

Environmental science, sustainability and politics

Tim O'Riordan

Research evidence and pleas that humans are undermining their own survival on a robust and unforgiving planet seem to be falling on deaf ears. The drive for economic and military security remains more powerful than the evidence that both of these objectives are being undermined by environmental damage, social disruption, unjust treatment and forced migration. Yet the signs are growing that environmentally and socially sound futures may be vital prerequisites for economic and military stability. So, at the heart of multi-nationalism, sustainable development is beginning to be recognized as a crucial element in reliable international agreements. The consequence of all this is that environmental science has become highly political, and geographers need to recognize and work within an expanding political process. Examples of new forms of governing via sustainability science for sustainable futures are offered in the latter part of the paper, especially at local government level. The antagonistic pressures of established power and economic hegemony are never far away. Indeed, the confirmation of these established patterns of power still pervades the politics of environmental science. But it is possible that these antagonistic political frameworks are beginning to be transcended by the more influential aspects of sustainability partnerships incorporating new arrangements between government, private capital and civil associations. These partnerships will not be easy to create, for they criss-cross boundaries of familiarity and rules of operation. But geographers can play a critical role in helping to shape them and assess the best circumstances for ensuring their success.

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School of Environmental Science, University of East Anglia, Norwich NR4 7TJ
email: toriordan@uea.ac.uk

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Perspective

This paper adopts four linked themes. First, environmental science is now part of a larger environmental politics. This is even more the case as scientific analysis is shaped by the trust and support of policy providers and deliverers in the private and voluntary sectors. Geographers should neither be ashamed nor wary of entering into the political worlds of government, business and civil activism. These form the lifeblood of the success of scientific endeavour in any transition to sustainability.

Second, fresh ways of incorporating relevant interests are now being recognized as forming the

basis of scientific research and appraisal. Science has become a partnership between forms of analysis and prediction, and forms of engaging with those who have to deliver the policies and practices of such prediction. We now live in a world of co-production of scientific and policy knowledge with actual behaviour. Thus there is a science of politics, and a science for politics. It is time to merge the two perspectives.

Third, environmental science needs to recognize the scope for changing patterns of governance and power that the emerging worlds of sustainability offer. This is a highly complicated arrangement between formal organs of government at global,

multi-national, national and sub-national levels, and an increasing range of quasi-formal governing arrangements ranging from devolved institutions to non-departmental 'arm's length' agencies, to the private sector in various partnership guises, to a mass of semi-organized community-based organizations. The delivery of sustainability can arguably better emerge through these new networks of governance, though this is a contested claim (Owens and Cowell 2002), but as yet geographers and environmental scientists are still developing their skills and experiences in connecting to and helping to design these networks.

Finally the drive for a 'new localism' in the UK (and increasingly in an expanding Europe generally) carries with it enormous scope for sophisticated analysis of changing arrangements of multi-level governance, of new forms of political autonomy within nested patterns of governance, and of fresh forms of funding community-based sustainable development. Geographers have a long tradition of studying local governing arrangements, so here is a golden opportunity to extend this work into new realms of cooperative science and policy delivery.

In essence, this paper makes a plea for a more engaged sustainability science, more willingness to work with new governing partnerships, a greater commitment to common endeavour to delivery, and a fresh approach to research and teaching that prepares geographers and environmental scientists to be standard bearers for the tortuous but necessary transition to sustainability.

Environmental science and global politics

It is now clear that the Earth has entered the so-called Anthropocene Era – the geological era in which humans are a significant and sometimes dominating environmental force. Records from the geological past indicate that never before has the Earth experienced the current suite of simultaneous changes: we are sailing into planetary terra incognita. (*New York Herald Tribune* 22 February 2004)

So concluded four distinguished commentators, Margot Wallstrom, the European Union Environment Commissioner; Bert Bolin, former Chair of the Intergovernmental Panel on Climate Change; Paul Crutzen, Nobel Laureate for his work on ozone depletion; and Will Steffin, executive director of the International Geosphere, Biosphere Programme, whose recent report entitled *Global*

change and the earth system: a planet under pressure (Steffin *et al.* 2004) provides the science base of this assessment.

This summary of the most comprehensive environmental science research supports a clutch of evidence published around the time of the World Summit on Sustainable Development held in Johannesburg in August–September 2002. All of these assessments produced evidence that life support for humans could be in jeopardy (US National Research Council 1999; UN Environmental Programme 2000). Words such as 'jeopardy' tend to trip off the tongue so frequently nowadays that contemporary society may be becoming anaesthetized to alarm, at least for the majority of the comfortable 10 per cent of the current human family. Public opinion polls (e.g. MORI, Eurobarometer) consistently show that 'environmental concern' is close to the floor of spontaneous public concern (see UK Sustainable Development Commission 2004). Maybe our greatest peril is the collective complacency of those who do not yet see either themselves or their offspring in danger.

Even warnings by Sir David King, the UK Chief Government Scientist, delivered to the American Association for the Advancement of Science, that climate change causes a bigger global threat than terrorism only created a stir when it emerged that he was told by the Prime Minister's Office not to discuss this observation in the media. Sir David duly did, but even then, his message still is not seriously being heard. What exercised the Prime Minister's Office was not the message. It was the implication that a senior governmental science figure was suggesting in a US election year that climate change was a bigger threat than terrorism. This suggests that climate science is highly politicized, as indeed it is, and that the social injustice aspects of climatic change impacts could become a serious international security issue in years to come.

The politicization and environmental science generally provides the framework of the first part of this paper, namely that environmental science and political interference are guaranteed to be bedfellows, simply because so much is at stake for mainstream politics when the future of a habitable planet is being analysed. In short, there is no environmental science outside a political and social framing. Certainly there never was: but it is even more the case today. The issue here is that geographers have to be even more alive to these evidence-linked biases in the design and conduct of their research.

