

Climate change response: Linking research, policy and action

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Abstract

We are now close to reaching what climate scientists advise is a ‘tipping point’ when the injuries we have visited on the planet will become self-reinforcing and produce an ecosystem that is alien to human life. The mal-distribution of consumption within and between nations is a major reason why there is little agreement on appropriate remedial action. Ensuring planetary survival while reducing inequity is made the more difficult, because the richest one-seventh of the world’s population has already reached consumption levels beyond the capacity of the planetary ecosystem to accommodate it.

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Keywords

Climate change policy, consumption, energy targets, global warming, growth, inter-regional equity, social inequity, urban planning

Introduction

We have managed our affairs with what appears to have been a tragic disregard for the survival of the human species and of the impact of our behaviour on the planetary ecosystem. This has been the cumulative effect of the ‘chaotic’ sum of a large geographically distributed number of activities by individuals and communities in the pursuit of a ‘good life’.

The Intergovernmental Panel on Climate Change (IPCC, 2013: 5) predict that by the end of the 21st century, the global mean surface temperature will increase by 0.3°C to

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4.8°C relative to the 1986–2005 average, a significant contributory factor being increasing levels of atmospheric CO₂ as a result of human agency. Averaging land and sea temperatures, there has already been a 0.85°C increase since 1880, most of it in the past three decades. An increase of 2°C or more is extremely likely to impose very significant ecological, economic and social risk (Deitz and Stern, 2014). Reports confirming collapse of the Western Antarctic ice sheet suggest that we are facing an irreversible climate change that will massively increase the vulnerability of large urban centres around the world (Mouginot et al., 2014). We must expect our climate to be less predictable with more ‘extreme’ events. The recent unseasonal fires, flooding and wild storms, including those in northern America, Asia, Australia and Europe, are eloquent illustrations of this situation.

Scientists, however, have faced a communication problem in gaining popular acceptance of the threat. We cannot be certain of the *absolute* level of stress that the planetary ecosystem can sustain without cataclysmic failure to support human life, although we are edging closer to that level. The level of stress produced by human agency is summarised as the total energy consumed, being the number of humans multiplied by their gross average per capita consumption. Scientists may agree on what causes climate change at a planetary level, but there is less certainty about the causes in specific locations. The ‘unknowns’ are powerfully important locally in trying to shape appropriate research and policy responses to the challenge.

We tend to use language implying a collective responsibility for the problem. This in some sense is true, yet it is clear that the generation of the stresses comes from a relatively small proportion of the world’s population. Charlton (2011) estimates that one-seventh of the world’s population living in ‘rich countries’ are responsible for a disproportionately high ‘share’ of the stress on the planet (p. 4). They ‘consume’ more than their ‘share’ of the energy that is the source of the pressure on the ecosystem. The six-seventh of the population who are poor, are implicitly expected to be part of the solution. The ‘problem’ critically becomes one of resolving how this mal-distribution of consumption should be resolved.

There are two major challenges to mobilising an adequate response to climate change. The first is the gap between science and policy, and the article begins by examining why people in a country such as Australia have been so slow to heed the warnings of scientists. The second challenge is to find policies that will gain consent to action for planetary sustainability, by confronting inter-regional inequity.

Science communication and policy uncertainty

We begin by identifying the ways in which the critical analysis of the processes generating environmental stresses have been documented, and why the dire warnings of climate scientists have not been heeded with any sense of urgency by the general public.

The climate science community produces compelling evidence of impending catastrophe yet seems unable to engage in a discussion that leads to agreed public policy to mitigate the causes of increasing temperature or of increasing concentrations of CO₂. Public discussion of issues arising from observed or anticipated changes to our climate

is built on little agreed information that has not been able to make headway against a deliberate campaign by vested interests to derail the debate.

