This Moment: the emergency, the opportunity

by Robert Hutchison

Summary

Time is the scarcest resource in facing up to climate change, which is both a global emergency and historic opportunity. It is an emergency because lives are being lost or destroyed by climate change and we are not on a path to reduce this loss of life.

Unless the global emergency is fully recognised and acted upon, it will become increasingly difficult to take the opportunities arising from the ending of the fossil fuel age. It may still be within humanity's collective capabilities to transform economies so that they work better for everyone, and within the carrying capacity of the planet; to reduce demand for energy while moving to healthier lifestyles; to develop communities and neighbourhoods that are convivial and mutually supportive; and to recognise that, along with the needs for clean water, decent housing, nutrition and education, human well-being is largely a product of building trust, of the quality of our empathy and solidarity and the co-operative use of our imaginative powers.

The author argues that all self-respecting nations, the UK included, should see themselves as leaders towards a net zero carbon world. At present, on climate change, the UK government combines self-congratulation, disavowal, missed opportunities, incoherence and delay.

'*If we actually face up to the fact that our situation is tragic, and ask ourselves what has gone so **deeply** wrong with the character of our present way of living as to have ensured oncoming climate destabilisation and gross ecological damage, we might be able to use the answers in retrieving what we still can'.*

John Foster, **After Sustainability**, 2015

The risks are multiplying

How can we maximise the life chances of current and future generations and minimise the risks of devastating human-induced climate change? The 'framing' of climate change is of fundamental importance, because the emphases, facts and concerns we include in any argument make a real difference to the message conveyed, and to subsequent responses. The way that we think shapes our behaviour; we act through the concepts that shape our understanding. In this paper, climate change is framed as a global emergency and an unprecedented opportunity.

Our species has already transgressed 'planetary boundaries' that form the ecological limits to continuing life-enhancing economic activity [1]. This transgression constitutes an emergency – we can't go on like this - but also an opportunity: to re-think all aspects of 'progress' and modernity, the ethical and political assumptions and economic model on which both materially rich and poverty-stricken societies are based. In developed countries, the task is to think through – and act on - what is needed to move rapidly from Three-or-More Planet Living to One-Planet Living while seeking to improve the well-being of ourselves and other species [2]. What is involved in doing 'whatever it takes' to limit climate change to being devastating for millions of people – from which there is no escape - rather than catastrophic for billions?

The risks to life on earth from rising global temperatures were clear by the time that the Intergovernmental Panel on Climate Change (IPCC) produced its first report in 1990. The United Nations Framework Convention on Climate Change (UNFCCC), to which almost every nation on earth is a signatory, was adopted on 9 May 1992. While its objective is to "stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" [3], the increased occurrence of floods, droughts, hurricanes, and sea level rise grows with every month that passes. Climate change is a great risk multiplier. Because global temperature rise results from cumulative emissions over time, and is therefore quantitatively predictable, arriving quickly at a 'net zero carbon' world is critical to minimising the risks.

The upsurge of economic nationalism and anti-scientific populism have created an unsettling context in which climate change must be thought about and acted on. So while for most people who study the subject, the science of climate change is complex but clear enough not to paralyse us, and the economics of the great energy transformation away from fossil fuels is compelling, the politics remain painfully and perilously difficult: we have the technology of the gods and the politics of narcissistic children. Not much has prepared us for what lies ahead. Human-caused climate change is the global-wide destabilisation that nobody needs and no one intended.