A leaked Pentagon report, obtained by *The Observer* (Townsend and Harris 2004), concluded that 'climate change should be elevated beyond a scientific debate to a US National Security concern'. This leaked report allegedly also claimed that dwindling food and water supplies could lead to global instability, with disruption and conflict becoming endemic.

There are optimists who look for a 'tipping point' when the message finally sinks home and poverty, environmental disruption and mass migration threaten even further the functioning of the webs of life and make conventional economic investment and development impossible to pursue. This may be nearer than is commonly presumed. But the fact that it is becoming fashionable intellectual currency is a sign of the ratcheting up of environmental science into security, economy and media politics.

Tim Forsyth (2003) has created a powerful argument that environmental science and politics are inseparable; in his words they are 'co-produced'. There is not environmental analysis of global resources or climate change that does not roll directly into large-scale politics. Currently, the British Government is preparing a case to take the economic, social and military implications of climate change into the Group of Eight leading economies, of which it will be President for 2005. The Chancellor, Gordon Brown, has announced a fresh look at global poverty alleviation, also for 2005, to ensure that economic stability is possible, and that humanitarianism has a role to play for ill-health and poverty alleviation. Environmental degradation and human misery do go hand in hand, and are now of such significance for economic and military security that they are on the agendas of the highest politics.

This analysis suggests that major corporations can no longer ignore the calls for environmental 'good neighbourliness'. Coca-Cola is widely vilified for abstracting groundwater from nearby impoverished but thirsty Indian villages. Lefarge has abandoned a proposal to create a 'super-quarry' on the Island of Harris because of world-wide public opposition. Amnesty International is citing the mendacity of oil and mining companies for investing in corrupt payments to government elites and rebel groups in Africa under the heading of 'royalty payments'. The corporate world is being watched, and some are recognizing that mismanaging ecosystems and local social wellbeing is bad for business. Environmental science is big for corporate guidance, as well as commanding highest political attention.

But one should be careful. The centre ground of big politics is big business and big militarism. What may alter the business world is the loss of shareholder trust caused by corporate mischief, and a regular stream of criticism from web-based whistleblowers. Human Rights Watch and Mine Watch are but two web-based activists that report on the misdemeanours of business. Their role and number are bound to grow. What is not yet evident is that they have a significant influence on corporate behaviour. A resurgent consumer movement is beginning to connect to environment and development non-governmental organizations to create a formidable political force. In essence, what is commonly termed 'Greenwash' (see Hamann *et al.* 2003) is now the focus of intense attention by all manner of web-based groups with important links to the business media.

Hamann *et al.* (2003) provide the basis for an excellent critique of corporate social responsibility. They conclude that business is accommodating to vociferous demands, but that there is still no change in corporate outlook or profit drivers. Businesses see corporate social responsibility (CSR) as another desirable image maker and brand promoter. They are not prepared to be fully accountable to CSR, and most of the more ardent 'paper advocates' still contain many non-sustainable skeletons in their cupboards. Bringing business into the delivery of sustainability is the next stage of this evolution. But the achievement of that next stage will require the politics of partnership engagement, evidence of which is still patchy. This paper argues later that helping to bring these partnerships about is one important future role for geographers and environmental scientists.

The following section illustrates the growing inseparability of environmental science and global politics, and emphasizes the significance for future research in this arena for geographers and like-minded scholars.

The politics of environmental science

The British Prime Minister, Tony Blair (2003), has committed the UK to a goal of reducing carbon dioxide emissions by 60 per cent from 1990 levels by 2050. He sincerely believes this target can be achieved by a combination of international action, technology shift, incentive pricing and strong political leadership. 'This would not involve huge shifts in the economy or enormous changes in

lifestyles', he hopes. At least he has the modest claim of being the only world leader to sign up to the recommendation of the Intergovernmental Panel on Climate Change that the 60 per cent CO₂ reduction is the route to preventing 'dangerous anthropogenic interference with a climate system', to quote Article 2 of the UN Framework Convention on Climate Change.

Will he get his way? The highly respected environmentalist Gus Speth (2004) has concluded that the 250 or so international environmental agreements are largely talking stops, ecological circuses that generate plenty of travel-linked carbon dioxide in air miles and consumables, and barely achieve anything.

The response that the international community has mounted has been flawed: the root causes of deterioration have not been addressed seriously, weak multilateral institutions have been created, consensus based negotiating procedures have ensured mostly toothless treaties, and the economic and political context in what treaties must be prepared have largely been ignored. The inherently weak political base for international action is typically overrun by economic opposition and protection of sovereignty. (Speth 2004, 114)

Tony Blair admits that he will need to get the EU to sign up to the 60 per cent deal if the UK will accept the challenge. Yet the EU has already admitted it will fall short of its 'Kyoto' target of 8 per cent CO₂ reduction overall by 2010, by at least 8 per cent. So even the modest measure of the Kyoto Protocol to the UN Framework Convention on Climate Change will not be met by the strongest critic of the US Administration, which has so far refused to sign the agreement. It is no surprise that the Americans and Russians, one of which must sign to make the Protocol stick, are sitting back to beyond the US elections before moving, and maybe even beyond November 2004.

The UK Energy White Paper (Department of Trade and Industry 2003) admits that by 2020 the North Sea gas fields will be too depleted to meet growing UK energy needs. Despite the Blair claims, official forecasts admit to the requirement of imported gas from Russia, Russian satellite countries and Libya.

The current instability in Iraq, Iran and Saudi Arabia, who between them control almost three quarters of global oil reserves, must be making US and UK energy analysts pause. If this instability continues, then the need to 'domesticate' energy supplies into renewable and locally sourced energy

schemes may play a dominant role in Europe, North America and Japanese energy strategies in the coming years. Indeed, this could be one 'trigger point' for a 'sustainable' energy strategy globally.

