shaping a sustainable future – an outline of the transition

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Abstract

The warnings from scientists are urgent and unequivocal: our civilisation is unwittingly stepping in front of an ecological lorry that is about to flatten us. We are using resources future generations will need, damaging environmental systems, and compromising social stability by increasing the gap between rich and poor. In short, we are consuming the future. Without a radical re-thinking of the way we currently live, our society is doomed.

We need to tackle this problem head-on and develop far-reaching solutions to our environmental and social crisis. This does not just require technical innovation. It also demands fundamental changes to our values and our social institutions. This paper develops a vision of a healthier society – one that is humane, takes an eco-centric approach, adopts long-term thinking, uses our natural resources responsibly, is informed about the fragility of our natural systems, is efficient in turning resources into the services we need, and is resourced from natural flows of energy. The paper goes on to suggest the first concrete steps toward achieving this sort of desirable future.

History has shown that human systems can change very quickly. Once we realise the need for a new direction – and act on it – an equitable and sustainable world is within reach. If civilisation is to survive, this century will have to be a time of dramatic transformation, not just in technical capacity but also in our approach to the natural world – and each other. The road we are travelling now can only end in disaster.

Introduction: the notion of sustainability

Sustainability has become a significant public issue only in the last twenty years. Its intellectual genesis was probably the first report of the Club of Rome, *Limits to Growth*. Though this book was widely condemned in public, most of the criticism was based on misleading reports that the study concluded we would face resource depletion or environmental collapse within a decade. What *Limits to Growth* actually said was that if the existing trends of exponential growth in population, resource use, industrial output, agricultural production and waste generation were to continue, we would reach limits **within a hundred years** [my emphasis]. This study was important because it questioned the assumption that perpetual growth was possible in a closed system. This questioning was seen as tantamount to heresy by most economists.

The 1987 report of the World Commission on Environment and Development, usually called the Brundtland report as the commission was chaired by Gro Harlem Brundtland, former Prime Minister of Norway, coined the phrase “sustainable development” and defined it as seeking “to meet the needs and aspirations of the present without compromising the ability to meet those in the future”. In similar terms, the Council of Australian Governments [CoAG] adopted in 1992 a *National Strategy for Ecologically Sustainable Development*, which defined ESD as “using, conserving and enhancing the community’s resources so that the ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased”. Since this reads like a definition drafted by a committee, CoAG added: “put more simply, ESD is development which aims to meet the needs of Australians today, while conserving our ecosystems for the benefit of future generations”.

Meadows and Meadows, co-authors of *Limits to Growth*, returned to the subject in their 1992 book *Beyond the Limits*, in which they defined a sustainable society as “one that can persist over generations, one that is far-seeing enough, flexible enough and wise enough not to undermine its physical or social systems of support.” Wiltshire used a similar simple definition in a 2005 publication when he wrote that achieving the goal of a sustainable future “involves learning how to make decisions that balance and integrate the long term future of the economy, the natural environment and the well-being of all communities, near and far, now and in the future” I tried to express this in operational terms by saying “A sustainable society would not be eroding its resource base, causing serious environmental damage or producing unacceptable social problems.” [Lowe 2005]

Dimensions of a sustainable society

A critical debate concerns the relationship between the economy and concerns to protect the integrity of natural systems. Herman Daly, the pioneer of “steady-state economics”, argues that it is impossible for growth to continue without limit in a closed system and urges us to move away from seeing the **scale** of growth as the defining characteristic of economic health (Daly 1998). This view is echoed in Australia by Clive Hamilton (2003), head of the Australia Institute. On the other hand, there are organisations like the World Business Council for Sustainable Development which argue that “sustainable development is good for business and business is good for sustainable development”.