National governments have adopted policies and positions that could charitably be described as confused. State governments send mixed messages to the population, sometimes acting out of a belief that the challenges to sustainability are real yet simultaneously adopting policies and programmes that suggest they are not. In the absence of a sensible exploration of the issues, the public has a right to be confused. That will be of no comfort as we experience hotter, drier winters, increases in large-scale fires, uncertainty in water supplies and vagaries in the food supply, not to mention increasing health stresses.

The problem has been creeping up on us. It has a history we need to understand. We have some preliminary histories of our scientific, economic and social development by scholars like Moyal (1984), Bonyhady (2000) and Griffiths (2013). We must understand that history – not to identify ‘the villains’ (there is little profit in mining that seam) – but to understand how our pursuit of growth and development over the last 200 years carried an unrecognised cost.

The problem of sustainability was framed in the 1970s as one of population growth. Meadows et al. (1972) argued that the world was reaching a crisis point in its preoccupation with growth – and the consumption that implied. This created a backlash, and their view on the unsustainability of development was challenged by Cole et al. (1973), both methodologically and on the basis that technological developments would lead to more efficient production.

There is strong, if latent, concern and support for collective action to mitigate the effects of climate change. But it is clear from recent public debates that the populace is not much exercised by the importance of climate science. How to make the link? There is no simple progression, but we must operate on the assumption that a public that is better informed about the processes and outcomes of climate change will be more likely to respond to proposals to moderate its own destructive behaviour.

Political debate reveals how easily climate change issues are presented in ways that are polarising. The public is treated with a flow of exaggerated claims based on contemporary events that often obscure the understanding of the longer term progress of climate change.

This apparent confusion may reflect the strain on comprehension posed by prospective complex scenarios that are threatening to custom and interest. First, the climate science community may need to reconsider the way in which the intelligence they accumulate about the nature and magnitude of climate change is communicated in processes of public policy formulation. Second, closer collaboration is required among scholars in the natural and social sciences, to devise appropriate remedial policies and find ways of communicating with the general public about them. Subsequent steps will be determined by the public through normal political processes as it becomes more aware of the consequences of climate change.

Consumption and distributional inequality

The mal-distribution of wealth and consumption within nations has long been recognised as a source of destabilisation (Tawney, 1964). Yet, a generalised call to reduce

consumption is not proving effective. We cannot simply argue for social/political climate solutions without considering redistribution questions when exploring ways to change consumption behaviours of individuals, households, businesses and all societies within the nation.

Climate change is largely an 'urban problem'. Almost all the processes that lead to increases in the ambient temperature or to the level of atmospheric CO₂ occur in our cities or are a consequence of the demands of their citizens. This should imply acceptance by urban populations of responsibility to find ways of mitigating climate change. What activities and forms of development most intensify the generation of environmental stresses? Are there ways to achieve the satisfactions we derive from them with less environmental stress? Do we need to reconsider the form and structure of our urban areas as well as the activities we pursue in them?

We must also extrapolate to the international arena and accept that the poor six-sevenths of the world population has a moral right to share equally in the benevolence of the planetary system and cannot be expected to accept exhortations to self-denial in increasing their standard of living (which almost inevitably means increased energy consumption). How can we expect that other nations cannot 'enjoy' or aspire to the same levels of consumption we have? To seek to do so would at the very least indicate a lack of respect for them. But we cannot expect that future technological improvements will allow us to continue consumption at our present level without prejudicing the ecosystem on which we depend.

Hirsch (1978) argued the distributional implications: to preserve ecosystems in response to total growth pressures would result in 'pressure for equalisation of economic resources on the part of the worse off and stiffen resistance by the better off' (p. 181). This is almost exactly what happened at the Copenhagen Summit (Charlton, 2011: 5) when the poorer nations refused to support global measures for mitigating climate change. How do we engage in an international debate over the level of consumption that may pass the tipping point in the planetary ecosystem?