Meanwhile, Russia is in a strong position to delay its ratification of Kyoto until the deals are made. Then Russia just might sign, while Britain increases its post 2020 'pulse' of CO₂. What price climate change science?

It is not the science of climate change that is the stumbling block, it is the politics of the science. The scientific message is growing stronger every day, with reports of between 15 and 37 per cent of species in a sample of 20 per cent of the planet that will be 'committed to extinction' due to climate change (Thomas *et al.* 2004). Tony Blair himself recognized the report of the UN Environment Programme (2000) that economic losses due to climate change-induced weather events could exceed US\$150 billion annually within ten years.

So how do we obtain a listening and responsive political culture to the calls for effective sustainability partnerships? One way is to bring the target audience directly into the science assessments.

Robin O'Malley and his colleagues (2003) conclude that unless environmental science carries with it policy relevance, technical credibility and political legitimacy, it can still be ignored or side-stepped. O'Malley and his associates sought to evaluate, for guiding future natural resource development policy, the state of US national ecosystems. Their experience was innovative in that it was funded by the Heinz Center for Science, Economics and the Environment.

The Heinz Center report broke new ground in the US by establishing a fresh relationship between environmental science and policymaking. Its 150 participants covered business, government, environmental non-government organizations and academia. Indicators of forest health had to be agreed by foresters, timber corporations, recreational organizations and environmental groups. The water sector involved hydrologists, water companies, fishing and recreational interests and state-federal regulatory bodies. As O'Malley and his colleagues noted, this process locked in the participants to the process of establishing a deliberative environmental science. All participants felt 'ownership' of the outcome, which was designed specifically to show how their evidence was handled and interpreted by others. Senior figures from government, business and the NGOs led the working

groups and reported jointly to cabinet level politicians and Congress.

The Heinz Center process of committing environmental science to a cooperative and interactive relationship with business, government and civil society is worthy of note. The Intergovernmental Panel on Climate Change fell foul of business and politicians by not following this procedure. The reporting of the executive summaries was highly politicized and interfered with by corporate lobbies and political advisors. As is well known, the Exxon Mobil lobbyists succeeded in removing the Chair of the IPCC, Bob Watson, in order to ensure a more political US representative onto the Panel who would not rock the Administration's interests in maintaining oil and gas flows and the continuation of energy-dependent business as usual in the US. A report by the Union of Concerned Scientists observed:

Since taking office, the Bush Administration has consistently sought to undermine the public's understanding of the view held by the vast majority of climate scientists that human-caused emissions of carbon dioxide and other heat trapping gases are making a discernable contribution to global warming. (2004, 1)

An attempt by Greenpeace to create a consumer boycott over this move by Exxon Mobil has largely failed to take off. Exxon Mobil is too wealthy to be ignored by investors, and consumers need a more 'symbolic' target than global climate change and the alleged malpractice of US corporate business. This is important. The Exxon Mobil case shows the limits of consumer boycotting, and the hypocrisy of financial institutions that attempt to place ethics before profit. Greenpeace have repeatedly tried to mobilize consumer and corporate action against Exxon, but to no avail. The politics of ethics remain marginal and episodic.

Two lessons stem from the IPCC and Heinz experience regarding the politics of environmental science. If the aim of science is to report, to establish indicators of change and to indicate a common agenda for action, then it can be successful if participatory and deliberative procedures are followed by the science team (see Munton 2003). But if the science is politically contentious, if it lies close to political sensitivities and if it threatens other established political positions, then even the Heinz Center approach will be found wanting. Biodiversity action plans, water stewardship strategies and marine coastal management schemes could all benefit from the Heinz Center approach, but by and large do not follow this practice.

Climate change science is a different matter. Here the science is confounded not so much by credibility difficulties, but by a form of electoral democracy which impedes voters and consumers from supporting present day 'sacrifices' for uncertain and distant future 'gains' when the 'problem' is not clearly evident or threatening. This, in part, is why the Greenpeace 'Esso' campaign is failing to ignite. Consumers took on Shell over the Brent Spa oil storage platform dumping controversy (Rose 1998). But they had a clear target and a workable solution, solvable within a few years. Climatic change is insidiously different. Its science is its politics. This is why global change and millennial ecosystem issues demand a different form of engagement with politicians and citizens. Hence the politics of environmental science torques the science of environmental politics.

The science of environmental politics

Forsyth (2003, 268) lays sound claim that environmental science explanations are contingent on social and political framings. For example, many ecological 'crises' such as soil erosion or water shortage should be seen in an historical context and within patterns of land ownership, entitlements and local political power structures. The Kyoto Protocol allows for carbon emitters to invest in reforestation projects, or even forest conservation schemes, in order to justify continuing emissions. Yet such devices rely on scientific knowledge of carbon sequestration. These schemes also vitally depend on a 'common language' of purpose and process. Forsyth points out that global perspectives on carbon removal and sustainable land use practices fall foul of local needs for development and land tenure security. An inability to link the two must inevitably result in project failure, considerable waste of money and confidence building and a stalled process that may take years for its participants to re-establish trust.

Not only is the science of sequestration very ill-developed. These schemes also assume a monitoring process that in turn will be dependent on local observation and measurement and a high dependence on trust and integrity. Furthermore, the benefits of the carbon offset income ideally should be fairly distributed in areas where entitlements may be unjust, and where benefits may not always be most appropriate as cash payments (see Leach *et al.* 1999). In short, it is one thing to establish a 'clean

development mechanism' or 'carbon offset'. It is quite another to establish the political, social and economic mechanisms to deliver these.

Right now, few environmental scientists are close enough to the political scene to be fully equipped to link the two. This is the next phase of environmental science: interlocking scientific analysis to political and social contexts so that a more politicized science emerges. The notion of 'politicization' should be regarded as positive, not frightening or threatening. Trust-based politicization through cooperation networks of management may form the basis of future environmental science.