According to some economists, it is possible for the concepts of sustainable development and competitiveness to merge if enacted wisely, so that there is not an inevitable trade-off. This merger is being motivated by the following six facts (Hargroves & Smith 2005):

- 1) in any contemporary economy, there are many opportunities for improved design to reduce the resources needed for the goods and services now produced;
- 2) for any individual company, lasting competitiveness demands continuous innovation, so there is no necessity for the present pattern of resource use to continue;
- 3) there is now a critical mass of enabling technologies that make it economically feasible to envisage a transition to sustainable development;
- 4) as governments usually bear the costs of “environmental externalities”, the move toward sustainable development can provide multiple benefits to tax-payers;
- 5) there is increasing awareness that natural and social capital should be included in assessment of community well-being; and
- 6) some economists now believe that improving resource productivity could, by increasing competitiveness, enhance economic growth at the same time as reducing environmental pressures.

Some future scenarios

Recent discussion has centred on the transition to a sustainable society. The second report in the UN series on the global environmental outlook, *GEO2000*, noted that the present course is unsustainable, so doing nothing is no longer an option (UNEP, 1999). The third report explored four possible future scenarios. In Markets First, effectively our present approach, globalisation and a liberal trade agenda promote rapid economic growth, but nations are increasingly unable to prevent worsening environmental damage, and growing political instability undermines the conditions for orderly economic development. In Security First, the wealthy use force to try to suppress growing protest against ecological problems and a widening gap between rich and poor, creating a divided and violent world. In Policy First, governments take decisive action to curb environmental excesses, but it proves difficult to bring the material living standards of the poorer countries up to an acceptable level. The most hopeful scenario, Sustainability First, is based on a shift in values to make our goal satisfying basic needs for all within the limits of natural systems. Couching the problem in those terms makes it clear that the present world is a long way from having the **values** needed for the transition to sustainability. We also don't yet have the knowledge base we need to interact sustainably with natural systems. Great changes can in principle be made by policy reform, which could dramatically cut resource demands and environmental consequences of our lifestyle. The problem is that the political will to implement such a strategy is nowhere in sight. As the Global Scenarios Group concluded,

policy reform has to overcome “the resistance of special interests, the myopia of narrow outlooks and the inertia of complacency”.

The Global Scenarios Group elaborated on this theme in their influential report *The Great Transition*, arguing that the transition to a sustainable society involves new values. As Raskin has summarised it, the values which have driven the development of the last century are domination of nature, consumerism and individualism. He argues that these values are incompatible with the goal of a sustainable future. Domination of nature should be replaced by a willingness to live within the sustainable limits of natural systems, consumerism by an emphasis on quality of life, and individualism by a renewed sense of community, recognising that we share a common fate with the other members of the human family. Extending this argument one step further, O’Riordan and Voisey (1998) argued that “The sustainability transition is the process of coming to grips with sustainability in all its deeply rich ecological, social, ethical and economic dimensions... It is about new ways of knowing, of being differently human in a threatened but cooperating world.”

A helpful summary of the principles of sustainability is provided in a recent report by the WA Government (2003) – see Appendix 1.

A research approach: “sustainability science”

Sustainability science recognises that our understanding of nature-society interactions is still limited (Kates et al, 2001). There have been substantial advances in recent decades through work in the environmental sciences that factors in human impacts, and work in social and development studies that takes account of environmental influences. But we still have an urgent need for a better general understanding of the complex dynamic interactions between society and nature. We need to be able to analyse the behavior of complex self-organising systems, as well as understanding the irreversible impacts of interacting stresses. We need to work at multiple scales of organisation and consider the impacts on natural systems of various social actors with different agendas.

Many of our serious environmental problems are the direct result of applying narrow specialised knowledge to complex systems. The first Australian state of the environment report said that environmental problems have only been successfully solved where there was a systematic approach, combining all facets of the complex issue (SoEAC, 1996). We need to address these issues through integrated research activities that focus on the social and ecological characteristics of particular places or regions. The international movement for “sustainability science” has developed a set of core

questions concerning the character of nature-society interactions, our ability to guide those interactions along more sustainable trajectories, and ways to promote the social learning needed to navigate a transition to sustainability.

