

Editor's Introduction to This Special Issue on "Sustainable Futures"

Stephen McGrail
Independent futures researcher and
foresight practitioner
Australia

Desirable futures are increasingly seen as sustainable futures. Sustainable futures, as defined by Holling (2000), "are ones in which the basic means of human livelihood get easier, human opportunities become richer, and nature's diversity is more sustained – and not only in the rich parts of the world". The quest for such futures demands interrelated transformations in worldviews, institutions and technologies (Beddoe et al., 2009). This special issue was conceived in November 2009 as political leaders and negotiators prepared to head to the Copenhagen climate change summit. The goal of stimulating further examination of the prospect and pursuit of "sustainability" from diverse futures perspectives via a special issue was strengthened by what followed. Whilst it was always false hope to expect the climate problem to be solved at Copenhagen (McGrail, 2010a), there appears to be a growing sense of being at a crossroads regarding climate change and other sustainability challenges.

This special issue, in effect, considers this crossroads, ways through it, and possible futures beyond it. It consists of six articles, two essays, an event report and a book review. It is hoped that it informs, helps to enable and stimulates further change-oriented work on 'sustainable futures' by futures researchers, foresight practitioners and related scholars and activists. The contributions consider how futures methods can help create such futures, the potential utility of actions by futures researchers and futurists, and present perspectives of practising futurists and scholars whose work is focussed on attaining such futures.

These foci distinguish this issue from related special issues.¹ Two special issues have appeared in the journal *Futures*: 'Visions of Sustainability' (1994, Vol. 26, Issue 2) and 'Sustainable Futures' (2000, Vol. 32, Issues 3-4). The first contains the visions of environmental scholars and activists. The second mostly explores the futures of related topics (e.g. renewable energy), discussed by non-futures specialists. A forthcoming issue of interdisciplinary journal *Sustainability*, edited by futurist Bruce Tonn, also provides a complementary perspective.²

This introduction provides some framing perspectives, outlines the contributions, and briefly presents some concluding thoughts.

Futures and Sustainability: Key Aspects and Questions

Various contributors to this issue highlight how sustainability is inherently future-oriented. Sustainability, and challenges such as climate change, require society to become more futures-oriented. Commonly advocated policy principles (e.g. intergenerational equity, precaution) call for a new relation to the future. A sustainable society would exhibit foresight, having a futures-responsive culture (Slaughter, 2004) and being purposeful and wise in its futures-creation.

The sustainability field and related social movements are also avid consumers and producers of future-oriented analysis and thinking. Major environmental studies and policy analysis regularly use scenario analysis (e.g. IPCC reports, the Millennium Ecosystem Assessment, etc). The work of environmental activists and policy-makers grapples with emerging issues such as "peak oil" (Alekklett et al., 2010; Sorrell et al., 2010)³, climate change and the mitigation and possible future societal adaptation requirements (e.g. see Garnaut et al., 2008; Messner et al., 2010; Parry et al., 2009), the depletion of "natural capital" (Brink et al., 2009), and emerging "planetary boundaries" such as the rate of biodiversity loss,⁴ among others; the sum *and* convergence of which is viewed as generating a range of complex, emerging sustainability crises (Brown, 2008; Heinberg & Lerch, 2010; Homer-Dixon, 2006, 2009a & 2009b).

In this context, sustainable futures are unsurprisingly described in extremely challenging terms. For example, Haberl et al (2011) argue sustainable societies are "as difficult for us to imagine as it would have been for those in the 16th century to imagine today's industrial society". Steffen (2005), editor of sustainability website www.world-changing.com and exponent of what he terms 'planetary futurism', asserts that "we don't know yet how to build a society which is environmentally sustainable, which is shareable with everyone on the planet, which promotes stability and democracy and human rights, and is achievable in the timeframe necessary." Sustainable futures require complex *non-linear changes* that are inherently difficult to anticipate and deliberately steer. Indeed, to what extent was industrial society imagined before it was created and deliberately steered (i.e. rather than being emergent)? What unique contribution to such imagining could futures researchers and practitioners make? What related perspectives can be provided to assist thinking and doing in pursuit of sustainable futures?

Unsustainable futures are also described in challenging terms and are often characterised in terms of future "ecological footprint".⁵ The following thought experiment (Madden, 2009) effectively captures this concerning view of the future:

Close your eyes, thinking of the home you left this morning [or are in right now] and what is in it: think of the fridge full of meat, milk, cheese, etc, electrical goods, one car or perhaps two parked out front, etc,... now imagine it is the year 2050 and that all 9-9½ billion people now on the planet enjoy the same [Western] lifestyle; consume the same resources and material goods... How many Planet Earths would we need to sustain that?