Perspective on the politics of environmental science

This section on the politicization of environmental science suggests a number of interim observations.

High-level political credibility

In the cacophony of political clamour, environmental science must shout to be heard. Just to keep to forecasts of doom or despair yields little high-level political response. For environmental science to be credible, it may have to bring in its promoters and detractors in equal number. It may need to act as advocate of consent-based analysis and actively seek wide ranging levels of further political support. Environmental politics are high-level politics: they have the ear of the G8, and of the multi-lateral lending banks. Yet the environmental science that is respected may also be too neutered by consensus-seeking to be truly a guide for appropriate interpretation and response. This indeed is a real danger. Geographers should be alive to this possibility in the design and evaluation of their efforts in this important arena.

High-level political impact

Maybe the best bet for environmental science projections of planetary well-being is to lock the diagnosis into the wider political theatres of military security, conventional economic investment, poverty alleviation, hunger removal and the eradication of public health dangers, notably HIV/AIDs, malaria and dysentery and the steady onslaught of chronic enslavement of many cumulative deceases. Revealing the common agendas of the environmental policy think tanks with the security pundits, the economic lobbies and the global strategic analysts is a possible way forward.

Sustainability science

The attempt to create a scientific and technology basis for sustainability has yet to gain prominence and acceptance. The website <http://www.sustainabilityscience.org> carries the initiative. As yet the notion has signally failed to gain a foothold in established environmental science and associated disciplines. Here again is an interesting arena where geographers have much to offer.

The concept of sustainability science is worthy. It seeks to gain legitimacy, credibility and authority by including relevant stakeholders into adaptive implementation. It is hell bent on building organizational and educational capacity for science research and training amongst many developing economy nations. It is championing the 'boundary organizations' of interdisciplinarity and multiple-level policy analysis in the delivery of sustainability. We will look at examples of such organizations in more detail in the section that follows. It is also discovering where innovation and experimentation are taking place at the margins of disciplinary familiarity. New partnerships involving the public, private and civil sectors are beginning to emerge on a wide range of management scales: in water provision (<http://www.wateraid.org>), coastal management (<http://www.foresight.dti.gsi.gov.uk>) and the new localization in neighbourhood planning (<http://www.nlgn.org.uk>). These are but a fragment of exciting initiatives that geographers are beginning to analyse.

Yet sustainability science is still not exciting many. Maybe it is seen as too 'modelling' and 'data rich' to be attractive to those who want to use more interactive and intuitive approaches to knowing and action. Maybe it has not established the argument that various forms of interactive and cooperative research with advocacy interests and political organizations are already under way, in many other realms outside of sustainability. Maybe it has not yet established a 'niche' for sustainability that would give it distinctiveness beyond interactive modelling and interdisciplinarity. Maybe it awaits a more coherent form of governance for sustainability. Whatever the reason, sustainability science provides a realm that geographers would do well to address even more, and to modulate.

Framing the evidence

Tim Forsyth's point about the localization of framing environmental science deserves more attention. He warns against trying to communicate and interpret

universal 'myths' of scientific 'truths' to localities, and instead seeks to establish a 'local identity' to the political interpretation of environmental science, so the science lives and breathes through the experience and visions of locality (Forsyth 2003, 223). This will be examined further in the final section of the paper.

All of this suggests that a future for environmental science may lie through a fresh look at the scope for a more interconnected governance for sustainability. Within changing patterns of governance may well emerge an even more reformulated environmental science.

On governance for sustainability

Put 'governance' and 'sustainability' together and you have combined two deeply ambiguous terms. Governance is by no means a settled notion. One view is that governance is taking over from 'government' as the basis of managing our collective futures. Rod Rhodes (1996) speaks for many political analysts when he refers to it as a change in the meaning of government, a new process of governing, a form of adaptive learning through partnerships and networks, a nesting of institutional forms across various scales from global to local (see also Pierre and Peters 2000).

Michael Carley and Ian Christie (2000) see governance as a steering or guiding process, that is constantly adapting and learning, and which seeks to manage through cooperative patterns of central strategic guidance and local self-organizing communities of action. What lies at the heart of sustainability governance are five critical issues.

- 1 The management of an evolution for a more resilient humanity on a robust planet and its peoples within ecological limits that require losers to be aided by gainers.
- 2 The establishment of further reliable conditions of ecological resilience and social well-being over many generations to come, whose future choices should not be avoidably limited by present decisions and actions.
- 3 A growing crisis of legitimacy and public trust in all political institutions, an outcome that may ultimately mean that all 'formal' political structures fail to be believed and supported.
- 4 A willingness to cooperate and mobilize at levels of local livelihoods, and to seek forms of self-governance that are semi-autonomous, if actually

given the powers and resources for collective self-determination.

- 5 Recognition of a deliberative, participatory and precautionary democracy that is mobilized to shape its destiny, acts with forethought and prudence, and is willing to engage with others to learn how and why positions are adopted or can be adjusted in the face of external change and internal learning.

Governance, for some analysts, is therefore a term of art for a pattern of managing that is cooperative, interactive, accommodative and inclusive. It is encouraged by the mix of global forces of economy, security, culture and media. It is charged by local demands for identity and distinctiveness. It is capturing the modernization of traditional forms of government, notably in the public sector. It is gaining from the emergence of multilateralism and regionalism. It is energized by the failure to overcome complex and policy-linked problem arenas such as climate change, biodiversity management, social justice and entitlement to all people to steward essential planetary resources for permanent and workable livelihoods. These are the hallmarks of sustainability (see Carley and Christie 2000).

Also within the notion of governance are partnerships involving public, private and civil actors. Such partnerships are enshrined in the so-called 'Type II' agreements emanating from the World Summit on Sustainable Development. These encompass major corporate interests aligning themselves with the international environment and development organizations, as well as national and international governments and local civil groups. Presupposing such partnerships is a drive towards social responsibility in the business sector, and the emergence of business-linked corporative deals with various non-governmental organizations.

