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Chapter 1

**Climate Change and Spatial Planning Responses**

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The climate change issue is part of the larger challenge of sustainable development. As a result, climate change policies can be more effective when consistently embedded within broader strategies designed to make national and regional development paths more sustainable (IPCC, 2001, p.4)

[a]Introduction

Understanding the impacts of cyclical cooling and warming of the Earth’s climate has made an important contribution to our knowledge of the evolution and distribution of populations and ecosystems. Incorporating this understanding into contemporary human development processes is, however, a major challenge. We realise that human use of the atmosphere as a carbon sink has systemic impacts that translate into significant social, economic and environmental costs. Given that these costs are hugely unpredictable in terms of location, nature and scale, we face risks that we had not factored into our decision-making processes. Our physical connections and interdependencies with nature are being demonstrated in inescapably practical terms. These realisations are changing both the context and the nature of spatial planning at all levels.

The relationship between energy use, development and climate has renewed the focus of planning analysis and policy on the complexity and uncertainty of environmental, social and economic systems. This is forcing a reassessment of how planners envisage development and the scope and appraisal of planning interventions. Climate change
therefore raises profound professional, technical, theoretical and ethical issues for planners. Climate change awareness is now shaping the sustainable development debate, further strengthening the critiques of dominant development pathways and raising interest in alternative development policy responses at different scales and in different places. It advocates searching for new opportunities, new tools and new rationales. Planners are being asked to reconcile, trade and, indeed, overturn short-term and long-term expectations for development. They need to address questions such as: what will low carbon, ‘climate-proof’ settlement look like in terms of urban form and infrastructure; what are the barriers to effective planning for such development; what are the implications for governance, from transnational to local levels, and the relationship between these levels; who will bear the risks and what are the implications for equity and social development? Current evidence and research raise yet more questions and many of the related projections are bleak. However, planners like to cast themselves as being ‘in the business of hope’: believing that knowledge and debate are powerful levers to finding policy and implementation solutions that meet complex social, economic and environmental needs. This has been an important motivation for this book.

This chapter aims to set the context for subsequent chapters by providing an overview of how the science of climate change is informing policy and the frameworks that are emerging in response at both transnational and national levels. It asks: how do we know that the world is warming and that human activities are responsible for it; what will be the main impacts of climate change; who are the main emitters of greenhouse gasses and who are going to suffer most from the effects of a changing climate? The chapter then outlines the global policy framework before focusing on the nature of spatial planning and its contribution to climate change responses.
The United Nations Framework Convention on Climate Change uses the term ‘climate change’ to refer specifically to ‘a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods’. The Intergovernmental Panel on Climate Change (IPCC) uses the term with respect to ‘any change in climate over time, whether due to natural variability or as a result of human activity’ (IPCC, 2001, p21). Importantly, the changes we face are a result of both processes as a range of natural and human factors drive changes in atmospheric concentration of greenhouse gases (GHG) and aerosols, solar radiation, and land surface properties. These in turn alter the energy balance of the climate system i.e. exerting warming or cooling influences on global climate. These changes are expressed in terms of radiative forcing. Increases in GHG, including carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O) tend to warm the Earth’s surface. IPCC’s Fourth Assessment Report is unequivocal that the Earth’s climate has warmed by 0.74 degrees Celsius (°C) since 1900, through increases in GHG emission (IPCC, 2007a). Between 1970 and 2004, global human-induced GHG emissions have grown by 70 percent. Complex systems such as climate have an inherent tendency to maintain states of equilibrium. As a result, some impacts of anthropogenic (man-made) climate change may be slow to become apparent. At the same time, effects are likely to last. Thus, even after GHG concentrations are stabilised, anthropogenic warming and sea level rise will continue for centuries due to the timescales associated with climate processes and feedbacks. For instance, if concentrations of GHG and aerosols could be held at year 2000 levels, the IPCC (2007a) estimates that a 0.2°C warming would still be
expected over the next twenty years. Beyond certain thresholds, some impacts could be irreversible. For example, ‘major melting of the ice sheets and fundamental changes in the ocean pattern could not be reversed over a period of many human generations’ (IPCC, 2001, pp16-17).