The traditional research method was based on essentially sequential phases of inquiry such as conceptualising the problem, collecting data, developing theories and applying the results. This approach of developing and testing hypotheses has run into difficulties as we study complex non-linear systems with long time lags between actions and their consequences. The problems are complicated by our inability to stand outside the nature-society system, meaning we cannot even in principle be objective observers of the system. We have to accept that our engagement with complex natural systems can't be based on the model of objective science. The traditional sequential steps must become parallel functions of social learning, additionally incorporating the elements of action, adaptive management and policy as experiment. Sustainability science therefore needs to employ new methods such as semi-quantitative modelling of qualitative data and case studies, or inverse approaches that work backwards from undesirable consequences to identify pathways that avoid those outcomes.

Researchers and practitioners need to work together to produce trustworthy knowledge that combines scientific excellence with social relevance. Meeting this challenge will also require new styles of institutional organisation to foster inter-disciplinary research and to support it over the long term, to build capacity for that research and to integrate it into coherent systems of research planning, assessment and decision support.

The transition to a sustainable future

In principle, the *policy reform* scenario could cut resource use and environmental impacts. An extension of the sort of policies recently developed in Europe could, at least in principle, lead to dramatic reductions in resource use and environmental impacts. If there was the political will, the problems of deprivation could certainly be solved. The UN Development Program in 1998 estimated that clean water and decent sanitation, basic health and nutrition, universal basic education and reproductive health for all women could be provided throughout the majority world for about 5 per cent of global military spending. The obstacle is the lack of political will for a comprehensive reform strategy, given what the report calls "the resistance of special interests, the myopia of narrow outlooks, and the inertia of complacency". In Australia, the consensus reports of the National Strategy for Ecologically Sustainable Development are still gathering dust in government pigeon-holes 14 years after the

Council of Australian Governments adopted the strategy, with no sign of the political will to implement even measures which were supported by a spectrum of interests ranging from Greenpeace to transnational resource companies. The current Australian government joined the Bush regime in refusing to ratify the Kyoto protocol on greenhouse gas emissions, despite having secured a uniquely generous target by threatening to sabotage the global agreement. Historian Paul Kennedy argued that politicians are unlikely to take concerted action now in the interests of the future as long as they can argue that 'experts are divided', or that 'more research is needed'. The problem with complex issues involving interaction between social and natural systems is that the experts will nearly always be divided and it will always be possible to argue that more research is needed. As long as politicians are more concerned about the next election than the next generation, there is little chance of policy reform on the scale needed to effect a transition to a sustainable future.

So, market-led wealth generation and government-guided technological change has to be supplemented by a values shift towards a new global vision, committed to equity and marked by durability. A first step might be to embrace some strategic goals, like eliminating hunger. That would not necessarily require exotic technical advances, such as genetically modified food crops. It could be achieved by a more equitable distribution of the two kilograms of food per person per day we now produce. A fundamental problem of our market approach is that those who cannot afford food go hungry. Market forces are also driving bizarre changes in land use. Land which formerly grew cheap food for subsistence living in Africa is now increasingly being used to grow flowers to be air-freighted to rich consumers in the developed world.

A second strategic goal could be a radical dematerialisation of society. Several European nations have now adopted the goals sketched by the Wuppertal Institute of reducing energy use to a quarter of the present level and reducing material use to 10 per cent of the present level, seeing those as quite realistic targets. But above all else, we need a values shift, perhaps away from *Homo sapiens*, which is gendered and a link back to our past, or *Homo economicus*, the depressing view of the individual as consumer, towards what has been called *Globo sapiens*. Pentti Malaska's term for wise citizens of the planet has been developed by Patricia Kelly (2006), who has unpacked the qualities of *Globo sapiens* and developed the educational principles needed to develop two crucial recognitions: that we share this planet with all other species, and that we hold it in trust for all future generations. So we need to see the economy as a *means* to service human needs rather than end in itself, and should be committed to *genuine* globalisation rather than the recent fad of simply reducing the constraints on corporations.

Real globalisation would include a commitment to global minimum standards of material support, labour conditions, environmental protection and human rights, with global institutions sovereign over national or local politics. That would be a radically different world. As the distinguished futurist Sohail Inayatullah put it, “We have become alienated from our common humanity, and the attribute, hope, image that might save us is ‘globalisation’ of humanity”.