As implausible as it is to consider the world's population all having Western lifestyles by 2050 (see Jackson, 2009), the thought experiment is nonetheless reveal-

ing: it is estimated to require about five "Planet Earths". The implication is that either an unprecedented amount of innovation to sustainably meet both "escalating wants and needs" and development needs in poor countries (Madden, 2009) or, alternatively, a radical shift in lifestyles is required.

It is also extremely important to note that many observers of the above issues, and the unfolding "Anthropocene" era, increasingly have a dark and pessimistic view of the future.⁶ As Porritt (2008, p.47), recent Chair of the UK Sustainable Development Commission (from 2000-2009), observes, "for a variety of reasons (predominantly ecological or political), many people now believe... that our 'destiny' as a species is already determined."

Finally, a largely implicit question in this issue, and all discussions about sustainability, is 'what is to be sustained?' This topic often bubbles up but needs further societal consideration.

The Contributions

Values and cultural transitions

Transformative cultural transitions are commonly seen as a precondition of sustainable futures. The first three articles by Hardin Tibbs, Chris Riedy and Marcus Barber focus on values change and related conflicts. The first focusses on evidence of a transition to post-materialist values and revisits the necessary changes to achieve sustainability. Tibbs argues we can investigate the likelihood and timing of the necessary *normative* responses through futures research methodologies and he uses this approach to explore the possibility of widespread deployment of "green, eco-efficient technology, *and* a significant shift in cultural values happening together, in advance of a serious crisis".

Tibbs' paper provides an original effort at modelling a values transition integrating World Values Survey data and social research on the emergence of the "cultural creatives" subculture. Whilst acknowledging that "a period of turbulence", rather than a smooth transition to a new culture, "may be a more reasonable expectation", Tibbs concludes that this modelling provides the basis for a "genuinely positive future outlook".

Importantly, the article also responds to the above thought experiment. Tibbs speculates on the potential for such a cultural transition to drive a redistribution of consumption and wealth to poorer countries and voluntary scaling back in rich countries. Perhaps we see the beginning of this with "down-shifting", "enough-ism", the rise of "collaborative consumption" (Botsman & Rogers, 2011) and related emerging social changes.

In the second article Riedy uses an integral futures approach – drawing primarily on philosopher Ken Wilber's integral theory – to deepen consideration of climate change responses and the visions expressed by climate action movement participants. In addition to being a research scholar Riedy is also current President of Climate Action Network Australia, an alliance of non-government campaigning groups. This gives him a unique perspective. Riedy asks "whether a shared climate change response vision is possible and desirable" and reveals key barriers to this. Conflicting visions of

a "safe climate" and preferences on how this preferred climate should be realised are argued to be core to these issues.

Riedy's analysis is also consistent with the emerging understanding that something deeper than a scientific debate is happening and climate change is an ideologically polarising issue. Related to this, he argues "many in the [climate action] movement remain unaware of the diverse values that exists within it and broader society, or unsure of how to work with these values". Unless movement leadership become "more aware of multiple values and perspectives and to consciously design political strategies for recruiting people holding these values", he argues the likely future is one in which the movement becomes increasingly frustrated by the responses to its calls for urgent, radical change.

Methodologically, Riedy argues that the *Wilberian integral* approach used in this analysis is "particularly valuable in drawing out diverse futures associated with differing levels of consciousness" and exploring the related value commitments and conflicts. This is a key task. As the editors of an earlier related special issue of *Futures* noted, "the phase 'sustainable future' is used to describe and defend a diverse and contradictory range of present and future forms of development" (Boyle, Thomas, & Wield, 2000).

Barber's article, 'Leveraging organisational values for sustainability initiatives', considers values issues from a third perspective. He contends that Value Systems (VS) theory helps to prepare for a greatly changed future and that it is *particularly* useful when considering how organisations might address sustainability issues. Barber uses a VS theory called Spiral Dynamics in his work as a strategic futurist and his contribution outlines this model and its utility for both working with organisations and developing ideas to more effectively accelerate change towards sustainability by appealing to different values.

Barber's framing of the sustainability problematique combines a basic 'Theory of Sustainable Societies', which contends that "societies that attempt to maintain the status quo ultimately decay", and 'Sustainable Society Paradox' proposing that "the degree to which a society can be considered 'truly advanced' is in direct INVERSE proportion to the size of their ecological footprint". Barber contends that these propositions, ultimately, "pit the drive for advancement (often technical and consumption driven) against the size of the ecological footprint". Overall, sustainability is seen as the predictable clash of differing values and as needing far greater sensitivity to Value Systems.