The IPCC’s forecasts for future climate change are based on the use of a range of alternative emissions scenarios. For the next two decades its best estimates are for an overall warming of about 0.4°C. Depending on the level at which global carbon emissions peak and begin to fall, increases of between 1.4 and 5.8°C. are projected for the period 1990 to 2100. This is 2 to 10 times larger than the observed warming during the 20th century (IPCC, 2007a). Indeed the IPCC warns that the projected rate of increase in the 21st century ‘is very likely to be without precedent during at least the last 10,000 years’ (IPCC, 2001, p8), and that ‘GHG forcing in the 21st century could set in motion large-scale, high-impact, non-linear, and potentially abrupt changes in physical and biological [as well as social and economic] systems over the coming decades to millennia’, some of which ‘could be irreversible’ (IPCC, 2001, p14).

[b]Anthropogenic emissions

In 2008, the level of GHG in the atmosphere was about 430 parts per million (ppm) compared with 280ppm before the Industrial Revolution. This is estimated to reach 550ppm by 2050 at the current rate of increase, but given that the levels are rising faster than expected, the 550ppm could be reached as early as 2035 (HM Treasury, 2006). The emission of carbon dioxide (CO2) which is the most important anthropogenic GHG increased by 80% in that time (IPCC, 2007a, p5). Global increases in CO2 concentrations are due mainly to fossil fuel use and to a lesser extent land-use change. Increases in methane (CH4) concentrations are predominantly due to
agriculture and fossil fuel use. The sectors which were most responsible for growth in GHG emissions between 1970 and 2004 include the energy supply sector (contributing to an increase of 145%), transport (120%), industry (65%) and land use, land use change and forestry (40%).\(^3\) Between 1970 and 1990, direct emissions from agriculture grew by 27% and from buildings by 26%. The latter has remained at roughly the 1990 levels thereafter. However, when taking into account the energy use of the buildings, the total direct and indirect emissions amount to 75% (IPCC, 2007b).

Figure 1.1 shows the distribution of GHG emissions in 2000 by sector.

**Figure 1.1 World greenhouse-gas emissions by sector 2000, %**

[INSERT FIGURE 1.1 HERE]

Source: Adapted from: The Economist, 2007, p4, survey

Two important drivers of the rise in energy-related emissions are global population growth (up by 69%) between 1970 and 2004 and the increase in per capita income (up by 77%). These figures refer to global average. The contribution of individual countries to global warming varies substantially between the rich and the poor. In 2004, for instance, high-income nations accounted for 20% of world population, produced 57% of Gross Domestic Product (GDP) and generated 46% of global GHG emissions (IPCC, 2007b). Per capita emissions from developing countries in 2004 were one quarter of per capita emissions from developed countries. While a progressive decoupling of income growth from GHG emissions has taken place through measures such as reducing the energy intensity (33% decrease in energy used per unit of GDP), the level of improvement has not been sufficient to counteract the global rise in emissions.
The scale and location of emissions is also highly differentiated below the national level with an ongoing debate about the role of cities gaining increasing currency. Satterthwaite (2008, pp 539-540), for example, has challenged the assertion that, ‘cities are responsible for about 75 percent of the heat-trapping greenhouse gases that are released into our atmosphere’, and instead estimates that the figure is nearer 30-40%. Any such estimates, of course, mask the effects of huge variations in relative wealth. For example, total GHG emissions ranged from 44.3 million tonnes (mt) in London in 2006 to 64.8mt in Mexico City in 2000 and a mere 1.8mt in Dhaka in 1999. The per capita emissions were respectively: 6.18, 3.6 and 1.7 tonnes; i.e. much higher in the wealthy city of London than in Mexico City or Dhaka (Romero Lankao, 2007; Dodman, 2009f).