The wholly inadequate 'guardrail'

At climate conferences there is much talk about pathways to achieving 2 degrees Centigrade (2C) or to 'net zero carbon' – that is a balance between human-caused greenhouse gas emissions and their complete removal or sequestration by carbon sinks, whether forests, oceans or new, largely untested, technologies. At the twenty-first Conference of the Parties (COP 21) in Paris in 2015, there was a collective strengthening of commitment, and a new target. The agreement reached at COP21 is that all countries will together aim to limit any temperature increase relative to pre-industrial times to 'well below' 2C and will pursue efforts to limit the temperature increase to 1.5C. For years, Small Island Developing States (SIDS) and other developing countries have argued 'that the so-called ''guardrail'' of 2C is far from safe, and therefore wholly inadequate' and that the Paris Agreement should 'establish medium and long-term emission reduction pathways that are capable of delivering a limitation of temperature increases consistent with a below 1.5-degree temperature goal' [4]. Raising the average temperature of the planet by 1.1C has already caused far more damage than most scientists expected. According to the Hague Institute for Global Justice: 'the number of storms, droughts, and floods has increased threefold over the last thirty years and the effects on vulnerable communities has been devastating, particularly in the developing world. Since 2008, an average of nearly twenty-seven million people have been displaced annually by natural hazard-related disasters. This is the equivalent to one person being displaced every second' [5].

In 2018 the IPCC will be reporting on the impacts of global warming of 1.5C above pre-industrial levels. Most climate scientists accept that restricting average temperature increase to 1.5C is geophysically possible; but the power of vested interests, institutional inertia, cultural resistance and political short-termism are massive obstacles to achieving that target. By the 2040s, at the latest, we should have arrived at or be close to a 'net zero carbon' world. But at the moment there seems only a slither of possibility of achieving such a timetable that, in any case, could prove too leisurely. The modern myth to which most politicians still subscribe – that the biosphere is a repository of resources to fuel endless growth – is extremely hard to dispel.

The possible average global temperature increase of upward of 3C involves a high risk of tipping points beyond which unstoppable effects or changes take place. How small the difference between 1.5 and 3 degrees may seem to be but how gargantuan the probable differences in consequences! A recent projection published by the UK's Committee on

Climate Change suggests that, even assuming flood defences continue to be improved, by 2100, eight times as many people (close to 30 million *every year*) are likely to be affected by coastal flooding by a 3 degrees rise compared with a 1.5 degrees rise [6].

Carbon sinks and feedback loops

The increased dangers of rising average global temperatures result partly from the added uncertainties of feedback loops and what will happen to the great carbon 'sinks' – forests, bogs and oceans. Feedbacks are an important part of the explanation of why changes to the climate could be more sudden and more shocking than was previously thought. The evidence suggests that the average temperatures at both poles are rising significantly faster, around twice as fast, than on the rest of the planet. This gives rise to further dangers – the melting glaciers of Greenland and Antarctica are raising sea levels and the thawing of the Arctic permafrost further amplifies warming [7]. Observations of what is happening in the natural world are running ahead of scientific understanding. Peter Wadhams, Professor of Ocean Physics at Cambridge University, is an exceptionally experienced sea-ice scientist. His observations since 1970 lead him to the view that in the very near future September in the Arctic will be 'ice-free' and this will be followed by 'an ice-free July to November before the 2020s' – with dramatic consequences for global warming [8].

The destruction of tropical forests - home to much of the world's biodiversity and living engines for absorbing and storing carbon - continues apace. It is estimated that 15% of all greenhouse gas emissions are the result of deforestation. According to the Worldwide Fund for Nature, 46-58 thousand square miles of forest are lost each year—equivalent to 48 football fields every minute. The rate of deforestation in Brazil has started increasing again after many years showing reduced rates. And in 2015 the burning of forests and tropical peatlands in Indonesia contributed more greenhouse gases to the atmosphere than most countries generated from fossil fuels [9].