The paper is notable for its provocative ideas for accelerating action towards sustainable futures that Barber contends aim "to utilise more than one Value System to generate solutions". These include the "Future Generations Penalty Clause", a proposed law to make "the manager's children responsible for the environmental damage caused by their parent's company". These ideas embrace Dator's (1996) second 'Law of the Future': "any useful idea about the futures should appear to be ridiculous"!

Understanding and overcoming resistance to change

Proposed shifts away from modernist notions of progress driving us towards unsustainable futures stimulate sharp resistance. The new "headline indicator" of

progress, termed the Quality of Development Index (QDI), is proposed by John Stutz in the fourth article aims to assist with overcoming this resistance. Stutz is Senior Fellow and founding member of the Tellus institute, which has the core mission of "advancing the transition to a sustainable, equitable, and humane global civilization".

This paper features a review of proposed alternatives to Gross Domestic Product (GDP), the design of the QDI, and demonstration of how this index can be used to assess the relative desirability of alternative futures. Stutz examines the Tellus Institute's global scenarios for the twenty-first century entitled "Market Forces", "Policy Reform", "Fortress World" and "Great Transition" (also see Raskin, Electris, & Rosen, 2010). As outlined, the QDI is also applicable at the national level as a headline indicator. Stutz explains the potential gains from using this:

Within the Tellus Framework [alternative scenarios and supporting, detailed modelling systems] there is now a clearly specified basis upon which to organize and present the scenario results, making them more accessible to policy-makers and the public. Going beyond the Tellus Framework, development of the QDI suggests a general possibility for quantitative, scenario-based visioning exercises. Such exercises could be expanded to include the selection or development of one or more headline indicators and associated social indicator systems. Application of this machinery would formalize the process of examining scenario results from different points of view, with an eye to gauging the type and extent of the progress they embody.

Stutz concludes that the QDI will "challenge those who use other indicators of progress to identify the values on which they are based" and "puts forth a new, broader and richer approach which similar global scenario-based exercises may adopt". Whilst critics increasingly argue the concept of progress has been rendered obsolete by the ecological and financial crises (e.g. Sim, 2010), it is nonetheless true, as Stutz notes, that it matters what is measured.

Patricia Kelly refers to the Tellus scenarios in her contribution, "*Avatar... and the 'sustainbullies' of Higher Education.*" This article uses critical futures and media analysis of the film *Avatar* to explore issues faced when embedding 'strong sustainability' (Pearce & Turner, 1990). She notes that the "Fortress World" scenario is "like the Earth of *Avatar's* time" a century from now and considers the challenges faced in avoiding this future.

Some authors in the academic education literature strongly reject deep values change in Higher Education, which Kelly believes prevents it from playing "a leadership role in preparing graduates who understand the huge social and economic changes facing us and can work effectively to build sustainable futures". In this regard, Kelly sees art imitating life: "like *Avatar's* imaginary planet, *Pandora*, education is a site to watch in the growing values struggle". Further, Kelly highlights similarities between intense reactions to *Avatar* and rejection of sustainability in Higher Education.

Kelly uses Stephen Sterling's model in seeking deeper educational responses to sustainability, from level one, 'education about sustainability' (i.e. another content area to market), or level two responses, 'education for sustainability', to level three respons-

es termed 'education as sustainability'. "This kind of education and these educators", she asserts, "would help to develop graduates who will live and work with a futures awareness and an openness to evolving alternative ideas".

Throughout her analysis deeper aspects are at play. Within *Avatar*, as in life, increasing conflict between pre-modern, modern and "trans-modern" worldviews emerge. This is especially clear in Kelly's use of Causal Layered Analysis to consider the "life worlds" of central characters in *Avatar*. Kelly notes that while "critics of sustainability overtly fear a return to premodern oppressive certainties" these critics also have their own oppressive modernist certainties (e.g. as is evident in Lawson, 2008; Williams, 2008; as reviewed in McGrail, 2010b). We need to do better in life than in art, as "there is no 'win-win' solution [realised] in *Avatar*". For Kelly this involves – despite the intense resistance – education that contributes to cultural change and associated individual transformations into ideal, reintegrated selves.

Kelly's paper raises deeper socio-political issues relevant outside of education. It should provoke further, necessary, consideration of the drivers of anti-sustainability rhetoric and how these could be overcome (e.g. as considered by Feygina, Jost, & Goldsmith, 2010; Sawyer, 2009). A transition to a sustainable future must make visible the contested ideologies.