In determining spatial differences in emissions, however, a crucial point is the issue of attribution i.e. how are the geographical boundaries of settlements defined for the purposes of carbon emissions? Do they, for instance, correspond with the administrative (municipality), the metropolitan (contiguous built up area), or the functional (city-region) boundaries? (see Davoudi, 2008 for detailed discussions) Boundary definition has major implications for attributing GHG emissions to cities and ‘non-cities’. Often major emitters such as power stations, landfill sites, or even large factories are located in ‘rural’ areas. Furthermore, activities such as aviation, shipping and other major transportation do not respect physical boundaries and while they cannot be directly attributed to ‘cities’, they are likely to be driven by city-based consumption. Overall, it is misleading to focus on a particular settlement type (such as cities) in attributing GHG (or CO2) emissions, because as Satterthwaite (2008, p547) stresses, ‘the driver of most anthropogenic carbon emissions is the consumption patterns of middle- and upper-income groups, regardless of where they live, and the
production systems that profit from their consumption’. However, this is not to suggest that the spatial dimensions of settlements are not key drivers of emissions, as explored in detail in subsequent chapters in this volume.

[b]Impacts of climate change

As global temperature increases, the models reviewed by the IPCC show an increasing risk of extreme weather events, including destructive storms, floods and droughts. They predict the melting of both sea ice and glaciers and changes in season that are being corroborated by measurements on the ground. Different global regions are expected to experience different changes as a result of global warming. For example, while Europe is expected to experience an increase in inland flash floods, Africa will see a rise in arid and semi-arid land (IPCC, 2007a). Projected patterns of warming will have increasingly significant impacts on various terrestrial, marine and coastal ecosystems, as well as on water resources, particularly in dry regions and agriculture in low latitudes and low-lying coasts. Some of these impacts are irreversible. For example, 20-30% of species assessed so far are likely to be at increased risk of extinction if the rise in global average warming exceeds 1.5-2.5 °C relative to 1980-1999 (IPCC, 2007a). Projected changes would transform the physical geography of the world with millions of people facing starvation, water shortages or homelessness. Even a one meter rise in sea level would flood 17% of Bangladesh land mass and threaten coastal cities such as London and New York (The Economist, 2006a, p8 survey).

The nature and intensity of impact will vary depending on the vulnerability of different places. Vulnerability is a function of both exposure and sensitivity. The former refers to the character, magnitude and rate of climate change and variability to which places are exposed. The latter refers to places’ adaptive capacity. Hence,
vulnerability is the extent to which people, places, economic sectors and infrastructures are prone to the adverse affects of climate change. As will be discussed later, adaptive capacity is as important as the level of exposure in determining the extent to which places can attenuate climate stresses.

The level of vulnerability differs not only between places, but also between population groups. Differences in demographic and socio-economic profiles affect the level of vulnerability considerably. Hence, children and elderly are often the most vulnerable groups, as are those who already suffer from poor health or are unable to cope with injuries and illnesses caused by the impact of climate change. Similarly, those who lack the capacity to reduce the direct and indirect impacts of climate change on their well being are also among vulnerable groups. These are lower-income groups with little resources at their disposal to, for example, move to safer areas, insure their assets or gain access to adequate water, electricity, sanitation, sewage, and other basic utilities (Satterthwaite et al, 2007; Halsnaes and Laursen, this volume).

Previous incidents have shown the disproportionate impacts of climate extremes on vulnerable groups. For example, most of the 20,000 lives claimed by the European heat wave of 2003 were among the poor and isolated elderly; as were the majority of the 1101 people who died in Louisiana following Hurricane Katrina in August 2005 (Wilbanks et al, 2007).

[a]The Global Policy Context

The global policy context for climate change, and other global environmental issues, have been predominantly shaped by the United Nations (UN). Its 1972 Conference on the Human Environment in Stockholm prompted the creation of the UN World Commission on Environment and Development in 1983, which produced their famous Brundtland Report: *Our Common Futures* in 1987. One year later, the UN
Environment Programme along with the World Meteorological Organization established the IPCC to assess published scientific evidence about human impacts on climate and the options for mitigation and adaptation. Since then, the IPCC’s periodic reports (of which the fourth one was published in 2007) have become an authoritative reference for tracking climate change and its impacts. Another significant UN conference was the 1992 Earth Summit in Rio de Janeiro which led to the establishment of the UN Framework Convention on Climate Change (UNFCCC). The convention became the driving force behind the Kyoto Protocol which was adopted in 1997 and came to force in 2005. Together the UNFCCC and Kyoto Protocol have established a global policy framework for climate change which underlies an array of national policies. They have also created an international carbon market and set up new institutional mechanisms to provide the foundation for future climate policies.