For many years, the oceans have been absorbing more heat. Warmer oceans have less capacity to remove CO2 from the atmosphere, yet still experience ocean acidification. This interferes with calcification in organisms, from coral reefs and shellfish to fish bones. Every major reef in the world has been affected by climate change. Australia's Great Barrier Reef, a beautiful and vastly complicated eco-system, home to 1,625 species of fish and some wonderful animals, is in deep trouble. Once a year, all the corals on this legendary reef get together to reproduce – this is "their annual sex festival", as Chris Jones of the Great Barrier Reef Marine Park Authority puts it. "It's a mass coral spawning event. Sperm and eggs are all released into the water at the same time and they join up." The infant corals, small simple animals that have been around for hundreds of millions of years, then look for an algae-covered surface on which to form a new colony. Corals have symbiotic algae living inside them; when the water heats up they sometimes lose their algae. Their skeletons of calcium carbonate become visible; and it is that process that is called coral bleaching. Higher water temperatures in 2016 caused the worst destruction of corals ever recorded; two-thirds of the corals died in the reef's worst-hit northern section, the ARC Centre of Excellence for Coral Reef Studies report said. Lesley Hughes of Macquarie University writes: "At present rates of climate change, this level of bleaching could occur every two years by the 2030s…The forlorn, diminished state of Australia's greatest natural treasure must continue to serve as a visible warning of what we stand to lose. The new normal is a very sad place to be" [10].

While a certain totemic status has been given to the 2C threshold, there has been much less focus on the profound and immediate changes to the consumption and production of energy needed to achieve the 2C target nor recognition of the risks involved in settling for or organising around that target. Professor Kevin Anderson, Deputy Director of the Tyndall Centre for Climate Change Research, has argued that 'the complete set of 400 IPCC scenarios for a 50% or better chance of meeting the 2C target work on the basis of either

an ability to change the past, or the successful and large-scale uptake of Negative Emissions Technologies (NETs)' [11].

Uncertain NETs

NETs, which have the potential to remove carbon dioxide from the atmosphere, include afforestation, making biochar, bioenergy with carbon capture and storage (BECCS), direct air capture (DAC), and ways of increasing oceanic absorption of carbon dioxide. NETs may help to provide more time to reduce emissions, but a report on NETs from the University of Oxford concluded that 'cumulative negative emissions potential between now and 2100 is very poorly understood. The long-term performance, costs, feasibility, and impacts of large-scale deployment of the technologies that provide the bulk of post-2050 potential – BECCS, DAC, and Ocean Liming – are highly uncertain, and the wider social, political, environmental, and economic context in which they would be deployed are also well beyond our ability to predict accurately…It would be hard to argue that resorting to highly uncertain NETs prior to undertaking a variety of mitigation options is an economically or socially desirable course of action…Attaining negative emissions is in no sense an easier option than reducing current emissions'[12]. Largely unforeseeable technological innovation and change may be of peculiar importance in the decades ahead; and the technical challenges of deploying one or more NETs at the scale required may or may not be insurmountable. To stabilise the climate there is an urgent need to take carbon dioxide out of the atmosphere and more understanding is needed of how best this might be done. But it would not be prudent to rely on a major geoengineering breakthrough coming to our rescue any more than it would be wise to expect a divine solution to our plight.

The global carbon budget

In all the debates about climate change, the most important number is the global carbon budget – the remaining weight of greenhouse gases that collectively expert opinion deems it to be reasonably safe to emit. Depending on the 'acceptable' level of risk involved, this is variously estimated. But, whatever the precise parameters, the remaining budget is surprisingly limited, and shrinking remorselessly every day [13]. Emissions are closely correlated with levels of wealth and income. Globally, if the richest ten percent of individuals were to change their lifestyles so as to reduce their emissions by half that would save about a quarter of all emissions by individuals or 16 per cent of global emissions [14]. The principal causes of anthropogenic climate change are political choices about energy policy and high consumption in developed countries. In addition, rapid population growth considerably heightens human vulnerability to climate change: it puts increasing pressure on natural resources and weak infrastructures and, consequently, the ability to adapt to the effects of climate change. Currently there is little or no pressure on the wealthiest to change their habits, and they are munching through the carbon budget with little or no regard for the future.

