

A geography of hope

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ABSTRACT: This article is based on the author's keynote lecture at the Geographical Association's 2013 Conference on 'Looking to the Future'. It raises crucial questions about the future that learners are currently being prepared for. The author argues that geographers in school and teacher education need to become more knowledgeable about climate change, peak oil and the limits to growth, because such issues promise to create a future very different from today. The importance of each issue is set out with ideas on how that area of futures geography might be approached in the classroom. The article also draws attention to the need for teaching approaches that can help learners face such hazards in a spirit of optimism and hope. Finally, it is argued that schools should now be exploring the nature of a post-carbon geography.

Introduction

As a young geography teacher in the 1970s I watched a television documentary entitled 'Due to lack of interest, tomorrow has been cancelled' (BBC, 1971) which highlighted the key environmental concerns at that time. As far as I was concerned, this was not something that I wished to see happen. Consequently, I made sure that my own teaching helped young people to understand local/global issues and their possible impact on the future (Hicks, 2007). Since issues such as climate change, fossil fuel use and limits to growth can be daunting to deal with, I also have an interest in how teachers and learners can stay optimistic and hopeful in such difficult times.

Global warnings

In a newspaper interview, Professor John Beddington (until recently the UK Government's Chief Scientific Adviser) warned that there may be trouble ahead and cautions that:

'A "perfect storm" of food shortage, scarce water and insufficient energy resources threatens to unleash public unrest, cross-border conflicts and mass migration as people flee the worst affected regions... "We head into a perfect storm in 2030, because all these things are operating on the same time frame"' (Sample, 2009).

Beddington and many other authorities represent a growing body of opinion which highlights a range of serious problems lying ahead – issues that geography educators need to know about, become expert on and include in their teaching. In this article I focus particularly on the challenges of climate change, fossil fuel use and the ecological limits to growth, asking: 'What role does geography play in helping young people think critically and creatively about such issues?'

Changing climate

In the debate about global warming and climate change it is important for teachers to distinguish between what is scientifically known and what has yet to be clarified. A special issue of *New Scientist* (Le Page, 2011) made the following distinctions. We know that: (a) greenhouse gases are warming the planet; (b) other pollutants are cooling the planet; (c) the planet is going to get a lot hotter; (d) sea level is going to rise many metres; and (e) there will be more floods and droughts. What still needs clarifying is: (i) how far greenhouse gas levels will rise; (ii) how great the cooling effects are; (iii) exactly how much hotter things will get; (iv) how the climate will change in specific regions; (v) how quickly sea level will rise; (vi) how serious a threat global warming is to life; and, (vii) if and when tipping points will be reached. It is also recognised that such changes are anthropogenic in nature, the result of human activity over the last 200 years, in particular through the excessive use of fossil fuels during the twentieth century.

It is important also for teachers to understand the

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nature and origins of climate change scepticism and denial which has cast a long shadow over what should or should not be taught in the classroom. Thus investigations by writers, such as Pearce in *The Climate Files* (2010), show that there was no conspiracy by scientists to fabricate global warming data which sceptics had accused them of. Furthermore, research by Oreskes and Conway, set out in *Merchants of Doubt* (2010), reveals a long history of such scepticism and denial, stretching back to issues such as smoking and cancer, acid rain, the ozone hole and, more recently, denial of global warming. These attacks, Oreskes and Conway (2009) found, were not part of a search for scientific truth or debate, but originate from a small group (based mostly in the USA), which have constantly opposed any kind of research that they feel will threaten free market principles. Such activity it turns out is often underwritten by fossil fuel companies and right-wing billionaires (Goldenberg, 2013).

In the classroom, the time for debates about whether climate change is actually occurring or not is long past. Students need to know about weather and climate but they also need to know how and why it is changing and the possible implications of this for their communities. With extreme weather conditions becoming the new norm (Marshall and Reardon, 2013) there is no room for geography to operate merely as an academic subject. Young people are concerned about their future and geography has a duty to demonstrate its role in developing a sense of ecological citizenship. In broad terms, the twin climate change tasks for society and schools are those of mitigation and adaptation. Learning how they can contribute to positive change, and seeing how others are doing so, helps students develop a sense of agency and optimism about the future (Selby and Kagawa,

