



# Climate change and professional surveying programmes of study

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## Abstract

**Purpose** – The purpose of this research paper is to examine some of the issues that the UK surveying profession need to consider with regard to climate change in the built environment.

**Design/methodology/approach** – The paper is based on an examination of literature related to adaptation and mitigation and the flow of information in the context of climate change and the built environment. The findings in this paper are based on a questionnaire survey (September 2008) of recent graduates from 23 programmes in the UK to assess the current state of knowledge and understanding of the issues confronting the profession with regard to the impact of climate change. They follow on from an earlier independent perception survey of Royal Institution of Chartered Surveyors (RICS) members which specifically focused on climate change. The findings from this survey suggested a degree of unpreparedness amongst the surveying community in the UK regarding issues around climate change and the built environment.

**Findings** – The paper suggests that, whilst the RICS stress the importance of sustainability in their literature and most university course documents include reference to sustainability and the effects of climate change, the message from graduates is mixed. For example, approximately 50 per cent of graduates considered that there was no, or little reference to the issue in their own programmes.

**Originality/value** – This paper addresses sustainability literacy and questions the way in which climate change in the built environment specifically is taught on surveying programmes. The findings help inform gaps in the manner in which the subject is approached. Leading on from this, it may be possible to put forward suggestion for a more proactive approach.

**Keywords** Global warming, Surveying, Sustainable development, United Kingdom

**Paper type** Research paper

## Introduction

According to the Intergovernmental Panel on Climate Change's (IPCC's) Fourth Assessment Report there is no doubt that the climate is warming and "[...] more evidence has accumulated over the past five years to indicate that changes in many physical and biological systems are linked to anthropogenic warming" (IPCC, 2007, p. 9). The European Alliance of Companies for Energy Efficiency in Buildings suggests that energy use in buildings is responsible for approximately 40 per cent of the European Union's carbon emissions. Theoretically, therefore, greater energy efficiency in our buildings and the use of our built environment generally may help reduce some of the adverse effects of carbon emissions and their impact on the Earth's climate. To address these issues, those responsible for the design, development, use and management of property assets and their environmental context can consider approaching solutions in two distinct ways; either through mitigation or through adaptation. In other words, in order to attempt to reduce carbon emissions, it may be the case of addressing either the use of buildings or the production of buildings. In reality, it might be a case of



both approaches. In fact, for the surveying profession it should be a case of both, which goes beyond traditional technical knowledge acquired during the course of a three-year bachelors or a one-year postgraduate (PG) conversion programme. All Royal Institution of Chartered Surveyors (RICS)-accredited programmes now embrace the notion of sustainability in some form or other. However, the manner in which it is presented and integrated into these programmes will differ depending on the perceptions and strengths of the individual academic institutions. What is clear, however, is that the surveyor of the future will need to be aware of, and understand the implications of climate change in the built environment and advise on effective sustainable solutions. These solutions may relate to the four issues of design, planning, valuation or management and all impact on the decisions of organisations to invest in and use buildings. Accordingly, this paper attempts to assess the experience of recent graduates in a range of institutions in the UK and, to a much lesser extent, Europe of the integration of sustainability into their programmes.

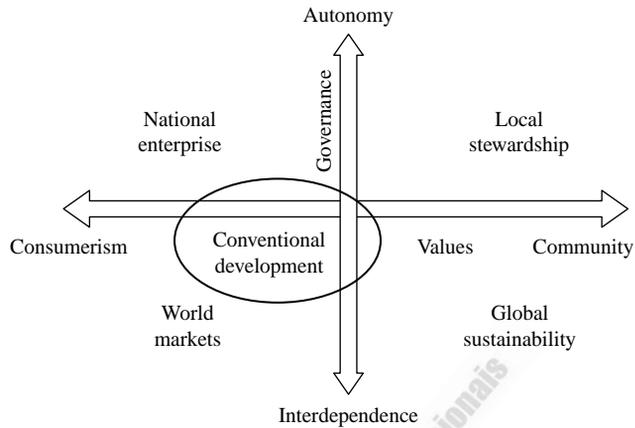
### Adaptation

Adaptation is defined 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, 2007, p. 27). Adaptation can be “anticipatory, autonomous or spontaneous and planned” (Watchman, 2008, p. 19). Also, adaptation can operate at different levels. Newcastle University in their Engineering and Physical Sciences Research Council/UK Climate Impacts Programme (EPSRC/UKCIP, 2007) report *Building Knowledge for a Changing Climate* identify four mutually exclusive socioeconomic scenarios. These are:

- (1) national enterprise (people aspire to personal independence and material wealth within a nationally based cultural identity);
- (2) local stewardship (people aspire to sustainable levels of welfare in federal and networked communities);
- (3) world markets (people aspire to personal independence, material wealth and mobility to the exclusion of wider social goals); and
- (4) global sustainability (people aspire to high levels of welfare within communities with shared values, more equally distributed opportunities and a sound environment).

According to Gill (2004) these are defined by values and governance which UK Climate Impacts Programme (UKCIP) take to be the fundamental and independent determinants of future change. These were subsequently sub-divided into six general categories (i.e. governance, technology, human capital, equity, critical institutions and economic resources and structure; UKCIP, 2005). However, Figure 1 shows how conventional development (in the broadest sense of the word) is positioned within the socioeconomic field in an effort to determine its ability to adapt to changes in climate.

Taken at face value this suggests that such development is firmly positioned in the area of independent material wealth. As such, it is possible to see an important role for surveyors as advisors to clients in the specific area of real estate development, investment and management. As the RICS (2007b, p. 25) acknowledge:



Source: UKCIP (2001)

Figure 1.  
Four socio economic  
scenarios for the UK

[...] it is our intention to place sustainability at the heart of all its activities to:

- promote community development and social inclusion;
- promote social and environmental equality;
- encourage the sustainable use of resources;
- reduce waste generation and dispose of waste responsibly;
- protect and enhance natural environment;
- strive to reduce energy consumption;
- promote sustainable design, development and construction; and
- promote sustainable land use and transportation.

### Mitigation

Mitigation has been defined as “an *anthropogenic* intervention to reduce the anthropogenic forcing of the *climate system*; it includes strategies to reduce *greenhouse gases sources* and emissions and enhancing *greenhouse gas sinks*” (IPCC, 2007, p. 878). There is generally a longer lead in time for mitigation measures to be implemented. Nevertheless, there are still some existing technologies which could introduce change. According to Pacala and Socolow (2004, p. 968), “humanity already possesses the fundamental scientific, technical, and industrial know-how to solve the carbon and climate problem for the next half-century”. They identify seven crucial wedges focusing on technologies that have the potential to produce a material difference in the next 50 years. Each wedge goes beyond “business as usual” and seeks to reduce emissions by 1 GtC/year. In their paper, they highlight efficiency and conservation and discuss the following options:

- improved fuel economy;
- reduced reliance on cars;
- more efficient buildings;
- improve power plant efficiency;

- substituting natural gas for coal;
- storage of carbon captured in power plants;
- storage of carbon captured in hydrogen plants;
- storage of carbon captured in synfuel plants;
- nuclear fusion;
- wind electricity;
- photovoltaic electricity;
- renewable hydrogen;
- biofuels; and
- forest management.

Basically, as scientists they believe that, in this way, the technology is immediately available to achieve a cumulative reduction of emissions of 25 GtC over 50 years per wedge. This being the case, it would therefore be possible to implement mitigation measures almost immediately to run alongside adaptations.

Again, there is much that the surveying profession can do to help to achieve such reductions. However:

[...] sustainable property investment requires a new mind set which may well be entirely different from current “best practice” in design (what you build), construction (how you build it), property investment and management, e.g. integrated sustainability assessment of property assets; objective and transparent sustainability accounting and reporting (which ought not to result in mere “creative writing exercises”); and promoting next-generation construction approaches such as closed-loop design and the use and reuse of organic materials in order to achieve breakthroughs in energy efficiency and to create buildings that serve as utility providers rather than acting as utility consumers (RICS, 2008b, p. 6).