Disavowal in the face of emergency

At the 1991 conference of the European Greens in Zurich, a year before the adoption of the UNFCCC, Jakob von Uexküll, who had served as a Green MEP and was later to be a co-founder of the World Future Council, said: 'Today, the only serious response to the crisis we are facing is a state of global emergency' [15]. Twenty-six years later the situation is far more acute. Climate change is an emergency because it is 'a serious, unexpected, and often dangerous situation requiring immediate action'. Global warming can't be stopped; but it still might be possible to prevent complete or extreme catastrophes. The emergency arises because the current level of risk of runaway climate change would not be acceptable to parents whose baby might be snatched from its buggy in a crowded shopping area if they turned their back for a few minutes, nor to freshly boarded airline passengers told about the

possibility of extreme turbulence at the end of their flight. It is an emergency because lives are being lost or destroyed by climate change and we are not on a path to reduce this loss of life. It is a prolonged emergency because stabilising the climate, which responds in decades or even centuries, is a task for generations. But time is now the scarcest resource in facing up to climate change. The tens of thousands of people living on low-lying states, including Pacific islands like Kiribati, Tuvalu and the Marshall Islands, are painfully aware that, within a few decades, their homes, livelihoods and communities may disappear for ever under the sea. No financial compensation is adequate for the loss of a unique cultural heritage.

Human rights are important only if there are human beings to enjoy them. Most people born before 1930 didn't know that their emissions were causing a problem; those of us alive now can only pretend that we don't know. It is a form of denial referred to by psychotherapists like Rosemary Randall as disavowal. 'Its most common form is not the outright "black-is-white" argument of the denialist industry but the common capacity to keep the awkward knowledge split off in one part of the mind so that ''life as usual'' can go on…. People know and don't know simultaneously. Uncomfortable knowledge is shelved…Loss doesn't have to be faced' [16]. In other words, we acknowledge the facts as true, but behave as though they are not But climate change is not just an emergency to which few people give any consistent attention. It is also an emergency about which governments, persisting with pumping billions of subsidies into the fossil fuel industries rather than into the 'insurgent' renewables companies, speak with forked tongues. It is sobering to reflect that, for all its recent follies, the British government is still widely regarded as a leader on climate change. At the end of the 2015 Paris climate change negotiations, David Cameron said 'this generation has taken vital steps to ensure that our children and grandchildren will see that we did our duty in securing the future of our planet' [17]. The Paris Agreement embodied important steps forward; but, as so often, the former Prime Minister was thinking aloud wishfully. We are nowhere near securing the future of our planet for our children and grandchildren. 'Our duty' remains to be done. 'Political language' as George Orwell said, 'is designed to make lies sound truthful and murder respectable'.

The historical moment in which the oil and gas industries were the most powerful economic sector in human history is rapidly passing. But the fossil fuel industries are playing for time, even if that means chaos and destruction for coming generations. And so deep is the imbrication of interests between governments and the 'carbon majors' that it is hard to see governments in industrialised countries calling climate change a global emergency any time soon. Yet a global emergency, and a global opportunity, is what it is; and it should be named as such. How many more times do we have to read that the window for action is closing fast? 46% of the world's population depend for their livelihoods upon rivers originating in Tibet and the Himalayas including the Indus, Ganges, Brahmaputra, Irrawaddy, and Mekongcheck. In south and south-east Asia climate change is likely to increase the flood risk during seasons of high precipitation, and to increase water shortage, as melting glaciers are under-replenished, in other seasons. Such dangers and tensions are exacerbated by increasing industrialisation and rapid population growth. Growing security risks – often involving issues of water and food security – can be identified in every continent [18].

In 2014 the British Medical Association called on the World Health Organization (WHO) to declare climate change a public health emergency [19]. But while an increasing number of climate scientists, including those who are particularly protective of their independence from political involvement, describe climate change as a global emergency [20], few elected politicians are similarly direct. Most UK Members of Parliament, and most of the media, accept that climate change is 'real' and, in part at least, human-caused. But they tend to reinforce the culture of disavowal - treating climate change as just one 'story' among many, and moving on, as flittingly as possible, to the next news [21]. A fully informed, publicly debated understanding of the risks being taken with human-caused climate change is being

sacrificed on the altar of political palatability. Focussing steadily, and with integrity, on the profound implications of current threats to life-support systems, calls for facing down vested interests, re-thinking the very basis of the economic system, and fundamental re-prioritisation of policies, timetables and budgets.