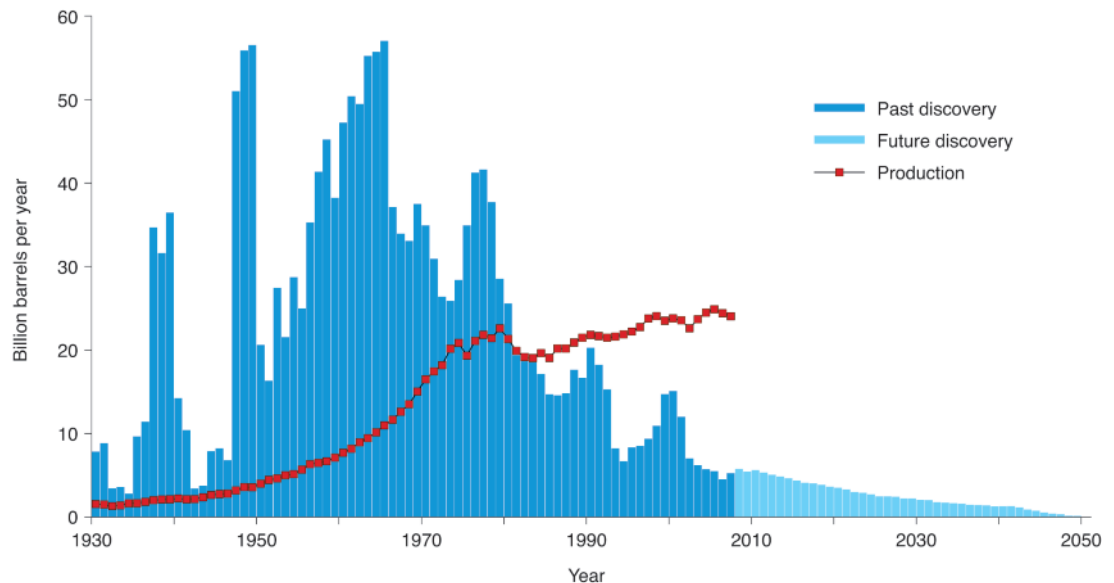
2013). Here, one has to wonder at the political reasoning for removing references to sustainability and climate change in draft curriculum documents for the under-14s (Jowitt, 2013).

The Ashden Awards (2013) for renewable energy initiatives provide inspiring examples of climate change mitigation. The school awards draw attention to institutions where staff and pupils have committed themselves to reforming every aspect of energy use. Ashden also runs a programme of support for schools wishing to decrease their carbon footprint. Adaptation is an exciting and challenging issue because it asks the question: 'How does life need to change so that we can more competently manage the extremes of weather that we are now facing?', which leads in turn to further questioning: 'What will be the impact on buildings, agriculture, transport and environment?' and 'How do these activities need to adapt in order to be better prepared for floods, drought and unseasonal weather?' These are immediate challenges that need creative and innovative geographical responses, not least because young people's futures are at stake (Urry, 2011).

Peak oil

While my recent search for 'peak oil' on a geographical website only came up with 'Peak District', geographers are now beginning to explore this issue (*Geoforum*, 2010). I suspect, however, that the notion of peak oil has largely yet to enter the school curriculum because it is deemed too contentious or novel to be taken seriously. Figure 1 graphically demonstrates that discovery of oil peaked in the late 1960s and has been on a significant downward curve for the last 40 years. It is generally reckoned that there are no further giant oil fields left to be discovered. Understandably, production of oil lags behind

Figure 1: The end of easy oil: discovery and production from 1930 to 2050. Notes: Revisions have been backdated, and figures are rounded with 3-year moving average. Source: ASPO, 2008.



discovery, but as Figure 1 indicates, from the 1980s onwards this has begun to plateau. Various bodies – from the International Energy Authority to the UK Energy Research Council (Guardian, 2009; McAlister, 2009) – have consequently observed that there may be oil shortages and volatile prices ahead. It is argued, therefore, that oil production may already have peaked or is likely to do so in the near future. The end of what might be called ‘easy oil’ is near. While new but smaller sources of oil are being found they are often also problematic for a number of reasons, including location – the deposits are in ecologically sensitive areas (such as the Arctic); the extraction of oil from these places causes social and environmental disruption (as is the case with hydraulic fracturing); and/or the crude oil is more expensive to extract due to practical difficulties (as in deep water drilling) (Urry, 2013).

