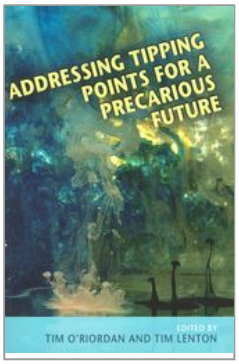

Addressing Tipping Points for a Precarious Future
Timothy O'Riordan and Timothy Lenton

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Some Socio-Economic Thoughts

Paul Ekins

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[−] Abstract and Keywords

Tipping points may be discerned in earth systems and in planetary boundaries, even if the science is still incomplete. But for social systems, tipping points do not seem to appear too clearly, nor is social learning either predictable or active at any particular point of apparent breakdown. In the socio-economic domain, tipping points are a mere intellectual construct, not even a metaphor, indicating only the possibility of disruptive change. And since those who are most likely to lose from such change are in a position to deny or avoid it or just charge through it, then only truly significant disruptions may offer a challenge. One of these might be the breakdown of global economic systems, and another could be the recognition that perverse response to one crisis speeds the onset of the next. There is no clear sense that present arrangements of economies and governments are ready to take the leap.

Keywords: tipping points, socio-economic systems, sustainability politics, economics, robust economic systems, global economic collapse, sequential crises

In Chapter 2.1, Tim Lenton defines a tipping point as a ‘critical threshold at which the future state of a system can be qualitatively altered by a small change in forcing’. I would suggest that this is a definition that works best for natural systems, especially those currently in a broadly stable condition but which could be shifted from that condition by some ‘forcing’ once the tipping point has been reached.

Socio-economic systems seem to be less amenable to tipping point analysis, as I think emerges from much of the sustainability analysis of the last two decades. All readers will be aware of the characterization of sustainable development as having three pillars or dimensions: the environmental, the economic, and the social. My perception is that it has been relatively straightforward to identify sustainability criteria and thresholds for the environmental dimension (even though the overall science remains incomplete), as is shown in Chapter 8.1 in the discussion of planetary boundaries, and these can be quite well represented by the tipping point metaphor. For both the economic and social dimensions, the sustainability criteria are quite well-defined, or at least may be hypothesized, but the threshold values for these criteria

are much more difficult, or even impossible, to establish. This is well illustrated in the ‘social floors’ complement to the planetary boundaries debate.

To take the economic dimension first. In straight economic terms, the idea of sustainability has some fairly well-established principles, such as:

- Borrow systematically only to invest, not to consume;
- Keep money sound: control inflation, public borrowing, trade deficits, indebtedness;
- Establish transparent accounting systems that give realistic asset values;
- Maintain or increase stocks of capital.

(p.189) However, as has become apparent since 2008, every one of these principles has been spectacularly broken over the last few years in both the financial sector and the mainstream money economy. The financial crash of that year could well have been a tipping point. But in fact it is not at all clear that a qualitative change in the global financial system has in fact been brought about by the crash. Rather it could be argued that the financial system has shown astonishing resilience in the face of breathtaking mismanagement, such that huge bonuses in the financial sector are again the order of the day. And there is no shortage of speculation that new asset bubbles are in the making (e.g. in the social networking sector) or have not been fully exploded (e.g. in the housing market). While it may be still too early to make a definitive judgement, I currently do not see the global financial system being fundamentally changed by the social and economic mayhem it has brought about.

In terms of threshold values it is not at all clear what the tipping point values of inflation, public borrowing, trade deficits or indebtedness might be. Clearly a lot depends on size, power and context. For example, any nation whose currency was not the global reserve currency could not run anything like the level of trade deficit of the USA for any length of time without its currency being assigned junk bond status. But the USA persists with both trade and fiscal deficits that seem to defy financial gravity. In contrast, the UK government clearly regards its fiscal deficit (in 2010 of similar per cent of GDP to that of the US) as some kind of potential tipping point. Yet UK personal indebtedness has been allowed to grow to exceed UK GDP, without seemingly anyone perceiving tipping points on the horizon.

Many of the same arguments apply to the social dimension. It is quite easy to identify issues that would seem to be important for social sustainability. For example, there must be limits to the levels of violence, crime and unemployment that any country can experience without social breakdown. But it is not at all clear what those limits are. Nor is it clear how such conditions are related to broader issues like inequality (if at all). The Wilkinson and Pickett (2009) correlations between inequality and various social evils say nothing at all about causation, so that it is not clear how long societies can go on becoming more unequal before they break down: perhaps for ever.