There is ample evidence that growth is not the solution. The Brundtland Commission (1987) pointed out that the two main causes of environmental degradation are extreme poverty in the poor countries and unsustainable levels of consumption in the rich countries. Growth can in principle do something about the first problem; but growth is both in principle and in practice making the second problem worse, and will continue to do so unless we embrace a different sort of development which is oriented towards human need rather than human greed. While it **may** be possible to have an economy in which the flow of **dollars** still increases, we must recognise that the flows of **materials** must be stabilised and then reduced.

Some specific responses

Within Australia, I have argued that we need a National Sustainability Commission and a sustainability charter to guide its work. A coherent framework and integrated strategies need to drive investment, policies and programmes to produce a sustainable Australia. The charter would provide the overall parameters for the transition to a sustainable future. An independent and effectively resourced Commission would report to the Council of Australian Governments, giving a co-ordinated national approach to the most pressing challenge of our time. Its task would be to set within a generation a framework for a sustainable Australia.

I have sketched out what I see as the basis of a sustainable future (Lowe 2005a). We will have stabilised both our population and its footprint, its level of resource demands. Our cities will be much more energy-efficient, with better building standards and urban design to create liveable communities with services within easy reach. Rain water will be collected and waste water cleaned for re-use, allowing us to meet our needs with less pressure on natural systems. We will have dramatically reduced our greenhouse pollution by embracing renewable energy and world’s best practice efficiency levels. More of our food will be produced locally; we will have healthier diets and greater levels of physical activity. We will have invested in education, skills and innovation to secure our economic future. Social cohesion will have been improved by measures aimed at reducing inequality. Proposals for new development will be given a serious triple-bottom-line assessment and then considered by a

participative process, allowing us to take difficult decisions as a community and ensuring that the winners from these changes compensate the losers. To ensure that new developments are biodiversity-positive, any clearing of natural vegetation will be balanced by investing in the restoration or enhancement of other natural areas.

An acronym that summarises this future sustainable society is HEALTHIER (Lowe, 2005b). It will be Humane in the sense of developing technologies and approaches that can, at least in principle, be extended to the whole human family. It will take an Eco-centric Approach, recognising that we have no future if we fail to maintain the capacity of natural systems to provide breathable air, drinkable water and the capacity to produce our food. It will have a Long Time Horizon, recognising that the decisions we are taking now have implications decades into the future. It will be Informed, having invested in a dramatically improved understanding of complex natural systems and our effects on them. It will be Efficient, turning resources much more effectively into the services we need. It will be Resourced, having managed the transition from depleting geological resources to living on renewable energy flows.

Can we afford it?

There will always be some who say we can't afford to do things better. As the International Chemical Secretariat (2004) showed, some vested interests have always resisted change by over-stating the costs and ignoring the benefits. When the catalytic converters that have dramatically cleaned up our urban air were proposed, some in the car industry claimed they would cost over \$1000 each with a fuel consumption penalty on top, for no obvious benefit. In fact, they cost about \$100 each, led to more sophisticated engines and improved fuel efficiency, and their impacts on urban air quality are estimated to have cut health care costs in the UK alone by about \$5 billion a year. It was claimed that measures to clean up sulphur dioxide from power stations and stop acid rain would add 25 to 30 per cent to electricity costs; they had no significant impact on prices. When regulations to clean up coal mining were proposed in the US, industry claimed it would cost between \$6 and \$12 per ton; it cost less than \$1. The Australian Business Roundtable on Climate Change has concluded that we can afford to take strong action to reduce greenhouse pollution. More importantly, strong action now will be much better for the economy than inaction now, which would lead to a need for much more drastic measures in the future. More generally, the sort of changes that I have described will clearly be better for the economy and social institutions than the present path of destroying our natural resources by over-use.