Greater candour is also needed about the built-in conservatism and inertia of international negotiations. The Intergovernmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC) are remarkable creations – testifying to the complementary centrality of scientific understanding and skilful diplomacy to human wellbeing. But the world is not on a path to a safe climate, because the voluntary pledges of nearly 200 governments that are at the heart of the Paris Agreement are nowhere near to being appropriately ambitious, and some will probably be broken anyway. A report in March 2017 from Carbon Market Watch found that only three countries in Europe are pushing 'in the right direction to deliver on the Paris climate agreement. Sweden tops the list, followed by Germany and France' [22]. There is no agreed global pathway for keeping average temperature rise to below 2C.

Collective delusion and fossil fuel subsidies

Governments in the developed world collude in delusion. None tells their electors that the current price of carbon is far too weak sufficiently to reduce emissions to avoid dangerous climate change. Nor do they encourage comfortably-off citizens seriously to reduce their carbon footprints, or consistently point out that early action on climate change will be much less costly than delayed action. The reverse is happening: the emergency – the need for urgent action now – is compounded by the madness at the heart of governments and major financial institutions. In 2013 the report ***Unburnable Carbon: wasted capital and stranded assets*** showed that stock markets worldwide are putting a value on fossil fuel reserves *as if they will all be burned*, even though, at most, only 31% of these reserves can ever be used if we are to have an 80% chance of keeping below a 2C average temperature rise. For a 50% chance of 2C or less, just 38% could be burned [23]. While the different fuels call for different policies to increase the chances of a smooth and just transition to a zero carbon world, every G20 country provides subsidies for exploration for, and production of, more fossil fuels - either in the form of investment by state-owned enterprises, or public finance, tax breaks and direct spending [24].

Responsible government is not necessarily a contradiction in terms. To carry weight and credibility any 'emergency' declaration must be backed by more ambitious and immediate targets for reductions in greenhouse gases, acknowledging that there is a highly constrained global carbon budget and that the realities of human interdependence and social justice indicate that most of this budget should be allocated to less developed countries. Ending fossil fuel subsidies, the low-hanging but prickly fruit of climate change economics, must be a top priority. And every level and department of government, every business, organisation and citizen, needs to be more fully engaged in assisting the transformation of energy, water, food and transport systems to create sustainable 'net zero carbon' societies.

The limits of our language are the limits of our world. There is no single explanation of a complex reality nor is there one answer to its problems. Climate change is a continuum, not a binary choice. Every fraction of a degree adds to the risk; a 1.7C rise is better than a 1.8C rise. The need is to place climate risk front and centre of governments' concerns and to accelerate effective action. An emergency declaration from a group of 'high ambition' countries would send a powerful signal. The search for agreement on how billions of us can live well on one-planet in the decades and centuries ahead needs to intensify. And that search must be conducted in the light of insights like those of the Dark Mountain Project that 'today, humanity is up to its neck in denial about what it has built, what it has become, and

what it is in for. Ecological and economic collapse unfold before us and, if we acknowledge them at all, we act as if this were a temporary problem, a technical glitch. Centuries of hubris block our ears like wax plugs [25]'.