There is a clear and urgent need for metrics to calculate economic distribution between nations. This is central to negotiations between nations in how they respond to the challenges raised by changes to the planetary ecosystem. But the ultimate solution does not lie with our communities of science. Individual scientists may provide evidence of the consequences of the skewed distribution of consumption, but it is too much to expect them to provide answers to the problems of over-consumption or redistribution. That is a problem that must be taken up by the community at large.

Important issues that need to be explored include spatial, locational, legal and distributional aspects of climate change that may not be widely understood. Changes in social behaviour may require changed approaches to rights in property, as well as changes in political and social rights and modes of representation in the political process.

This dilemma has not been explored publicly. Australian politicians argue that we should take no action to reduce pressure on the planetary ecosystem until and unless others do so, but this is a way of defending/disguising their myopia. In arguing for continued growth and refusing to support ameliorative measures unless other nations act first, they are ignoring the evidence that Australia, based on its population size, contributes disproportionately to planetary stresses. Behaving as though it matters little how much pressure

we create on local or distant environments, we have conveniently ignored the early environmentalists' dictum that 'everything is connected to everything else'.

Smith (2013) argues that the open-ended nature of market-based economies is the fundamental source of the stresses we place on the environment and is unsustainable. Does our romance with neoliberalism mean that we cannot avoid the contradictions inherent in our economic and social behaviour, revealed in increasing ambient temperature and CO₂ levels?

Responses: Two cultures and the problem of scale

In the face of such an all-embracing problem, it is hard to know how to respond to these national and international challenges. There is at present no 'world body' with the power or resources to address the issues currently being revealed. As the Future Earth (2013) project stated, to begin comprehending the task requires new research frameworks and governance structures, and far-reaching reflections on 'communication and engagement, capacity-building and education strategies, and implementation guidelines'.

But we can articulate our responsibility for sustainably managing the environment on which we depend. While Australia is the smallest continent, it has the benefit of being wealthy (Agrast et al., 2012–2013), has one government, largely subscribes to the rule of law, and has a high degree of cohesion. What are the actions that can be taken in Australia that could be translated into lessons valuable for the world?

Many members of society are prepared to act in areas of public concern beyond what might be seen as serving their own narrow range of interests. The study by Ahlquist and Levi (2013) of the way some industrial unions in the transport sector in Australia and USA organised and educated their members to take action over social issues beyond wages and working conditions provides a salutary lesson in the capacity to encourage/educate groups to take a larger societal view and express it in public debate. Many community groups, ranging from land-care groups to housing societies, take a similarly holistic, constructive view that informs their approach to social engagement.

What role can Australian academics play? Our science is no less competent or revealing than elsewhere, but it suffers from an apparent inability to communicate to government and the wider community the significance of its findings. It has not informed contemporary debates about how to address the self-interest of households or of corporations. Some scientists robustly engage in public debate, acknowledging the political/social context in which their research is pursued and through which the value of their findings is expressed. Others understandably, but sadly, fear that political/social engagement may be construed as corrupting their scientific detachment.

It is as if the 'two cultures' identified by Snow (1959) are alive and well: as if biophysical and social sciences cannot work together to help solve the climate problem. There is a significant 'scale' issue. Our biophysical scientists explore and focus on planetary level manifestations of climate change and the way our behaviour may affect planetary ecosystems. On the other hand, our social scientists tend to focus on the behavioural and policy options at what we might call the 'local' level which is more 'domestic' or focused on issues that may be shaped, controlled or influenced by local social or political action. The dilemma is that while we can only directly affect the 'local' level, we have an

obligation to seek a global solution, accepting that our behaviour does impact on planetary ecosystem responses.

Two overarching questions require attention both domestically as a nation and in developing agreements for concerted action with other nations. These are as follows.