In fact, it is not even clear what ‘social breakdown’ is. Did Iraq experience ‘social breakdown’ following the most recent Iraq War. The tens of thousands of civilians who lost their lives, if they could speak, would **(p.190)** probably say ‘yes’. If they are right, is Iraq still experiencing social breakdown? If not, what would social breakdown have looked like, or when did Iraq stop experiencing it? Or was the Iraq War itself a tipping point that resulted in the qualitative regime change from that of Saddam Hussein to that of, now, Nouri al-Maliki?

In fact, around the world there are societies experiencing momentous qualitative change all the time. Certainly the end of the Cold War was one such change at a global level, but what was the tipping point? Would it be the election of Gorbachev as Russian president, or his announcement of perestroika? And how does one characterize the collapse of the Russian economy that followed its wholesale transfer into the ownership of the oligarchs? What were the tipping points for the recent and current upheavals in North Africa and the Middle East?

Then there is the issue of foresight or prediction. Tipping points in the world of natural science may be identified in principle through models of the relevant system, although in practice the tipping points of interest relate to such complex systems that the models cannot identify them with any degree of precision. This greatly reduces the usefulness of the tipping point concept and presumably is why we continue to refer to tipping points as metaphors. In the social sciences, including economics, the relevant 'laws' that might lead to tipping points are much less well-established, so that socio-economic tipping points are less easy to predict even in principle. Why did the Soviet Union collapse in 1989 and not in 1946? Why was the velvet revolution successful but not the Prague Spring? There are doubtless learned answers to these questions that fill the pages of foreign affairs journals, but they are partial and highly contested. Those who predict these changes tend to predict them far more often than they actually occur (and therefore they are sometimes right but much more often wrong), and they therefore tend not to be believed. E.P. Thompson predicted the end of the Soviet Union in 1985, a good four years before it actually occurred, but he was not believed even by many of those in the anti-nuclear movement from which he came. Those who predicted the financial crash before 2008 were either marginalized in their companies, which could not afford to get off the treadmill while it was turning, or sacked.

This leads me to the conclusion that it is quite impossible to do more than speculate, perhaps through scenarios of how the world's different socio-economies, all now highly connected, would respond were any of the tipping points in the natural world actually to come to pass. The Japanese people seem to have responded to their tsunami tragedy in a spirit **(p.191)** of huge social solidarity and desire for constructive renewal. The associated meltdown at Fukushima has certainly provoked a re-think of nuclear policy in Germany and some other countries, as well of course as in Japan itself (see *The Economist* 2012). But it is doubtful that it will prove a tipping point for the global nuclear industry, or for energy policy, as a whole. Returning to natural (or human-amplified) disasters, their absence from the headlines suggests that the Pakistani people and Queenslanders have reacted in similar vein to the Japanese to their widespread flooding in 2010–11, as Emily Boyd considers in Chapter 7.2. How often would this have to happen before their society broke down or they migrated en masse? And where would they go? And how would they be received?

To take an extreme case, if with global warming of 5ºC or more (above pre-industrial levels), the world will only support 1 billion people because of the ravages of climate change (as a result of a number of tipping points being reached), as John Schellnhuber suggested at the Copenhagen Climate Science meeting before the 2009 UNFCCC Conference,[1] and if this occurs by 2100, which some IPCC emissions scenarios indicate is possible,[2] what would the trajectory of 2050 (with 9 billion people) to 2100 (with 1 billion) look like? Is it possible to say any more than that the trajectory would almost certainly be very unpleasant, even for the 1 billion people who lived through it?

The conclusion of these initial thoughts is that in the socio-economic domain the idea of a tipping point is not even a metaphor, but merely an intellectual construct indicating the increasing likelihood of disruptive change. As such it is able to shed very little light on when the relevant forces will bring about that change or what the outcome of it will be. We are here deep in the territory of unknown unknowns. But humans have to cope with and provide for the unknown as best they can.