Unique opportunities

Climate change demands that we think big, and re-think radically, in the direction of more stable-state economies and distributed technologies – the 'joy of enough', not unachievable endless growth. For those who are listening, enlightened leadership will emphasise the unique opportunities of this historic moment. This is the time to recognise that 'our attempt to separate ourselves from ''nature'' has been a grim failure' [26], to underscore the life-enhancing importance of investing in public services and the public realm, to re-think what education is really for, to mainstream the thinking of E.F.Schumacher and raise fundamental questions about how best to transform technological 'instruments of domination and social antagonism' into 'instruments of liberation and social harmonisation' [27], to re-organise work to provide a living wage for all while reducing the working week, to overcome the disastrous disconnect between mainstream economics and full attention to climate change mitigation, to devolve power and resources so that people have more say in the decisions that most concern them, and to build stronger international institutions and agreements, even while, in the UK, we have to face up to the demands and distractions of the vote for Brexit. Whether we like it or not, we are all citizens of the world, and, as Ralf Dahrendorf put it in 1974, 'boredom with international affairs is in effect boredom with survival, and men may unfortunately die because they were too bored to bother about their lives' [28]. All self-respecting nations, the UK included, should see themselves as leaders towards a net zero carbon world. At present, on climate change, the UK government combines self-congratulation, disavowal, missed opportunities, incoherence and delay.

The transformation – from unsustainable, centralised, consumerist, fossil fuel based societies to decentralised 'one-planet living'– will be a transformation in values, beliefs, technologies, behaviour, policies, and, above all, economic and political power. The relationship between values, beliefs and power is complex, and usefully explored in another Green House publication [29]. There is much evidence that people with stronger intrinsic values – including greater orientation to the quality of relationships and community involvement – tend to be more contented and fulfilled than those prioritising more extrinsic considerations: acquisition of material goods, financial success, image or social recognition. But it is mainly those with the latter values who occupy positions of power. Clarity about values and beliefs, particularly beliefs about the social and political order, about the limits of market-based solutions, and about the relations between policies and outcomes, is of fundamental importance to the future of politics; but, as Rupert Read has argued, 'we need to pioneer a renewed sense of shared responsibility for the future. We need to *lead*….we make the future together (albeit not under conditions of our own choosing)'[30].

October 2016 was the tenth anniversary of the publication of ***The Economics of Climate Change – The Stern Review.*** [31] While there is much to challenge and question in the report's assumptions about economic growth [32], Stern helped set in motion the virtuous circle whereby enlightened public policies on energy and economic development can lead to accelerated and positive technological advances, which in turn can feed back to more enlightened policies. As the Governor of the Bank of England, Mark Carney, has put it: 'The more we invest with foresight, the less we will regret with hindsight'. [33] The virtuous circle is yet to be embedded in most countries, but the story of solar photovoltaics (PV) is one example of how it can work in practice. Germany initiated the first substantial national market for solar power by setting targets and introducing Feed-in Tariffs. This created opportunities at scale for the PV solar industry, and other countries – notably China - joined in. Unit costs came down quickly and much of the production shifted to China. Between 1990 and 2014 there was an approximately twelve-fold reduction in solar PV costs and the revolution was well under way. Wind and solar power are now mature

industries, but, like other renewable energy technologies, will not reach their full potential through market forces alone. Entrepreneurial states sharing the financial risks must help lead the way.

The synergies needed to achieve 'net zero carbon' societies and one-planet living will stem from innovations in economic life, technologies, urban planning, politics and lifestyles. The Venezuelan scholar Carlota Perez argues that it is the potential of information and communication technologies (ICT) to generate a 'techno-economic paradigm shift' across the *whole* economy that makes them truly revolutionary, resulting in a transformation in ways of working and consuming, changing lifestyles and aspirations across society: 'the ICT revolution has the capacity to facilitate wide-ranging sustainable innovations radically to reduce materials and energy consumption while stimulating the economy' [34].

New ways of meeting continuing needs can be introduced remarkably quickly. In 1900 there wasn't a motor-car on the streets of New York; by 1913 few horse-drawn carriages remained, and the city's streets were full of cars. In the second decade of the twenty-first century, more and more forms of energy use – including surface transport and heating – are making use of low carbon electricity. And the ubiquitous use of electricity as a power source will allow for greater synergies with the rapidly emerging digital economy. At the same time, the impersonal technological direction of our society is worsening, the colonisation of everyday life by information processing is accelerating, and the concentrated power of information technology poses increasing threats to democracy and civil liberties. As Jerome Lanier has put it: 'The primary business of digital networking has come to be the creation of ultrasecret mega-dossiers about what others are doing, and using this information to concentrate money and power' [35]. In an age when 'the rush to connect everything to the web has overcome our society like a disease' [36], it is essential to challenge and question whose interests are served and who is in control of each new technological development; and to ensure that innovation is carefully targeted to promote lasting prosperity: that is better services compatible with 'net zero carbon' living. .