As of 2008, 180 nations have ratified the Kyoto Protocol, which sets binding targets to reduce GHG emissions to an average of 5% against 1990 levels over the period 2008 and 2012, when the first Kyoto Protocol ends. The exact target for each member state varies depending on their historic emission levels and capacity to change. The UK, for example, is committed to achieving a 12.5% reduction. More importantly, the largest per capita polluter in the world - the United States - failed to sign up to any mandatory targets. This remained the case even after the UN Climate Change Conference, in December 2005 in Montreal, where negotiations over post-2012 emission reductions were taking place. By contrast, the EU has fully supported the Protocol. In 2005, its European Climate Change Programme set up the EU Emissions-Trading Scheme (EU ETS)\(^5\) aimed at cutting emissions from the EU’s major polluting industries and meeting Kyoto targets. However, progress towards meeting the Kyoto targets has varied across the EU and over time. For example, the UK put forward its
own ambitious target of cutting CO2 emissions from their 1990 level by 20% by 2010, but failed to meet it. By 2006 it became clear that CO2 emissions had been rising every year since 2002 (The Economist, 2006b, p25). However, more recently, the UK Climate Change Act, 2008, introduced legally binding GHG emission reduction targets, through action in the UK and abroad, of at least 80% by 2050, and reductions in CO2 emissions of at least 26% by 2020, against a 1990 baseline. Several other international organisations (such as the World Bank) have also responded to the call for tackling climate change by putting forward policy measures, financial assistance and awareness raising activities. While climate change is a global problem requiring coordinated global action, climate change responses are enacted and governed at multiple scales. The role of sub-national government is particularly critical in formulating and implementing spatial planning policies. At all levels, attentions have been focused on the two key areas of adaptation and mitigation, as elaborated below.

[b]Climate change mitigation and adaptation

The IPCC defines mitigation as ‘anthropogenic [human] intervention to reduce the sources or enhance the sinks of greenhouse gases’; and adaptation as ‘adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities’ (IPCC, 2007c, p869). While mitigation measures aim to avoid the adverse impacts of climate change in the long term, adaptation measures are designed to reduce unavoidable impacts of climate change in the short and medium terms. This is because even if concentrations of GHGs could be fixed at 2005 levels, the world could be committed to a long-term eventual warming of 2.4 °C. Therefore, strategies need to be in place for adaptation to temperature increases of at least 2 °C (Committee on Climate Change, 2008).
As an integral part of sustainable development, mitigation of, and adaption to, climate change are closely linked and both have the same purpose: reducing undesirable consequences of climate change. However, for historical reasons, they have been split in both scientific and policy discourses. This is clearly reflected in the IPCC’s definition of the terms mentioned above and is also reflected in the structure of its Working Groups. During the initial climate change negotiations, adaptation was not only treated separately from mitigation, but also was given little attention. This, according to Swart and Raes (2007, p289), was because a focus on adaptation was considered, particularly in Europe, as distracting attention away from mitigation. Mitigation was given priority partly because climate change itself was conceived as an environmental problem similar to, for example, ozone depletion or acid rain which could be handled by setting targets and timetables (Munasinghe and Swart, 2004). Larger uncertainties about adaptation measures also played a part in initially paying limited attention to adaptation. Furthermore, mitigation was seen as the problem of developed countries (as the main emitters), while adaptation was considered as the problem of developing countries (as the main victims). Such artificial dualism began to lose its credibility as the global impact of climate change was increasingly demonstrated. It also became clear that climate change can be more usefully ‘framed as a developmental rather than an environmental problem’ (Swart and Raes, 2007, p289, our emphasis) given its fundamental roots in current production and consumption patterns. Hence, it is now widely acknowledged that climate change is unavoidable and both natural ecosystems and human societies will be affected by its unmitigated impacts. As Swart and Raes (2007, p301) put it: ‘the question is not whether the climate has to be protected from humans or humans from climate, but
how both mitigation and adaptation can be pursued in tandem. They propose five ways for developing links between adaptation and mitigation measures, as follows:

1. Avoiding trade-offs between the two and in designing adaptation measures taking into account the consequences for mitigation strategies (see chapter 2, this volume).
2. Identifying synergies between the two in response to options within specific policy sectors, notably through spatial planning and design.
3. Enhancing both adaptive and mitigative response capacity simultaneously and putting such capacity into action particularly in developed countries (see chapter 18, this volume).
4. Building institutional links between the two and bridging the communication gap between policy makers.
5. Mainstreaming climate policies into the overall sustainable development policies at all levels of governance (see chapter 11, this volume).