The first unknown is the current robustness of the global economic system, both in itself and in the context of economic and environmental challenges in coming decades, whether they be the result of the shift of global economic power to China and Asia more broadly, the demise of the **(p.192)** US dollar as the global currency, or continuing instability in the major oil-producing regions.

Whatever the circumstances, we would undoubtedly do well to observe the basic principles of economic sustainability stated earlier. But the evidence of the last two hundred years suggests that, even if human societies are more inclined to observe them after economic crises such as the world has being going through since 2008, they become increasingly heedless of them once the crisis seems to have passed, thereby precipitating the next crisis. One unanswerable question is whether one such crisis might prove a real tipping point, and actually cause the fundamental structure and nature of the global economy to change from its current basically capitalist and market-driven mode of operation, and whether such a change would be for the better or worse, and for whom.

Specifically in respect of the environment, human societies would be well advised to try to take care to stay within what has been called the planet's 'safe operating space' (Rockstrom *et al*. 2009), as is introduced in Chapter 8.1. But clearly such advice amounts to little more than recommending the avoidance of tipping points. Its importance lies in the counselling of a far more precautionary approach to human economic and other activities than human societies have shown heretofore.

It is far from clear what system of governance of human societies would be likely to develop a more precautionary approach to their use of the natural world and its resources. Certainly the command economy of the former Soviet Union was an unmitigated environmental disaster, while the state-planning of China has also until quite recently paid little attention to the environmental consequences of its economic expansion. There are encouraging signs, however, that this is now changing, with China taking a technological lead in the development and deployment of both solar and wind technologies, but so far this is proving nothing like enough to halt its meteoric rise in carbon emissions.

More market-based governance systems could in principle foster radical environmental conservation through the price mechanism, and there have been many experiments in this direction, ranging from the European Union's Emission Trading System (EU ETS) to the carbon taxes and environmental tax reforms that have been implemented in a number of so far mainly European countries. However, such measures have to date proved impossible to implement at a federal level in the world's largest market-driven economy, the USA, and even in Europe the emissions reductions to which they are leading are not putting the continent on the **(p.193)** required trajectory of an 80 per cent reduction in emissions (from the 1990 level) that is consistent with a majority chance of limiting global warming to 2 ^{o}C. And the first steps at globalizing the EU ETS, in the absence of meaningful global action, by including aviation

emissions within it, are being fiercely resisted, despite the currently very low carbon permit price, by both the market-driven USA and state-led China.

It is clear that a new momentum for collaborative global governance, whatever the national economic dynamics, is required, if the chances of avoiding environmental tipping points, or responding to them constructively, are to be increased. But it is not at all clear where such new momentum is to come from. It was certainly not apparent in the preparations for the Rio+20 Conference in 2012, the danger of which is that rhetoric about 'green growth' will simply translate into the 'business as usual' of economic growth at any environmental cost, which will make the achievement of such growth evermore difficult as the century progresses.

Can a new global alliance between businesses and civil society push the policymakers into an adequate response to these global environmental challenges, so that the institutions that have been established, such as the UN Conventions on Climate Change and Biodiversity, begin to fulfil their potential of keeping humanity within the Earth's 'safe operating space'? The answer to this question is clearly 'yes' in principle. But principle needs to be turned into practice very much sooner than is apparent from current institutional developments.

References

Bibliography references:

The Economist (2012), *Special Report: Nuclear Energy* (*The Economist*, 10 March).

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin III, F.S., Lambin, E.F., *et al*. (2009), 'A Safe Operating Space for Humanity', *Nature*, 461: 472–75.

Wilkinson, R. and Pickett, K. (2009), *The Spirit Level: Why More Equal Societies Almost Always Do Better* (London: Penguin).

Notes:

([1]) Reuters reported the speech by writing 'Professor John Schellnhuber of the Potsdam Institute for Climate Impact Research … said a warming of five degrees would mean the planet could support less than 1 billion people' (see http://in.reuters.com/article/2009/03/12/us-climate-stern-idINTRE52B37Q20090312). Schellnhuber's presentation, showing the world's carrying capacity of humans stabilizing at below 1 billion people is at http://climatecongress.ku.dk/speakers/schellnhuber-plenaryspeaker-12march2009.pdf/.

([2]) See http://www.ipcc.ch/publications_and_data/ar4/wg1/en/tssts-5-2.html.