Distribution of consumption

If we accept that the major threat to the stability of the planetary ecosystem is the total consumption generated by human activity, its distribution becomes a major consideration in ameliorative action. Having reached the point where we can estimate the total level of safe stress that can be placed on the planetary ecosystem by human consumption, we must now reach some accommodation between the different groups of humans on the planet about the level of stress each may contribute without ‘overloading’ the system. This is a difficult, even wicked, problem. Assuming that all human groups and/or nations have a right to exist, we must recognise that all aspire to a similar or equal level of consumption. The global ‘North’ has credibility in prosecuting a new development standard, only when we articulate a compelling programme for moderating and reducing our own consumption and ensuring that it is more equitably distributed.

The basic equation that the stress on the planetary ecosystem is a function of the number of people and their average level of consumption invites the suggestion that nations may influence either or both these variables. Each variable introduces different ethical considerations. In Australia the options are as follows:

1. Community agreement to reduce the total consumption by setting a lower level of individual consumption. To be politically palatable, we would have to ensure that the present highly skewed consumption was reduced and a lower more equally shared aggregate consumption maintained. The political consequences of such an approach may well make such an approach unlikely.
2. Reduce the total population. This could not be achieved without significant changes in family and immigration policies. Changes in family policy would undoubtedly raise a series of ethical issues that would be contested.
3. Reduce the total consumption by replacing the present technology for generating and distributing energy.

An international compact to reduce total energy consumption may well prove unrealistic because of fears by presently poorer nations that they were being required to forego the benefits of growth. Richer nations may be sceptical of the ability to maintain the compact – given the history of nations seeking domination over another, it is unlikely that rich small nations like Australia would trust that their independence and quality of life could be maintained.

The Australian official position is that it will not consider policies that imply some slowing down of the growth in consumption or population. It is not focused on the quality of life and civil engagement but on crude measures of economic activity, the increase in the level of which is misleadingly described as ‘growth’. Other countries with larger populations and or lower levels of average consumption are less likely to support

proposals that could be interpreted as requiring them to forego opportunities for 'growth'. Such proposals would inevitably be seen as discriminatory.

But inaction is not an option. One constructive response would be for Australia to embark on a programme to replace carbon-based sources of energy that increase the level of atmospheric CO₂ with energy sources that do not. Another would be to take a larger 'planetary view' and offer to cooperate with less 'developed' countries that are faced with increasing populations, so that the integrity or survivability of both was secured by simultaneously improving the standard of living and working on approaches to reducing their energy consumption. Australians will be required to face the 'sacrifice' of some short-term benefits in order to be rewarded with closer international collaboration.

Property rights

At present 'rights' include the 'right' to pollute the environment of others. Is this just? Does Australian environmental law allow a person to visit harm on others? Do we simply decide how much harm we are prepared to tolerate? How is this different from other areas of law? Does it create a 'Tragedy of the Commons' effect that inhibits the adoption of social solutions to the generation of environmental pressures? What kind of policies should be adopted to increase the likelihood of a success?

Legal scholars such as Alexander et al. (2009) argue that property rights are central to the resolution of the challenge of climate change. An exploration is needed of the history of property rights to understand better whether our local and particular notions contribute to the generation of environmental stresses or limit the 'political' options open for their mitigation. We must answer the question posed by Babie (2010): is private property the solution or the source of the problem?

State governments in Australia are generally able to override individual property rights in situations where they use compulsory acquisition powers to purchase property for the 'public good'. Proposed legislative changes in New South Wales also reveal a more malleable conception of property when a developer wants to redevelop a site to higher density, allegedly to make the city more environmentally sustainable.

One aspect of the concept of rights which may prevent individual nations and groups of them from operating collectively to reduce ecosystem stresses is the initiative originating in some of the larger and more powerful nations, for 'Free Trade Agreements'. These have the effect of rendering nugatory a nation's laws designed to reduce environmental stress, on the grounds that such measures restrict property rights. The Australian Law Reform Commission is currently responding to a reference to it to explore the laws that may be seen to encroach on traditional rights vested in property.