Multiple transformations

Though it would be a massive missed opportunity – indeed the height of folly in an increasingly urbanised planet – to replace the more than a billion fossil-fuelled cars in the world with a similar number of electric ones, Norway has pledged to ban petrol-powered cars by 2025 and the governments of Germany and India have announced that by 2030 all new cars registered in their countries must be electric vehicles. Another sign of the coming global transformation is that 2015 saw the largest annual increase ever in the supply of renewable energy. On some days in May 2016 the entire electricity needs of Portugal were met by a combination of wind, solar and hydropower [37]. More than eight million people are now employed in the clean-energy industries - 3.5 million of them in China. In the US, more people now work in the solar industry than in oil and gas extraction [38]. The explosive growth of solar PV is being followed by rapid developments in battery storage, a technology getting more competitive every year.

Entrepreneurial states, technological innovation, particularly to facilitate the spread of distributed renewable energy systems, and major devolution of power are necessary but far from sufficient conditions for giving reality to life-enhancing economics and the stable-state economies that must characterise the age of human-induced climate change.

The many forms of capitalism – the dominant economic paradigm – are inherently expansionist and exploitative of humans and the rest of the natural world. So the necessary transformation to steady-state economies – in which throughputs are limited in scale so as to be within the regenerative and assimilative capacities of the eco-system –

involves confronting the power of capital, and mitigating and distributing that power through more diverse, co-operative and distributed patterns of accountability, ownership, and control. This is the hard politics of the environment. The challenge also involves showing 'how you can provide public services that keep us safe and cared for, and keep control of the public debt, without economic growth' and 'how a steady-state economy need not result in a society in a kind of stasis or in permanent retreat from values such as innovation, vibrancy, dynamism and pluralism' [39]. However daunting, these 'big picture' political issues cannot be ducked.

Another of the most demanding, if exciting, of the multiple transformations of the coming decades is in the re-imagining, building and re-building of well-designed, productive, liveable, resilient, 'net zero carbon' cities. There are major governance issues here. While 'only the authority of central government can reform the taxation and ownership of land' [40], small city bio-regions, with enhanced powers and resources, could provide the best democratic framework for the coming urban and rural transformation. The road to devolution is also the road to low and zero carbon living.

The global crisis of climate change is ethical, spiritual and social, as well as political and economic. Excessive consumerism, all forms of fossil-fuelled transport, particularly flying, and other behaviour patterns that contribute egregiously to global warming, are ethical issues, not just life-style choices. Reducing demand for energy-intensive goods and activities, taxation and regulation, higher-density living, peer group and neighbourhood pressure all have a part to play in the fundamental lifestyle changes needed. In his book about climate change, hope and the human condition, ***Hell and High Water***, Alastair McIntosh points to the importance of the inner life and argues that climate change is fundamentally a spiritual issue – that the urge to excessive consumerism is symptomatic of an inner emptiness and that the only lasting solution is for 'the free and the wise' to 'speak truth that cuts sharper than the sword' and to let in the flood 'of passion, of empathy, of beauty and authenticity. Indeed of the human condition as it could potentially be' [41].

John Foster has argued that denial isn't just something that the bad guys do, that it 'is very firmly embedded in the thought and practice of those trying to save us'. He has also demonstrated that the dominant orthodoxies of sustainable development thinking are a 'mirage' of moveable targets and actions that will always fall short of what is really needed. ***The Sustainability Mirage*** and ***After Sustainability*** are not just a highly effective shot across the bows of much glib environmentalism, but essential, difficult and chilling contributions to the most serious current political debate [42]. Is it too late to replace 'the politics of never getting there' with the politics of 'whatever it takes'?