All this flurry of activity assumes that there is a responsive international order. It also relies on nation states to be willing to cede power upwards to larger national groupings, and downwards to regions and local bodies. It is working with the business community to see a 'caring capitalism' as a player in social and environmental betterment without being forced by effective regulation to do so. And it relies on a huge degree of trust in all of these developments by a doubting and bloodied civil society. Strategic global and national guidance generating local self-organizing sustainable activity may be a pleasing vision, but it is a very distant reality.

We should be careful. There is another view. Governance generally, and sustainability governance in particular, may well be replicating the existing order of economic power, military hegemony and local elitism. George Monbiot (2004) certainly thinks so. And in the world of deliberation (Munton 2003) there is plenty of evidence to believe that established structures of economic dominance and local political power still hold sway. Geographers need to be alert to this. In the drive for strategic governance and local self-organization, the implications for changing the patterns of power and dominance need to be examined very carefully.

The structure and nature of governing is going through change. Geographers can contribute to this analysis by analysing at global, multi-national, national, regional and local levels just what should be the appropriate forms, relationships, powers and responsibilities of governing patterns for sustainable development. What follows introduces this examination in more detail.

The world order

Gus Speth (2004), from the vantage of a couple of decades of international experience, champions the cause of a World Environmental Organization to act as a counterbalance to the World Trade Organization. Frank Biermann (2000) puts the case for a WEO in more detail. He points out that the UN Environment Programme and UN Development Programme are relatively junior organizations with limited executive inference. Admittedly, if they joined forces, they could form the basis of a WEO, but to achieve this would require a higher level of international political clout than is on offer at present.

Biermann argues for a three stage process of evolution. The first could be a cooperative approach involving existing UNEP, UNDP, World Bank and the Global Environment Facility, and linked UN organizations such as the Food and Agriculture Organization and the World Health Organization. The second phase could evolve over time to a more central conglomeration acting as a counterweight to the WTO. Ultimately, he hints at a third prospect, when there could be a link to global sustainable security. This would mean that the Security Council would be enlarged in size and function to embrace sustainable development, humanitarian cooperation and peaceful security.

The notion of a WEO is almost a decade old. UN institutions change very slowly, and new bodies

are notoriously difficult to create. The International Criminal Court is one example of a recent innovation, but that has still not been formally recognized by the US.

The possibility of greater cooperation over security and sustainability could grow in likelihood with the evidence of the link between environmental degradation, poverty, chronic disease and persistent underdevelopment. There is the glimmer of light that climate change, placed at the top of all of this, could be the trigger to more radical institutional reform involving more formal partnerships of international governance linking development to environment to health, to security and to Type II activities. Admittedly, there will be huge opposition by many developing nations and the US. But one has to see the distinct shift in international opinion as climate extremes begin to create serious damage to people, their essential health and their economies, and international economic or asylum-generated migration takes over the centre ground of adversarial politics.

Again, this is a political realm worthy of much more attention. The Type II partnerships are forming, but geographers have yet to give them serious attention. Few deal with an environmental science that is championing resilience in ecological or social conditions. Even fewer have any sense of how to measure vulnerability. And virtually none contain any accountable choice for appraising just how far such partnerships are approaching sustainability. These are areas where much current geographical work on adaptation and socio-ecological tolerance could be brought to bear.

Sanjeer Khagram (2003) points out that the work of the Commission on Large Dams has led to a much more comprehensive set of guidelines for large dam projects before investment finance is committed. The World Bank may well insist on evidence of public acceptance, comprehensive multi-criteria assessments of the impacts and advantages of dams, including clusters of alternative smaller dams, and a much greater range of procedures for follow up to any river transformation. These procedures would include compliance plans, performance bonds, social justice considerations, cumulative sustainability assessments of the whole river basin and sensitive approaches to resettlement and mitigation measures. This is beginning to look like the coordinated 'local culture' decentralization that Tim Forsyth advocates. At least there is work to do to guide the leading institutions for all

infrastructure projects along the lines of sustainability audits that are in large measure locally determined and implemented.

Again, be careful. All patterns of governance, including any fancy forms of appraisal, are socially framed by dominant interests. The future prospects of WEO may depend on more political chaos in the international order over terrorism, forced migration, deep poverty, chronic disease and fundamental failure to maintain economic and military order in many parts of the world. One does not wish for such conditions. But the framing of any new governance for sustainability may have to go hand in hand with the marriage of reformists and realists.

The world may best be put to rights through something approaching sustainability. As yet we have no idea of what the world order should look like to deliver such a prospect. Here again is an opportunity for geographers to heed the call of Forsyth and many others to bring institutions for global betterment into line with local mechanisms for delivering sustainability.

The nation state and governance for sustainability

The emerging pattern of governance for sustainability is beginning to place a fresh emphasis on new roles for the nation state. There is a tendency for the nation state to be a player in the international negotiations that eventually incorporate it into a participant for more collective interests. Hence the nation state could become the conduit of international obligations, conveying international agreements into the daily lives of its citizens. This may make the nation state a device for localizing global obligations, and hence narrowing the freedom at the national and local levels to ignore sustainability principles and practices.

Andrew Jordan (2002) has produced a fascinating variant of this. He has looked at the process of 'Europeanizing' national environmental policies. This is the basis of enabling a nation to carry out the collective environmental wishes of the 15 member states of the European Union. Jordan argues convincingly for an extension of the notion of multi-level governance. Here the nation state must submit itself more and more to meet collective outcomes, limiting its autonomy to decide its own environmental futures. Furthermore, Europeanization creates new coalitions of environment ministers, and possibly even environment and development

ministerial groupings. These would bargain more effectively for environmental outcomes and encourage advocacy coalitions of non-governmental organizations to press the cause in the halls of policymaking.