Reframing 'progress'

In his Quarterly Essay *Man Made World* Charlton (2011) provides a detailed account of the failure of the 2009 Copenhagen summit and argues that the discussion was framed in terms that forced nations to choose between 'progress and planet'. Charlton, like most proponents of market-based solutions, does not explore what he means by 'progress', although he implicitly accepts 'growth' as a synonym. His dichotomy between 'progress' and 'planet' is based on narrow economic terms and leaves aside issues of democratic self-expression and cultural engagement.

The fundamental physical basis of progress must be recognised – nations have to ensure that their citizens enjoy secure accommodation and a healthy, satisfying diet. Securing such an objective, Smith (2013) might argue, was impossible within the Copenhagen formulation. Lower income countries were being invited to accept the present consumption relativities and their resulting pressure on the planetary ecosystem. The rich developed nations meanwhile were implicitly acting as if the only way they might lower their impact was through improved efficiency in energy production and distribution in order to reduce atmospheric CO₂ emissions: it was as if they assumed a ‘right’ to maintain their level of consumption.

Rich nations appeared to respond to suggestions that they must curb their consumption as if they were being asked to return to a subsistence farming economy. Lower income nations shaped their less than enthusiastic response to rich nation proposals to preserve the planet by assuming they were expected to notionally ‘improve’ their standard of living by curbing their populations. Rather than characterise the response of the poorer nations as essentially being against the planet we would be better rewarded by exploring whether the unequal outcomes of economic activity are themselves a source of environmental pressure, and also by giving recognition to the contribution made to sustainability by poorer countries’ smaller environmental footprint.

Conclusion

Although we are heading toward an abyss, we are still some distance from it. Another opportunity will arise for enlightened public debate on issues of climate change and how it affects the sustainability of our cities in the lead-up to the December 2015 Conference of the Parties (COP) 21 in Paris. The discussions would be enhanced by a review of challenges to the sustainability of specific locations or ecosystems. Such a review of policy/programmes articulated to address local challenges would also explore conditions for their success. It would identify the best ways to educate the public to the consequences of its behaviour.

Scientists and social scientists can no longer skirt around the tough questions. A ‘stocktake’ of the history of Australian development would include a review of patterns of past economic exploitation and spatial distribution of activity. It would contain an identification of past barriers to collective action, and a recognition of the implications of dominant market approaches and reluctance to accept community interests beyond narrow conceptions of property rights and social organisation inherited from the 19th century.

Does Australia have a problem with supporting/developing collective action in approaching problems of sustainability? Are we subjected to policy capture by vested interests that inhibit us from taking appropriate ameliorative actions? Does the problem arise because those who benefit most from the present arrangement of rights and activities feel they have most to lose in any change? If it is true that a majority of the population believe that climate change is ‘real’, is the problem one of communication about action?

There has been a tendency to rely on the use of economic instruments to bring about changes in our approach to the management of the ecosystem stresses we create by our

present consumption. The foremost among the authors of such argument in Australia is undoubtedly Garnaut (2010). The Emissions Trading Scheme (ETS) introduced by the Federal Government in 2012 relied on a market-based approach to reducing atmospheric carbon (CO₂) pollution. Naughten (2011) provides a nuanced study of three such economic approaches, suggesting that they may be a useful first step to re-framing the debate over climate change and how its challenge might be met.

Climate change goes to the heart of the sustainability and continuity of our society. There is a pressing need to now to develop a better translation of the science of climate change into popularly understandable consequences. We need not only explore the distributional issues raised by the impact of climate change on the Australian population but also on other populations. We need to do this to clarify what we mean by 'progress' and how it is to be measured so that we may understand better the balance between 'progress' and 'planet'.

For any optimism about our future, Australians must move beyond our rugged individualistic past to search for a collaborative, cooperative approach to the resolution of the challenges of climate change. We may be able to salvage enough from our way of living and how we approach and value others to construct a new way of respecting and working with them, to avoid the tipping point in the world's ecosystem towards which we are rushing.

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