An integrated view of climate change, as adopted by the IPCC, considers the dynamics of non-linear cause and effect relationships across all sectors, as depicted in Figure 1.2. The solid arrows show the cycle of cause and effect among the four quadrants and the blank arrow indicates societal responses to the impacts of climate change.

**Figure 1.2 An integrated view of climate change**

INSERT FIGURE 1.2 HERE

Source: Adapted from IPCC, 2001, p3

The existence of inertia and uncertainty in climate, ecological and socio-economic systems requires that precautionary principles and safety margins should be taken into
account when setting strategies, policies, targets and timetables. The combined effect of inertia and irreversibility in the interacting climate, ecological and socio-economic systems mean that anticipatory mitigation and adaptation measures are essential to minimise the time lag between policy and action and between technological development and its uptake. As Stern emphasises, ‘there is a high price to delay. Weak action in the next 10-20 years would put stabilisation (of GHG levels) at even 550ppm beyond reach – and this level is already associated with risks’ (Quoted in The Times, 2006, P7).

[a]The Roles of Spatial Planning

Despite major uncertainties, the above summary has shown that the knowledge about causes and impacts of climate change has advanced substantially. There is also widespread recognition that the spatial configuration of cities and towns and the ways in which land is used and developed have significant implications for both adaptation to the adverse impacts of climate change and reduction of the emissions which are causing the change. Settlement forms and their impacts on the use of natural resources and levels of emissions are influenced by many complex factors, including available building technologies, land and property markets, the investment strategies of public and private institutions, public policies (related to, for example, planning, housing, transport, environment, and taxation), institutional traditions, social norms and cultures, and individual lifestyle choices and behaviour. Spatial planning interventions are therefore one factor among many in shaping settlement forms.

We use the term spatial planning in its broader sense to refer to actions and interventions that are based on ‘critical thinking about space and place’ (RTPI, 2003). It involves not only legislative and regulatory frameworks for the development and use of land, but also the institutional and social resources through which such
frameworks are implemented, challenged and transformed. In this context, spatial planning is understood as place-based problem-solving aimed at sustainable development. It involves the processes through which options for the development of places are envisioned, assessed, negotiated, agreed and expressed in policy, regulatory and investment terms.

National (and sometimes regional) planning systems vary greatly in terms of their priority, the scope and extent of their powers, their regulatory tools and the resources with which they work. Hence, their capacity to perform and deliver varies from place to place and from time to time. Despite this diversity, mitigation of carbon emissions and adaptation to climate change impacts are increasingly recognised as major priorities for the development and delivery of spatial planning policy in many jurisdictions. Indeed, recognition of the complexity, uncertainty and irreversibility demonstrated by climate science is changing the nature and framing of spatial planning with an increasing expectation for it to play a part in mitigation and adaptation efforts.

[b]Spatial planning policies

Responding to climate change involves an iterative risk management process that includes both adaptation and mitigation and takes into account climate change damages, co-benefits, sustainability, equity and attitudes to risk (IPCC, 2007). While there are strong interactions between mitigation and adaptation objectives, they each call for different or complementary planning tools. Indeed, integration of, and conflicts between, mitigation and adaptation priorities have become the focus of growing debate (see Chapters 2 and 3, this volume). At the same time, the importance of spatial and temporal scales in analysis has become critical. (see Chapter 17, this volume). Mitigation policies, that deliver major cuts in the carbon emissions of built
form and human activity, are necessarily led or coordinated at international or national levels, but sub-national innovation and leadership are essential to their delivery. Aspirations to achieve low or zero-carbon development can drive innovation, new partnerships and competitive advantages for areas. Major, though inconsistent, advances have been made in agreeing emissions targets. However, such targets raise critical locational issues in terms of the capacity of jurisdictions, at all levels, to comply (see Chapters 7 and 8, this volume). At the very least, it must be expected that area-based development pathways that can meet these targets should be identified through spatial planning processes. This requires assessments of the potential for renewable energy production and increases in the efficiency with which energy is both distributed and used. It also requires understanding of the potential for carbon sequestration, the most commonly recognised forms of which, so far, are forestry and habitat restoration and conservation (e.g. wetlands). Identifying such development paths also requires understanding of the networks of actors whose engagement and behaviours (whether organisational or individual) underpin delivery. It must also be based on a sound understanding of the markets, networks and technologies involved.