The major European Union directives on strategic environmental assessment, habitat management, water and waste are examples of multi-level governance that will profoundly affect the politics of waste, water, energy, planning and coastal protection in years to come. These directives require fresh forms of inclusive deliberation and more formal and transparent procedures for participation. They will demand new approaches to multi-criteria analysis, visualization of future states and more attention to the social justice and precautionary aspects of decision taking.

One should not forget the forthcoming implementation of the Aarhus Convention, the European policy framework for including rights to information, social justice and effective participation into environmental policymaking over the coming years. This will establish fresh procedures for connecting policy departments into more transparent wholes, subject to external scrutiny. There will also be more attention paid to incorporating social justice and equity considerations to policy analysis. And there will have to be more effective inclusionary participation in all aspects of decision taking, involving the well-being of a variety of interests. In the UK, we are simply not prepared for all this. Yet the forthcoming UK Strategy for Sustainable Development has committed itself to incorporating these measures into policy making and delivery (Sustainable Development Unit 2004). Once again, here is a vital niche for geographers to explore, namely, how to design and evaluate governing structures and strategies for full information, social equity and genuine participation (see Burgess 2004 in press).

Even more significant will be the influence of this new form of large-scale governance on national environmental policy. Already the UK waste management scene is being transformed by the Landfill Directive and the Waste Electronic and Electrical Equipment Directive. This is bringing about new partnerships in such activities as composting, waste product reuse, recycling cooperatives and energy from waste schemes, as the landfill option is closed and discarded white goods must be reconstituted or refurbished.

The Water Framework Directive will have a huge impact on water stewardship. Along with the Habitats Directive and the SEA Directive, future

special planning in Britain will be substantially the product of a European agenda. This could well mean that future housing schemes and large infrastructure projects such as multi-modal transport nodes, large-scale water transfer schemes, and new 'gridding' for renewable energy become embedded in new European frameworks for water care, for biodiversity enhancement, for low carbon futures and for sustainable mobility. Multi-level environmental governance is beginning to overarch the politics of local environmental and sustainability governance in the UK.

This perspective is well presented by Houghton and Counsell (2004) in their analysis of emerging regionalism and spatial planning for sustainability. They discount the uneasy relationship between conventional economic development drivers, disseminated by regional elites and the development agencies, and the emerging agenda around sustainability and social justice. There is no doubt that the 'region' will become an increasingly important focus for study of sustainability politics. Here is where strategic guidance is being placed, in institutional patterns that are ill-adapted to democracy. This is a fruitful arena for geographical research, mostly because of the muddle surrounding the structures of the new regionalism.

Governance for local sustainability

To understand how the UK is handling local governance for sustainability, one has to link three developments:

- 1 The modernization agenda of local government delivery of services so that local governance is more in touch with community needs, more effective in its cooperative practices of delivery to meet these needs and saving money in so doing.
- 2 The establishment of a political philosophy of 'new localism' (Corry *et al.* 2004). This recognizes the huge complexity of delivering social and public interest needs at the local level, due to the number of funding streams involved, the overlapping of agencies for delivery, the huge diversity of local requirements and cultures of expectations, and the scope for an array of fresh initiatives attuned to locality.
- 3 The emergence of 'social trust' in the basis of new community capacity for cooperating with the public and private sectors for meeting diverse

requirements, and of the enabling powers of local democratic institutions.

All this has led to a huge array of activities in local governance in the UK. The irony here is that these drivers for reform are not promoting fresh ways of delivering sustainable development at the local level. Indeed the two are dragging each other apart. The building blocks are in place but the structure and the mortar are so weak that the building is in danger of collapsing. Let us look first at the building blocks for bringing sustainability principles into local governance.

- 1 The Audit Commission is moving towards incorporating sustainability principles into its strategic guidance for local government and comprehensive performance assessments (CPAs). This is the basis for driving continuous improvement in public sector delivery for health, local government, housing, civil renewal and the criminal justice system. The new thinking over the future of the CPA is beginning to insist that broad principles of sustainability are introduced into local government corporate assessments (Audit Commission 2004). This will link health, security, young people, social care, affordable housing and community enterprise. For the first time these are being 'joined up' via new partnerships.
- 2 The Egan Review of local government services (Egan 2004) has pinpointed the need for improved training and management of local authority institutional structures so that they are better suited to delivery for sustainability. In addition the Strategy Unit (2003) of the Cabinet Office has argued for fresh approaches to innovation and experimentation in the structure of local government, with more willingness to take risks, to form new management alliances, to try out innovative programmes for evaluation and to search for new forms of partnership. Above all, the Strategy Unit is looking for fresh reward structures to stimulate innovation amongst younger members and officials. This is very much part of the learning and adaptive 'boundary organization' championed by sustainability science.
- 3 The Local Government Act of 2000 introduced a compulsory duty on local authorities to promote the environmental, social and economic well-being of its citizens (see Blair and Evans 2004). This is originally seen as an enabling power, to make the provision of local government more effective and flexible. But it carries with it the