Oil matters because it has been the lifeblood of human progress and expansion, both as a cheap and easily-available fuel and for its many other uses in fertilisers and chemicals, plastics and other materials. This is why the end of easy oil could mark a difficult energy and materials transition ahead. Already there are difficulties ahead because the continued burning of oil, as well as coal and gas, will contribute to greater global warming. The stark truth, as Berners-Lee and Clark (2013) argue, is that most of the (as yet untapped) fossil fuels need to be left in the ground. Elliot and Urry highlight the dilemma thus:

‘In the twentieth century, powerful, high-carbon, path-dependent systems were set in place, locked in through various economic and social institutions. And as the century unfolded, these lock-ins meant that the world came to be left with a high and unsustainable carbon legacy’ (2010, p. 132).

Because this legacy is patently unsustainable, society urgently needs to shift towards a low, zero or post-carbon future in the face of climate change and peak oil.

Geography, along with science, has a key role to play in exploring the nature of current and future energy issues (Buchan, 2010). Young people need to understand where their energy comes from, the many uses to which it is put and its variable impact on the environment. They need, in particular, to understand the advantages and disadvantages of different energy sources. The main fossil fuels – coal, oil and gas – must now be seen as highly problematic given their carbon footprint. Whilst nuclear energy produces no CO₂ emissions, it leaves a dangerous legacy of

radioactive waste for future generations to deal with. Only renewable sources of energy – solar, wind, water and biomass – are zero carbon (Kemp and Wexler, 2010). Examples of each of these should be explored and visited so that young people can understand the exciting nature of the energy shift that is beginning to occur.

Limits to growth

Forty years ago the original *Limits to Growth* report (Meadows *et al.*, 1972) was published; it was the first global computer model to explore possible future impacts of the then current trends. *Limits to Growth* plotted the likely interactions of accelerating industrialisation, rising population growth, widespread malnutrition, depletion of non-renewable resources and environmental damage. No matter how each trend was changed, the resulting scenarios led first to unchecked growth and, subsequently, to overshoot and collapse in the twenty-first century. Much of the criticism that followed the model’s release came from those who believed technology and resource economics would always overcome any possible ecological limits to growth. More than 20 years later, updated work by the authors using more powerful computer modelling confirmed the need for society to move rapidly towards a more sustainable path (Meadows *et al.*, 2005). Part of the crux here is that whilst environmentalists and others highlight the ecological limits to growth, capitalist economists argue that resource economics and new technologies can always overcome such limits.

Global-systems pioneer Randers (2013), one of the authors of the original report, has drawn on the work of leading scientists, economists, futurists and others, to analyse what the next 40 years may bring. Due to climate change, energy issues, the limits to growth and other related concerns, things do not look too good. The transition to a sustainable future, Randers writes, will require:

‘fundamental change to a number of the systems that govern current world developments. Not only will the energy system need to change from fossil fuel to solar, and the ruling paradigm from perpetual physical growth to some form of stability that fits within the carrying capacity of the globe, but there will also need to be changes to the softer institutional guides like capitalism, democracy, agreed power sharing, and the human perspective on nature’ (2013, p. 13).

One way to measure human impact on the planet is through the notion of an ecological footprint (see Global Footprint Network website). This considers all the natural resources taken from the planet and

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all the consequent waste put back into the biosphere. For the biosphere (our planetary life-support system) to function effectively, our collective footprint needs to match what the restorative systems of planet Earth can handle. The Global Footprints Network has calculated we are now using the Earth's resources at a rate that would take between 1.3 and 1.5 planets to sustainably support. A graphic illustration here is the concept of 'Earth Overshoot Day', i.e. the approximate date each year on which human demand exceeds the planet's ability to replenish. In 2003 Earth Overshoot Day fell on 21 October, in 2011 on 27 September but by 2013 it was 20 August (New Economics Foundation, 2013). The deficit each year is made up by unsustainable depletion of fisheries, forests and minerals and CO₂ emissions. Geographers should therefore be measuring the global footprint of their schools, and a useful activity for beginning to engage with this is 'Treading lightly on the planet' from Education Scotland (2013).

unfettered markets, disdain for the public sector, the delusion of endless growth' (2010, pp. 1–2).