As mentioned above, an important area of mitigation for which spatial policy can provide a powerful lever is the shaping of settlement forms and patterns which play a major, complex role in energy use and efficiency (see Chapters 3, 4 and 5, this volume). At the same time, mitigation strategies require setting new standards for the materials, construction and management used for buildings and infrastructure, as well as new approaches to waste and water management and infrastructure in order to harness low energy and closed-loop processes which cut the materials and energy intensity of development.
Policies for climate change adaptation require the development of techniques to explore and achieve consensus around the risks associated with possible change. The understanding of impacts in terms of probability requires investment in modelling, not only on the basis of physical measurements but also in terms of stakeholder engagement. Such models help reduce uncertainty and prioritise issues. Risk assessments (as discussed in chapters 15 and 16, this volume) support decision-making on the allocation of land and design for resilience. In this context, processes of scenario building are critical to scoping and weighting risks, involving stakeholders and designing options (chapters 17 and 18, this volume). The focus of adaptation policy is not only on the direct allocation of land use but also on the details of locationally specific design, management and control. Such emphasis is very likely to highlight the importance of ecological functions of land in, for example, flood regulation and temperature control (Chapters 15, 16 and 19, this volume).

[b]Spatial planning processes

As demonstrated throughout this book, politics, values, governance, legislation and institutional capacity are integral to spatial planning. Indeed, spatial planning is a fundamental component of governance and a key determinant of governance capacity to respond effectively to climate change and other sustainable development challenges. Seen in this light, spatial planning processes provide key arenas in which integrated approaches to adaptation and mitigation can be designed, trade offs between these and other social and economic goals can be negotiated, conflicts of interests can be mediated and intra- and inter-generational equity concerns can be considered. Furthermore, climate change is part of the larger challenge of sustainable development, and climate policies will be more effective if they are embedded in broader strategies designed to make development paths more sustainable. This further
reinforces the role of spatial planning in general, and spatial strategies and plans in particular, in integrating and coordinating related policy, investment and regulation. However, this role is often undermined or indeed resisted by vested interests. In the UK, for instance, while it is argued that, ‘the concept of sustainable development has been adopted more extensively and more firmly on a statutory basis in the planning system than in any other field’ (Owens, 1994, p87), this has not always been matched by its outcomes in terms of dominant development processes. Planning’s capacity to deliver cuts in carbon emissions has remained constrained by not only its own limitations, but also other policy, fiscal and investment responses. Examples include the taboo on raising fuel taxes, relatively low levels of investment in public transport and renewable energy, the ‘predict and provide’ response to air travel and poor integration of transport planning within spatial development frameworks. It is argued that this reflects a weak ecological modernisation approach in the UK planning system which asserts that a balance between economic, environmental and social objectives can be found, without clarifying limits, priorities and imperatives (see also chapters 11, 14 and 21, this volume). Such an approach has allowed government, at various levels, to avoid politically difficult choices (Davoudi, 2000; Davoudi and Layard, 2001). Some argue, for instance, that this balancing principle, which underpins most planning decisions, dooms the environment to incremental erosion (Levett, 1999).