- toolkit for community strategies for sustainability. These are meant to be mechanisms through which local groups articulate their needs and seek to establish better livelihoods. The community strategies are in turn supported by local strategic partnerships (LSPs). These are public-private-civil partnerships designed to deliver services across a range of agencies and government bodies. LSPs are yet another 'boundary organization' crying out for geographers to examine and promote. Right now they languish in a sea of local government budget cuts, distracted chief executives and a lack of continuity over new initiatives. How to make the LSPs promote wellbeing by linking them to the waste, water, planning, carbon neutral and biodiversity agendas is ripe for geographical analysis.
- 4 The process of procurement of goods and services at the level of local government and in health and education is now being examined for its contribution to sustainable development. Currently the public sector spends some £160 billion annually on procurement but has yet to look at this task in terms of well-being, LSPs and community enterprise. The scope for placing a sustainability obligation on procurement, to create new enterprise locally and to ensure much higher reuse and recycling of materials, is potentially vast. Yet, at present, the Treasury is hell-bent on cutting public spending waste. So procurement excellence may simply be defined as reduced spending rather than immature opportunities for promoting sustainable well-being. Procurement of goods and services could be the economic and social engine of the new localization. Again this is fertile territory for geographers to explore.
 - 5 Various new schemes for local community empowerment are being directed at cleaning up inner city environments (livelihoods), establishing better criminal justice and less anti-social behaviour (civil renewal and priority policing), and generally community enterprise (community interest councils), all of which could be linked to sustainability and the new localism. Much of this lies in the scope of the civil renewal programmes of the Home Office (Blunkett 2003) and the community enterprise initiatives of the DTi (Blair and Evans 2004).

In essence, the local government scene in the UK is seething with the prospect of a new framework

for local governance for sustainability. Yet little reform is in the offing. What halts this reflects the differences of opinion over the role of governance for sustainability. Quite simply, the old order is digging in.

- 1 The duty of well-being is not connected to sustainability futures, and what it constitutes is not well articulated for immediate political consumption at public-private-civil sector delivery. This is a serious gap (see Blair and Evans 2004).
- 2 There is no overall obligation on local government to promote sustainable development, even though it is regarded as a basis for the main plank of national policymaking via Agenda 21. This point has emerged in the current consultation over the UK Sustainable Development Strategy (Sustainable Development Unit 2004).
- 3 The main organizations involved with local government, namely the Local Government Association, the Improvement and Development Agency and the Audit Commission, as well as the principal government department involved, the Office of the Deputy Prime Minister, are not placing sustainable development within their central nervous systems. Even a fresh look at a vision for local government (Local Government Association 2004) does not substantially address this matter. This is because they cannot coordinate their inner machinery to see the sustainability agenda as a force for good. There is also no cooperative institutional arrangement that links central to local government for the promotion of sustainable development. This is also an arena that deserves detailed geographical investigation. One fruitful way forward is to look for initiatives that go towards sustainability and guide these further, using the levers of change outlined above.
- 4 The primary review procedures in the delivery of public services, notably those to do with efficiency and cost saving, are pushing the case further away from sustainability. Value for money principles often militate against social well-being and community empowerment, and the proposal to create six centres of Excellence for Procurement (Office of the Deputy Prime Minister 2004) appears to be establishing large consortia for purchasing with little scope for local community sourcing or waste reutilization that could link training disadvantaged people to new small business cooperatives and the end to landfill by routing of avoidable waste.

A comprehensive report on local governance for sustainability (Blair and Evans 2004) argues persuasively for a new framework of *principled localism*. This is the basis for a more central focus for sustainability in the machinery of local government. It would involve establishing an obligation to further the objective for sustainability in all forms of policy planning and analysis. It would widen the basis for incorporating sustainability principles into the comprehensive performance assessment procedures for local government. It would establish a code of practice for sustainable procurement. And it would ensure that mechanisms such as the well-being power, LSPs and community strategies became vehicles for enabling local communities to create their own versions of sustainable futures.

The enticing prospect in the offing is to ensure that the whole sustainable communities agenda, which is currently shaping the future of settlements, regional policy, housing, transport and planning generally, is joined up around sustainability principles. Right now the official Sustainable Communities Plan (Office of the Deputy Prime Minister 2002) is little more than a basis for re-ordering the chaotic housing market. It is a long way from sustainable communities, if this means protecting the soil, safeguarding water, widening biodiversity, introducing local food sourcing, establishing local carbon-neutral energy schemes and housing, and creating community initiatives around sustainability partnerships.

There is, as yet, no scope for making the sustainable communities plan a mechanism for transforming sustainable communities. For this to be the case, the scope for designing settlements for high speed train links, for local mobility, for carbon neutral and water conserving homes, and for accommodating to floods in rivers and estuaries will need to be formally incorporated into the planning process.

Right now, neither the training nor the discourse of planning is ready for this. Root and branch reform will be needed as the Egan Committee (Egan 2004) noted. Yet, under the Planning and Compulsory Purchase Act of 2004, all strategic planning (spatial strategies and regional and local frameworks) will have to be framed via sustainable development principles. So this is a possible route into a reformed planning regime.

Sustainable communities involve people, neighbourhoods, social trust and the evolution of the notion of 'community'. Despite a huge literature

on sustainability and community (e.g. Warburton 1998), there is yet to be developed a process of research and policy coordination. This is essentially what the text above seeks to encourage. There is a wealth of work to do by geographers in the new localism for sustainability, linking effective community relations to emerging patterns of governance.

Yet, as always, we must be wary. The old order finds it difficult to die. Bright new models of governing for local sustainability still come up against old attitudes, power relations and management structures. This is why the Strategy Unit champions innovation, and why geographers need to continue to delve into the micro-politics of delivering new sustainability mechanisms. We must all be alert to 'old order' framings and 'new order' institutional design. This coupling will provide the centre ground of the new localism.

Towards a self-aware society

The notion of citizenship has yet to encompass transcendence of the human spirit into a common bond for a self-sustaining humanity on a life-supporting planet. There is no magic formula for a transition to a form of human existence and social outlook that combines emancipation of the spirit with a sense of collective stewardship and trusteeship for a better life for all future inhabitants of this planet.