This corrosive phase of neoliberal economics has served to heighten the hazards and dangers that lie ahead (Gray, 2009), and is why a growing number of commentators argue that we are now facing a long and difficult social, economic and environmental transition (see, for example, Heinberg and Lerch, 2010; Brown, 2011; Randers, 2013). In essence, this is a future for which much of society is unprepared and thus there is an urgent need for geography educators to explore these matters in more detail. In his reflections on this shift, Orr (2009) argues that we have been on a collision course with the limits of the Earth for the last two centuries; that the impact of climate change will be far more difficult than we have been led to believe; that severe social, economic and political traumas lie ahead; and that the multifaceted problems of sustainability will not be solved by this generation or the next. Are Orr's reflections alarmist or should geographers hold these as possible, or even probable, truths?

Facing the future

Collision course

Climate change, fossil fuel use and limits to growth are each major problems in their own right but they are also closely interrelated. The exciting 'progress', for some, of the last two centuries has brought society to a dangerous impasse. The probable future is not the one we thought we were creating, as Judt observes:

'Something is profoundly wrong with the way we live today. Much of what appears to be "natural" ... dates from the 1980s: the obsession with wealth creation, the cult of privatisation and the private sector, the growing disparities of rich and poor. And above all, the rhetoric which accompanies these: uncritical admiration for

Alternative futures

Futurists and others often use scenarios to prompt discussion and debate about possible alternative futures. Scenarios can be brief or they can be lengthy and aim to highlight contrasting views of the future which embody different values and outcomes. Scenarios can profitably be used in the classroom to explore both probable and preferable futures (Hicks, 2012). In his thoughtful exploration of climate change, the sociologist Urry (2013) has set out four possible scenarios for the middle years of the twenty-first century. Geographers should now also be using such tools to explore the possible territory that lies ahead. Figure 2 shows four post-carbon scenarios that teachers can use with students.

Figure 2: Four possible post-carbon scenarios.

Business as usual

Continued economic growth is seen as the best way forward with the emphasis on continued use of fossil fuels. Society is consequently unprepared for the effects of global warming and energy descent.

Techno-stability

Move towards a low carbon society encouraged by significant expansion of green technologies in all areas of life. This technological solution largely ignores the limits to growth.

Energy crash

No clear lead given over climate change or a move away from fossil fuels. The effects of climate change escalate. Power black-outs become increasingly common. Serious fragmentation of society occurs.

Sustainable transition

All sectors work towards the creation of a more resilient society based on effective climate change mitigation and adaptation and renewable sources of energy. Society begins living within the ecological limits to growth.

More detailed versions of the post-carbon scenarios shown in Figure 2 can be found in Hicks (2014), and older students could be asked to expand on what are essentially brief glimpses into possible futures. Discussion questions can include:

- What would need to have happened for each of these scenarios to come about?
- Which scenario do you feel is most likely to come about?
- Which scenario would you most wish to see come about?
- What would need to be done to help bring this about?
- Who in your community is working to achieve such a future?

A journey of hope

Identifying sources of hope

At this point it is important to note that there is a significant difference between ‘hoping that’ something will come about (such as the sun shining tomorrow), and the more radical or active hope that is needed to survive in really difficult circumstances. Such hope is ontological: it is what we draw on when we are faced by the worst that life can offer.

Some years ago, I ran a residential event for educators who wanted to explore the notion of hope. Over the course of a weekend they gradually began to identify that which had often been occluded before: some of their key sources of hope. These are shown in Figure 3.

The sources of hope shown in Figure 3 are ones that educators and learners may well need to draw on in the coming transition. Indeed, as Freire argues, ‘One of the tasks of the progressive educator ... is to unveil opportunities for hope, no matter what the obstacles might be’ (1994, p. 3).

Active hope

The sorts of issues that are being explored here are inherently disturbing ones, they unsettle our worldview, challenge our preconceptions, and can even keep us awake at night. They are also ‘wicked’ issues, with no easy solutions or answers. An understandable response to such matters is thus the psychology of denial, the place where we go to in the face of things that seem just too difficult to handle. However, this is also self-defeating since such fears need to be acknowledged and shared before one can respond actively to such challenges. Major studies are beginning to highlight the increasing psychological distress that will be caused by climate change-related events (Fritze *et al.*, 2008). Unfortunately, education does not have a good record in helping young people manage such matters. As Kelsey and Armstrong emphasise:

‘We need to acknowledge the enormity of environmental problems, and share our feelings of frustration, anger, sadness, fear and hopelessness. We need to create spaces and opportunities to help kids explore and share their own feelings. We also need to move beyond the narrative of “doom and gloom” toward more hopeful narratives grounded in resiliency, well-being, happiness and health’ (2012, p. 190).