Evolving discourses and emerging futures practices

Discourses of sustainable futures have "often celebrated bleak pessimism" (Boyle et al, 2000) and Hulme (2009, p.62) notes that the current climate change discourse is "predominantly one of danger and catastrophe." In the final article I discuss related issues and emerging trends – such as the recent growth in efforts to dramatically reframe these discourses – and tensions in responses to the intensifying sustainability problematique, focussing on the perspectives of environmental activists and oriented scholars.

Part of the crossroads noted above appears to be the intensifying, conflictual mix of old and new perspectives and associated competing visions. Based on a literature review, and consideration of Dryzek's (2005) model of competing environmental discourses, I identify an emerging tension between moving *forward* to new discourses and practices and going *back* to the old conflicts between "Survivalists" and "Prometheans" (which were prominent in the 1970s, e.g. in response to the *Limits to Growth* study). Falling back into these debates is likely lead to futures characterised by intense conflict between limits and techno-futures perspectives.

Significantly, different new futures practices are being developed and experimented with by adherents to different environmental discourses. Evidence is presented of increased "futurism" (as defined by Dator) in environmental movements and "positive dissent" (as defined by Slaughter). Overall, it is hoped that the article provides a grounding perspective to futures researchers and other practitioners working in the broad sustainability area.

Outlooks and emerging futures

Oliver Markley and Peter Ellyard provide contrasting essays on potential pathways to sustainable futures. Markley argues an enormous transition to an alternative

"socio-ecological" regime is unlikely to occur without first experiencing significant crises.⁷ Futures researchers and futurists, thus, should be (re)oriented to advancing the level of preparedness for emerging future breakdowns so that deeper collapses can be avoided and the positive potential of these crises can be harnessed. This challenging view of the future also leads Markley to also argue that "the guiding image of *resilience* – not to replace that of *sustainability*, but as its complement, like the other side of the same coin – can help give shape to new directions for working".⁸

In contrast Ellyard, in '*Designing 2050*', argues global trends are *already shaping* a global sustainable society. Ellyard further argues we can broadly anticipate and describe a future sustainable society – i.e. that it is imaginable – and outlines what he believes are its key emerging characteristics and strategic actions to realise this society by 2050. To Ellyard a sustainable twenty-first century society should be reimagined as one that attains "sustainable prosperity", not "sustainability", which involves the simultaneous realisation of economic, ecological, social and cultural prosperity. This essay provides an accessible introduction to Ellyard's futures perspective and the roles of futurists and futures thinking he believes are needed to enable a shift from a survival to a "thrival" focus.

Climate change responses and risks are central to all these alternative futures. Elizabeth Rudd and Robyn White provide a detailed report on a major lecture series, in '*Thirty of the Best Minds on Climate Change in the One Place at the One Time*'. This report identified key themes such as the current lack of stories that provide vision and inspire leadership and also includes a Causal Layered Analysis (CLA) of the different depths of discourse present in the lecture series. Informed by this analysis they comment on the potential role of futurists:

Given the ability of futurists to create powerful, moving images of the future, perhaps this is where we can make the a powerful contribution which will both contribute to the solution but also provide sources of hope and inspiration for those looking for leadership and positive alternatives. Futurists also have the abilities and the skills to help the global community move beyond the level of litany and explore the deeper layers of the [climate change] discourse. This can also help lead to action, which after all, is the point of futures work.

An important related insight revealed by Rudd and White's report is that a litany-level focus in discourse, in effect, maintains the status quo. This echoes earlier CLA perspectives on the challenges and key requirements of transformation change (e.g. see Inayatullah, 2010) and is also an important point to remember in change-oriented futures work.

Finally, I review '*The Sixth Wave: How to Succeed in a Resource-Limited World*' by James Bradfield Moody and Bianca Nogrady. This book aims to predict the emergence of a sustainable future over the next thirty years, driven largely by resource scarcity problems, new "clean technologies" and related innovation.