Here are some possibilities for geographers to consider:

- 1 Work towards creating, with local citizens, sustainable communities based on global stewardship, regional sustainability guidance and local strategic partnerships for delivery. This may be done as a vision, coupled to some form of obligation to further sustainability at all levels of policing, linked to co-funded community initiatives in energy, waste and water stewardship, plus housing for all.
- 2 Drive forward the tools of sustainability appraisal through the strategic environmental assessment procedures now emerging in spatial planning frameworks. And make these sustainability appraisals sufficiently flexible to meet local needs, yet sufficiently robust to establish helpfully directive planning guidelines.
- 3 Promote the cause of local sustainable procurement for all universities, hospitals, local authority establishments and schools, moving into the private sector, via LSPs and sustainability appraisals.

4 Work with local schools to make each and every one a living laboratory for sustainability with the pupils actively designing energy, zero-carbon, waste and water schemes along the lines of sustainable stewardship. Because schools are connected to neighbourhoods and parents, so there is more scope for bringing sustainability into the lives of every generation before it enters the adult world.

A transition to a self-aware society will need to incorporate themes that remain implicit in contemporary geography and environmental science. These relate to transcendence, spirituality, intuition and a bonding between the individual self and the infinite cosmos. Geographers such as David Pepper (1996) do address such issues, though much of this rhetoric is largely unread pages of *Resurgence Magazine*. Maybe it is time to generate a debate amongst geographers as to what a self-aware culture might look like. Geographers, with their long traditions of institutional history and regionalism, and their abiding interest in locality and culture, might contribute to a fresh educational impetus. It is timely for geographical and environmental sciences to meet and to form a common perspective over this prospect of intellectual, organizational and thoroughly pragmatic transformation. The ultimate governance for sustainability must surely lie in our souls.

References

- Audit Commission** 2004 *CPA 2005 – The way ahead* Audit Commission, London
- Biermann F** 2000 The case for a World Environment Organization *Environment* 42 22–30
- Blair F and Evans B** 2004 *Seeing the bigger picture: delivering local sustainable development* Joseph Rowntree Foundation, York
- Blair T** 2003 Meeting the sustainable development challenge *Environment* 45 20–7
- Blunkett D** 2003 *Civil renewal: a new programme of action* The Home Office, London
- Burgess J** 2004 Reflection on being engaged on policy relevant environmental research *Transactions of the Institute of British Geographers* in press
- Carley M and Christie I** 2000 The world's commons: the challenge of governance in **World Humanity Action Trust** *Governance for a sustainable future* WHAT, London
- Corry D, Hatter W, Parker I, Randle A and Stoker G** 2004 *Joining up local democracy: governance systems for new localism* New Local Government Network, London
- Department of Trade and Industry** 2003 *Our energy future: creating a low carbon economy* Department of Trade and Industry, London
- Egan J Chair** 2004 *Training local government for sustainable development* Office of the Deputy Prime Minister, London
- Forsyth T** 2003 *Critical political ecology: the politics of environmental science* Routledge, London
- Hamann R, Acutt N and Kapellius P** 2003 Responsibility versus accountability? Interpreting the World Summit on Sustainable Development for a synthesis model of corporate citizenship *Journal of Corporate Citizenship* 9 20–36
- Houghton G and Counsell D** 2004 *Regional spatial strategies and sustainable development* Routledge, London
- Jordan A** 2002 *The Europeanisation of British environmental politics* Palgrave, Basingstoke
- Khagram S** 2003 Neither temples nor tombs: a global analysis of large dams *Environment* 45 28–37
- Leach M, Mearns R and Scoones I** 1999 Environmental entitlements: dynamics and entitlements in community-based natural resources management *World Development* 27 225–47
- Local Government Association** 2004 *Independence, opportunity, trust: an agenda for local communities* Local Government Association, London
- Monbiot G** 2004 *The age of consent: a manifesto for a new world* Pluto Press, Cambridge
- Munton R** 2003 Deliberative democracy and environmental decision-making in **Berkout F, Leach M and Scoones I** eds *Negotiating environmental change: new perspectives for the social sciences* Edward Elgar, Cheltenham 137–58
- Office of the Deputy Prime Minister** 2002 *Sustainable communities plan* Office of the Deputy Prime Minister, London
- Office of the Deputy Prime Minister** 2004 *Centre of excellence for procurement* Office of the Deputy Prime Minister, London
- O'Malley R, Cavender-Bares K and Clark W** 2003 Bringing stakeholders into the science process *Environment* 45 8–18
- Owens S and Cowell R** 2002 *Land and its limits: planning and sustainable development* Routledge, London
- Pepper D** 1996 *The new environmentalism* Routledge, London
- Pierre J and Peters B G** 2000 *Governance, politics and the state* Macmillan Palgrave, Basingstoke
- Rhodes R A W** 1996 The new governance: governing without governance *Political Studies* 44 652–7
- Rose C** 1998 *The turning of the spar* Greenpeace, London
- Speth G** 2004 *Red sky at morning: America and the crisis of the global environment* Yale University Press, New Haven CT
- Steffin W et al.** 2004 *Global change and the earth system: a planet under pressure* Springer, Berlin
- Strategy Unit** 2003 *Innovation in the public services* Strategy Unit, London
- Sustainable Development Unit** 2004 *Consultation document on the UK sustainable development strategy 2001–2009* Department of Environment, Food and Rural Affairs, London

- Thomas C D et al.** 2004 Extinction risk from climate change *Nature* 427 8 January 145–8
- Townsend P and Harris I** 2004 Climate change and US security *The Observer* 22 February 2004
- UK Sustainable Development Commission** 2004 *Sustainable prosperity: a review of the economics of well-being* Sustainable Development Commission, London
- UN Environment Programme** 2000 *Global environment outlook* Earthscan, London
- Union of Concerned Scientists** 2004 *Scientific integrity in policy making: an investigation into the Bush Administration overuse of science* Union of Concerned Scientists, Washington DC
- US National Research Council** 1999 *Our common journey: a transition towards sustainability* National Academy of Science, Washington DC
- Warburton D** ed 1998 *Community and sustainable development: participation in the future* Earthscan, London