It is vital that young people are enabled to share their hopes and fears about environmental matters

that concern them (Australian Psychological Society, 2013). Students need a safe space in which to explore such emotions; and to understand that they are not alone in this endeavour, that other people (young and old) are working to change things for the better. I, therefore, believe that there should be four strands in the geographical study of issues, which are as follows.

- Knowing:** what do we need to know to make sense of this issue?
- Feeling:** what are some of the hopes and concerns we have in relation to this issue?
- Choosing:** what are the choices that need to be made in helping resolve this issue?
- Acting:** what sort of action for change might we and others want to be involved in?

Enabling students to explore their feelings in this way is one of the contributions geography should be making to an ecological citizenship for the future (Hayward, 2012).

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Figure 3: Key sources of hope. Source: Hicks, 2006.

<p>The natural world A source of beauty, wonder and inspiration which ever renews itself and ever refreshes the heart and mind</p>	<p>Other people’s lives The way in which both ordinary and extraordinary people manage difficult life situations with dignity</p>
<p>Faith and belief May be spiritual or political. Offers a framework of meaning in both good times and bad</p>	<p>Humour Seeing the funny side of things, being able to laugh in adversity, having fun, celebrating together</p>
<p>Mentors and colleagues At work and at home who offer inspiration by their deeds and encouragement with their words</p>	<p>Collective struggles Groups in the past and the present which have fought to achieve the equality and justice that is rightfully theirs</p>
<p>A sense of self Being aware of one’s self-worth and secure in one’s own identity which leads to a sense of connectedness and belonging</p>	<p>Relationships The being loved by partners, friends and family that nourishes and sustains us in our lives</p>
<p>Roots Links with the past, childhood, history, previous generations, ancestors, the need to honour continuity</p>	<p>Human creativity The constant awe-inspiring upwelling of music, poetry and other arts – an essential element of the human condition</p>
<p>Human creativity Both individual and community, music, song and dance, painting and sculpture, books, stories, poetry, utopia</p>	<p>Visionaries Those who offer visions of an Earth transformed and who work to help bring this about in different ways</p>