Conclusions

Some people think the vision of a sustainable future is utopian, but that has been said about all the important reform movements. Those who opposed slavery two hundred years ago were told that no economy could function without slave labour, while the suffragettes were persecuted when they demanded the vote for women a hundred years ago. Only forty years ago, Indigenous people did not count as Australian citizens. Twenty years ago it was still utopian to dream of Berlin without the Wall, or South Africa without apartheid – or even such modest goals as good coffee and civilised licensing laws in such parts of Australia as Queensland! Many social reforms we now take for granted were initially denounced as utopian. They happened because determined people worked for a better world. I remember hearing the American folk singer Pete Seeger explain to an audience why he was singing the hymn *Amazing Grace* in a bracket of folk songs. The hymn was written by the captain of a slave trade ship after a storm in the Atlantic. Seeger said the captain reflected on his activity, decided that it was morally untenable and literally turned the ship around, sailing back to Africa and releasing his cargo of slaves. The folk singer was encouraging us to reflect on the morality of living beyond our means at the expense of our grandchildren and develop a commitment to “turn the ship around”.

The US economist Lester Thurow said that it is hard to tell people the party is over, especially if they haven't got to the bar yet! I am, in those terms, telling you that one type of party is coming to an end; the party based on delusions of unlimited resources and a natural world that is immune to the insults we throw at it. But I am also telling you about a better party that is starting up, to which we are all invited. It is a better party because it won't run out of food and drink. It is a better party because it won't leave you with a very nasty hangover of radioactive waste or disrupted global climate or despoiled natural systems. It is a better party because it is based on quality of human experience rather than gluttonous consumption. It is a better party because the neighbours won't be enviously peering through the windows or throwing rocks on the roof, because they will all be invited. And it's a better party because our children will be able to keep enjoying it after we are gone.

Rowan Williams, the Archbishop of Canterbury, reminded British voters before their 2005 election that there are always excuses for avoiding these important issues. Without a strong mandate for change, he said, we can't be surprised when courage fails and progress is limited. As Rowan Williams said, we all have a responsibility to help change popular views and give courage to our leaders to take responsibility for our future.

It would be much easier for those of us in the developed world to ignore these difficult issues, to enjoy our material comforts and our wonderful lifestyle – but a sustainable future is clearly a better future. Working for it is our moral duty to the countless millions of other species that we share this planet with, and the future generations for whom we hold it in trust.

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Appendix 1: Principles of Sustainability

Foundation principles

Long-term economic health: Sustainability recognises the needs of current and future generations for long-term economic health, innovation, diversity and productivity of the Earth.

Equity and human rights: Sustainability recognises that an environment needs to be created where all people can express their full potential and lead productive lives...

Biodiversity and ecological integrity: Sustainability recognises that all life has intrinsic value, is interconnected and that biodiversity and ecological integrity are part of the irreplaceable life support systems upon which the Earth depends.

Settlement efficiency and quality of life: Sustainability recognises that settlements need to reduce their ecological footprints (that is, less material and energy demands and a reduction in waste) while they simultaneously improve their quality of life (health, housing, employment, community).

Community, regions, "sense of place" and heritage: Sustainability recognises the significance and diversity of community and regions for the management of the Earth, and the critical importance of 'sense of place' and heritage (buildings, townscapes, landscapes and culture) in any plans for the future.

Net benefit from development: Sustainability means that all development, and in particular development involving extraction of non-renewable resources, should strive to provide net environmental, social and economic benefit for future generations.

Common good from planning: Sustainability recognises that planning for the common good requires equitable distribution of public resources (like air, water and open space) so that ecosystem functions are maintained and so that a shared resource is available to all.

Process principles:

Integration of the triple bottom line: Sustainability requires that economic, social and environmental factors be integrated by simultaneous application of these principles, seeking mutually supportive benefits with minimal trade-offs.

Accountability, transparency and engagement: Sustainability recognises that people should have access to information on sustainability issues, that institutions should have triple-bottom-line accountability, that regular sustainability audits of programs and policies should be conducted, and that public engagement lies at the heart of sustainability principles.

Precaution: Sustainability requires caution, avoiding poorly understood risks of serious or irreversible damage to environmental, economic or social capital, designing for surprise and managing for adaptation.

Hope, vision, symbolic and iterative change: Sustainability recognises that applying these principles as part of a broad strategic vision for the Earth can generate hope for the future, and thus it will involve symbolic change that is part of many successive steps over generations.