Foster's concept of 'deep sustainability' encourages a focus on the needs of the present, rather than slippery obligations to the future. And as Tim Jackson has underlined: 'A meaningful approach to prosperity must certainly address the plight of more than 3 billion people across the world still living on less than $5 a day' [43]. But there are immediate and substantial benefits to moving rapidly to a low carbon world, including new jobs, stronger communities, improved health and less air pollution, the latter currently responsible for more than 5.5 million premature deaths each year [44].

It may still be within humanity's collective capabilities to build economies that work better for everyone, and within the carrying capacity of the planet; to build communities and neighbourhoods that are convivial and mutually supportive; to insulate buildings so that less or no energy is needed to keep warm; to change our diets, including eating far fewer ruminants, thereby greatly reducing emissions from agriculture; to recognise that, along with the needs for clean water, decent housing, nutrition, health and education, human wellbeing is largely a product of building trust, of the quality of our empathy and solidarity and the co-

operative use of our imaginative powers. But none of this will happen as long as the populist soundbites of the Regressive Alliance (xenophobic, nationalist, small state, careless and cavalier with scientific understanding and enlightenment values) prevail over the forces of any Progressive Alliance working for fairer, greener, more open, equal and socially just societies. The contest of ideas and the nature of the competition and co-operation between political parties and networks are for extremely high stakes. .

Both emergency and opportunity

Climate change is both an emergency and an opportunity. Unless the global emergency is fully recognised and acted upon, it will become increasingly difficult to take the opportunities that arise with the ending of the fossil fuel age; unless we create genuinely sustainable cities and communities within the next two or three decades, the global emergency will deepen, with an increase in suffering for billions of innocent people, including many as yet unborn. However bumpy, shock-ridden and difficult the journey, it is a shared human responsibility to do our utmost to ensure that the transformation out of the fossil fuel, growth-obsessed age into the age of one-planet living is carried through as smoothly, rapidly and justly as possible.

The politics of 'whatever it takes' is the imperative of our time, the supreme test of humanity's wisdom, courage and ability to collaborate effectively. Trust, transparency, leadership and empowerment are of the essence. If we are to get through to a safer world in the next two or three decades, and nobody should underestimate the scale of that task, it will be essential to re-build trust in democratic political processes and create a confident international and inter-generational movement of full eco-citizens forthright in exerting their power and sufficiently bound together by a common aim. What happens in India and China will be of fundamental importance and have profound influence. So will legal action for negligence, loss and damage. In the developed capitalist economies, the power of ideas about a better ordering of our lives is pitched against the power of vested interests, xenophobia, and the three policy pillars of the neoliberal age – privatisation of the public sphere, deregulation of the corporate sector, and the lowering of income and corporate taxes, paid for with cuts to public spending. The 'just transformation' to one-planet living requires more equal societies, because 'more equal societies are not only better for the poor and vulnerable ...but for everyone else too', and also 'the immediate defence and expansion of the public sphere and the public realm', which form the social glue of societies and express our common-wealth [45].

There is no short cut to building a strong and sufficiently united movement for transformation – and precious little time in which to do it. Much greater collaboration between those who share broad objectives, appreciate the gravity of the climate crisis, and recognise the inadequacy of relying largely on market-based solutions, is an essential start. As Victor Anderson has pointed out, 'major social change is rarely brought about by people pushing for the same thing for the same reason…most successful campaigns are often those which unite people with a single aim, but who have very different reasons for trying to achieve it, based on different beliefs and different values'[46]. If the twentieth was a century of two halves – global industrial wars in the first half and extraordinarily rising population numbers and living standards in the second – the twenty-first will be the century in which human empathy and ingenuity, plus whatever shards of wisdom can be cobbled together, are pitted against one goddam distraction after another. Fortunately, empathy is not a finite resource; the hidden wealth of nations and peoples lies in our capacity for trust, caring and co-operation.

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