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A post-carbon geography

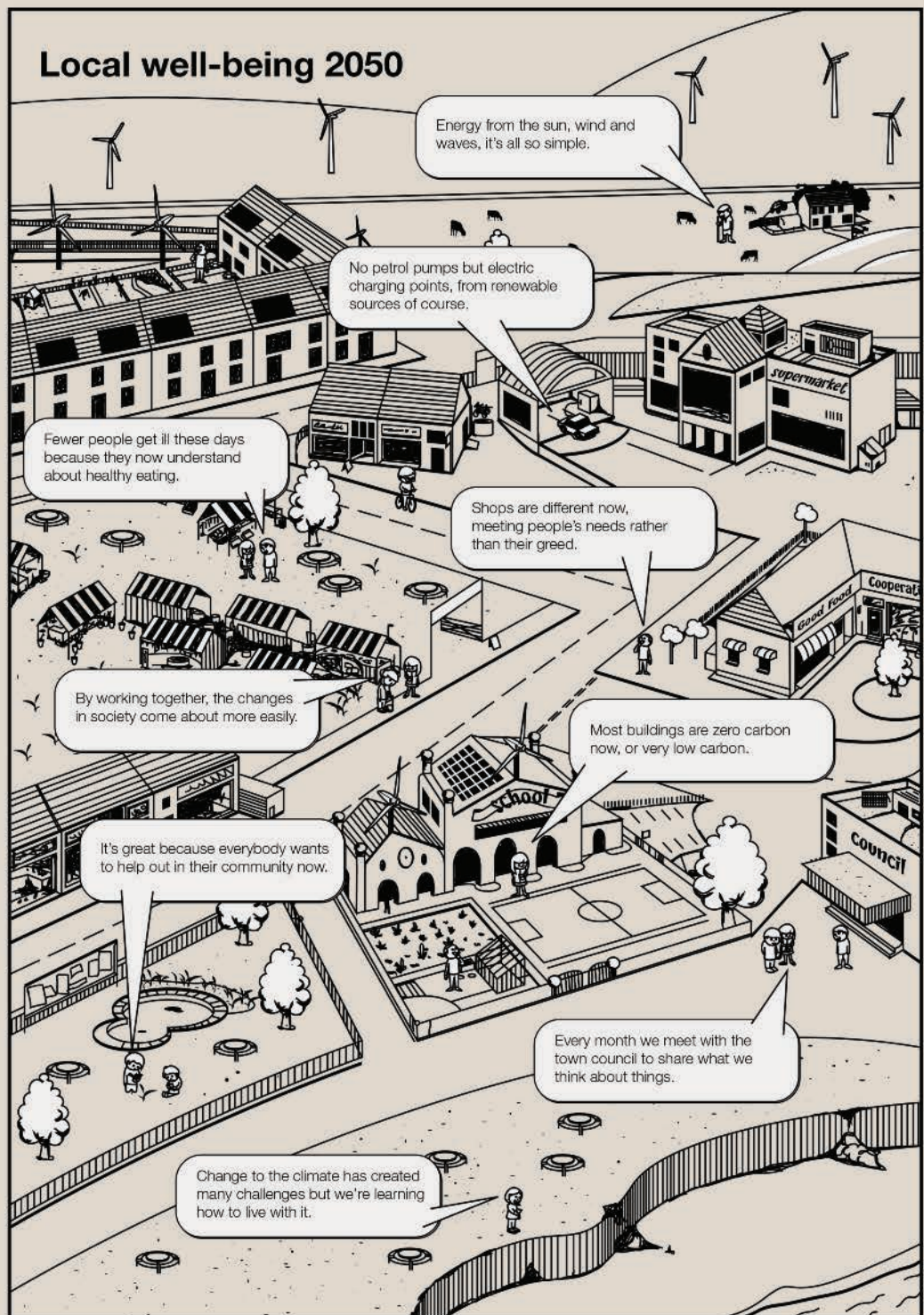


Figure 4: Stories from the future. Source: Hicks, 2012. Reproduced with permission of World Wide Fund for Nature UK.

Look carefully at the scenario of what local well-being might look like in a more sustainable future. Imagine you are visiting this future with a group of friends and you need to gather information about it. Look around to see how things are different from today and consider:

- What are people saying about life in this future?
- What are people doing that is different?
- What are the advantages of living in this future?
- What might be the disadvantages?
- What questions do you have about this future?

A major reorientation

But, where does this leave geography education? Matthewman and Morgan are clear that it is time for geography to face up to the post-carbon challenge:

'Nothing less than a major reorientation of geography as taught and learned in schools is required if students are to gain a realistic understanding of contemporary environmental challenges. The commonly-taught subjects in the geography curriculum are capable of being taught in order to accommodate the challenge of a post-carbon era' (2013, p. 99).

One valuable source of relevant case studies and inspirational stories is the international Transition Network (2013). Transition initiatives occur when people come together locally to share concerns about climate change and the energy crisis. Interest groups then set up local projects to explore areas such as energy, food, transport and biodiversity. The overall goal is to make communities more self-reliant, and therefore resilient, in times of difficult change. The goal is to draw up and implement plans for a low or post-carbon community (Hopkins, 2012). Geography departments can both learn from and contribute much to such creative local initiatives (Hicks, 2014).

Sustainable futures

A post-carbon geography can also learn much from developments in the field of sustainability education both in relation to research and pedagogy (Wals and Corcoran, 2013; World Watch Institute, 2013). A series of visual scenarios for classroom use can be found in *Sustainable Schools, Sustainable Futures* (Hicks, 2012); these explore: food and farming, energy and water, travel and transport, consuming and wasting, buildings and biodiversity, inclusion and participation, local wellbeing and global connections. By way of a taster an example scenario, together with instructions for classroom use, are shown in Figure 4 (previous page).

Figure 4 is one of eight scenarios designed to illustrate different aspects of a more sustainable and low-carbon future. Each illustration is designed to prompt debate and discussion about different aspects of a post-carbon world. All eight scenarios can be used to enhance and clarify other ongoing classroom work, and, of course, both teachers and students can sketch their own low-carbon future scenarios.

Some questions arising for geography teachers

In what ways does your teaching:

- analyse the nature and impact of unsustainable/sustainable practices?
- imply that continued economic growth will always be the norm?
- assume that there will always be a ready supply of fossil fuels for human use?
- explore the nature and importance of renewable energy sources?
- help learners explore the nature of/need for a more sustainable future?
- foster capabilities needed for the transition to a post-carbon society?

Geography, I believe, has a crucial and essential role to play in helping prepare young people for the transition to a post-carbon society. The choice society faces is whether this occurs chaotically by default or, as this article advocates, through informed and co-ordinated action for change.

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