[a]Conclusion

Whether the climate change agenda has, in fact, been able to introduce a systematic shift in spatial planning towards ecological priorities remains to be seen. On the one hand, the discursive shift from sustainability to climate change, which has become increasingly apparent, can be seen as a catalyst for a refocusing of the spatial planning
agenda on ecological issues. It has encouraged planners to re-think their processes, methods, skills and even perception of what constitute ‘good places’. Progress has been made in embedding some hard-won requirements for environmental and social sustainability into planning frameworks through mechanisms such as sustainability appraisals of plans and policies. Furthermore, there has been a proliferation of governmental reports, national planning policy statements and emerging legislation at both national and international levels demonstrating a wide-spread recognition of the pivotal role of spatial planning in delivering climate change mitigation and adaptation policies (see contributions from different countries in this volume).

On the other hand, however, most of the progress has been made in a long period of unprecedented economic growth fuelled by incredibly buoyant property, and particularly housing, market. This period has now come to a halt. The developed world is heading towards a recession, the like of which has not been experienced since the great depression of the 1930s. Thus, the critical question is, how the downturn is going to affect the balance of priorities in spatial planning decisions. If history is anything to go by the answer is not promising. In 1979, faced with the 1980s economic downturn, Michael Heseltine (the then UK Environment Secretary) declared that: ‘thousands of jobs every night are locked away in the filing trays of planning departments’ (Heseltine, 1979, p27) portraying planning as an obstructive and technocratic bureaucracy which would stifle wealth-creating private enterprise by unnecessary regulatory curbs (including environmental regulation) on development applications (Ward, 1994). As a result, planning policies which aimed at protecting the high street, green spaces and communities were discarded in favour of creating more jobs. Far too often social distribution and environmental interests were sidelined in favour of economic imperatives in the plan making processes (Davoudi et al,
1996). Today, planning is likely to come increasingly under similar pressures to set aside its sustainability goals, which may be perceived as ‘luxurious embellishments to developments rather than forming an integral and vital part of their success’ (Hartley, 2009, p16).

However, as Stern has argued, ‘with strong, deliberate policy choices it is possible to ‘decarbonise’ both developed and developing economies on the scale required for climate stabilisation, while maintaining economic growth in both’ (quoted in The Times, 2006, p.7). Indeed, there are synergies to be made between the economic and ecological concerns if a long term perspective is developed. It is in this context that spatial planning can play a pivotal role not just as a technical means by which climate change policies can be delivered, but also as a democratic arena through which negotiations over seemingly conflicting goals can take place, diverse voices can be heard, and place-based synergies can be aimed for. This is a kind of planning that ‘is less and less about technical matters’ and more and more about the ‘critical appreciation and appropriation of ideas’ (Friedmann, 1998, p250). As the contributions to this book demonstrate, however, this also requires spatial planners to contribute high levels of knowledge, expertise and skill in building capacity for addressing climate change issues in uncertain times.

[a]Notes

1 Greenhouse gases (GHG) are the natural and anthropogenic gaseous components of the atmosphere which absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth’s surface, atmosphere, and clouds. This causes the greenhouse effect and gradual warming of the Earth. The primary GHGs are: carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4) and ozone
(O3). In addition, the Kyoto Protocol considers sulphur hexafluoride (SF6), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) as GHG.

2 Radiative forcing is a measure of the influence that a human or natural factor has on the global climate. Positive forcing tends to warm the surface while negative forcing tends to cool it. Other complex aspects of radiative forcing include cloud formation and the role of nitrogen oxides. Increase in aerosols in the atmosphere tends to have cooling effects but these are poorly understood (Committee on Climate Change, 2008).

3 The term ‘land use, land use change and forestry refers to the aggregated emissions from deforestation, biomass and burning, decay of biomass from logging and deforestation, decay of peat and peat fires, and excludes carbon uptake/removal.

4 Sea levels are rising because firstly water expands as it warms and secondly glacier ice is melting.

5 ETS works like any other commodities except that the trade is not in carbon but instead in certificates establishing the level of carbon which has not been emitted by the seller and hence can be bought by potential buyers. The carbon price was established by the Commission but remained volatile in the first phase of scheme (2005-08) because the allowance given to the industry was set at a high level. This was reduced in the second phase and hence pushed up the price of carbon, which stood at €20 per tonne in 2007 (The Economist, 2007, p10 survey).

[a]References


*The Economist* (2006a) ‘Those in peril by the sea’, 9 September, pp5-8 survey

*The Economist* (2006b) ‘Hot under the collar’, 1 April, p.25