Observations and brief reflections

It is not appropriate to try and draw sweeping conclusions, attempting to integrate diverse contributions. Instead, a couple of important observations can be made. First,

the contributions suggest futures methodologies, tools and approaches can be utilised in diverse ways in the intensifying quest for sustainable futures. These ways include:

- Investigating and communicating the nature, likelihood, and timing of necessary normative responses;
- Stimulating and supporting change-oriented activities by creating new guiding images and visions of the future to change the present and related projects;
- Highlighting alternative, competing visions and assessing the basis and potential of these different perspectives;
- Improving anticipation of potential socio-ecological breakdowns and seeking to enable suitable preparations (i.e. what's commonly called "future proofing"). This could include related theory-building as advocated by Homer-Dixon (2009c), enabling going beyond "a laundry list of things we should worry about" in the future to deeper understandings the causes of societal crisis, and promotion of associated solutions;
- Helping to deepen important discourses (e.g. the climate change discourse) to disrupt the status quo, such as through critical futures analysis; and
- Developing new analytical tools and approaches for assessing the "sustainability potential" of contending pathways into the future. Related experimentation is evident, for example, in the European Commission funded MATISSE project (see www.matisse-project.net) and other 'sustainability assessment' activities.

Political scientist John Dryzek (2005) recently noted the extent of "ungrounded wishful thinking about a different world" in environmental discourses and the need for further structural-level analysis. This leads me to a second concluding observation. Perhaps the most significant contribution futures researchers and practitioners can make is helping to enable more rigorous analysis of the prospects for, and realistic paths to, alternative sustainable futures. Utopian images are still useful, e.g. as a point of orientation (de Geus, 2002; Tibbs, 1999), but an important theme emerging from this special issue is the need for more critical, transdisciplinary perspectives that simultaneously reveal the deeper dynamics of the *present* sustainability problematique and provide "grounded" *futures* thinking. Hopefully this issue stimulates more work of this kind, practitioner reflection, and engagement with emerging possible and preferable futures. It is an invitation to expand the discussions and engage in the debates in this issue, which I thank the contributors for starting.

Correspondence

Stephen McGrail
57 Arden St, North Melbourne, VIC, 3051
Australia
E-mail: Stephen.mcgrail@gmail.com

Notes

1. Further, key themes are evident in related future literature, such as: futures analysis of the "sustainability problematique" and prospect of attaining "sustainability"; theoretical con-

sideration of the concept and principles of sustainability; discussion of current/proposed images of sustainable futures; and a more practical focus on the use of futures methods to help address environmental problems *and* help to develop new societal capabilities in order to guide purposeful transitions of socio-technical systems. Over the past decade the later two categories have become much more prominent, including papers documenting the broader use of futures methods in diverse non-futures publications such as the *Journal of Sustainable Product Design, Sustainability Science, Technology Analysis & Strategic Management, and Habitat International*. This special issue is in-line with this trend, whilst also including some bigger-picture futures thinking. Interested readers are also encouraged to review earlier publications on similar themes in this journal (e.g. Bussey, 2010; Lowe, 2006; Taylor & Taylor, 2007).

2. The special issue of *Sustainability* edited by Bruce Tonn can be found at: http://www.mdpi.com/journal/sustainability/special_issues/future/. Readers will likely be particularly interested in 'The Century Ahead: Searching for Sustainability' by Raskin et al. (from the Tellus Institute) and 'Extending the Influence of Scenario Development in Sustainability Planning and Strategy' by Mulvihill & Kramkowski.
3. Indeed, Professor Kjell Aleklett, President of the Association for the Study of Peak Oil (ASPO) argues that peak oil occurred in 2008 (as stated at a public forum at the University of Melbourne, entitled 'Resource Depletion: The Tie that Binds Peak Oil and Food Security – a Special Seminar with Professor Kjell Aleklett' on 24/11/2010).
4. Also see: <http://www.stockholmresilience.org/planetary-boundaries>
5. Also see the resources available at: <http://www.footprintnetwork.org>.
6. The concept of the "Anthropocene" was recently discussed in scientific journal *Philosophical Transactions of the Royal Society A*. As the special theme issue editors (Zalasiewicz et al., 2011) note "anthropogenic changes to the Earth's climate, land, oceans and biosphere are now so great and so rapid that the concept of a new geological epoch defined by the action of humans, the Anthropocene, is widely and seriously debated".
7. This is an increasingly common perspective as conveyed by many of the authors and researchers cited by Markley (including Beddoe et al., 2009). This possibility is also highlighted by Tibbs in this special issue. Tibbs suggests that a "post-materialist cultural majority" in the Global North could lead the development of new societies post-break-downs *in response to*, for example, significant energy security problems.
8. The concepts of sustainability and resilience are increasingly being linked, along with other related areas such as vulnerability analysis which considers potential future stressors and 'shocks'. For example, just before publication of this issue a major conference entitled "Sustainable Urbanisation: a resilient future" was held in my home town of Melbourne (see <http://www.sustainableurbanisation.com.au>).

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