At present, the barriers to realising this as part of the professional service to clients is “[...] lack of knowledge and lack of expertise, reflecting inadequacy of training and education in relevant techniques” (RICS, 2007b, p. 26). Nevertheless, there is some evidence that the market is responding. For example, JLL (2008, p. 2) characterise the new market by energy, mobility and a need to evaluate “[...] within a social and environmental context”. Taking this further, they have now added a third dimension to investment analysis which gives a sustainability score to value.

### **Problems of knowledge**

One of the problems facing study programmes in the built environment is how to incorporate broad (often remote) generic issues such as globalisation and climate change. In themselves, they are outside of the frame of professional or technical knowledge. However, they need to underpin the whole structure of knowledge in built environment disciplines. Leff (2005, p. 1) sees the environmental crisis as “[...] a problem of knowledge”. He sees knowledge as having constructed “hyperreality”. Leff goes on “environmental complexity leads to rethinking the principle of formal identity – which affirms the selfness, selfishness and sameness of entities – in contrast with complexity that emerges from diversity, plurality and otherness” (p. 8). It may, therefore, be difficult to be parochial in addressing these issues. So, on the one hand, for example, students will examine in detail statutes, legal principles, locally adopted methodologies, etc.

pertinent to their area of jurisdiction. These have an immediacy about them because these are the operational tools necessary to gain employment. However, it is harder to get across strategic concepts and shifting mindsets necessary to accept “the crafting of new identities in the process of globalization” (p. 8). As such, these:

[...] confront the conception of human being as a generic and universal “being-there” – being before death -, to envision the world as inhabited by a diversity of identities and differentiated forms of being that carry within themselves the collective senses of the people (Leff, 2005, p. 8).

In this new paradigm, human beings hold knowledge as self-interested beings, beings which value their own existence (Mathews, 1994), i.e. “I have read the lease and I know the limitations of my client’s actions” but may overlook their position as part of a wider self-realizing system, particularly when that system is as vast and as complex as the natural environment, i.e. “I have read the lease and I need to make my client aware of its context in the overall business and in the context of the global environment”. This inaccessibility can lead to division, a lack of understanding and self-interested exploitation. We have the technical knowledge and physical resources, but, psychologically, we may still be holding the same mindset that we had when we emerged from the caves! This is a fundamental difficulty when trying to convey the magnitude of climate change issues. Without a change in mindset, energy efficiency measures are likely to lead to more energy consumption, more efficiently, i.e. the Jevons Paradox (Foster, 2009).

In a global economy we have to realise and get the message across that:

[...] self-realizing systems are open systems and hence cannot exist independently of their environment [...] and the local environment may itself be a self-realizing system, which may in its turn be part of a wider self-realizing system (Mathews, 1994, p. 106).

This suggests “intrinsic interconnectedness”. There is therefore a tension between the primary short term self-interest of the individual (i.e. the client’s need to know the implications of the lease terms for day-to-day operational purposes) and the inescapable interlink between the individual and the whole (i.e. the client’s understanding of the wider, more remote implications of actions under the terms of the lease).

However, even where the gap in knowledge and understanding is redressed in a variety of ways it is often open to manipulation to suit the particular “business case” requirements of the client. So:

[...] in its attempt to analyze nature, by simplifying *its nature*, science ignored the real. Thus, mechanistic economics and technological reason negated the potentials of nature, that is, its ecological *negentropic* productivity. Economic growth fuelled by technological efficiency accelerated the entropic degradation of the planet (Leff, 2005, p. 6).

Somehow, the impact on nature and the climate needs to be factored into the professional arena at a macro, integrative way rather than just an add-on makeweight. The World Wildlife Fund (WWF) too see the problems in the environment as a “[...] consequence of rapid economic and population growth as well as the related increases in material flows and energy use” (WWF, 2006, p. 13).

One of the problems in the development of the built environment is the use of capital. In its production and consumption there is inevitably a cost to the environment, and often the climate. Up until recently, this has been ignored principally because it is

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difficult to quantify the true impact. Evaluating social capital is more complex than private capital. Private capital:

[...] was the first to practice deterrence, abstraction, disconnection, deterritorialisation, etc.; and if it was capital which fostered reality, the reality principle, it was also the first to liquidate it in the extermination of every use value, of every real equivalence, of production and wealth, in the very sensation we have of the unreality of the stakes and the omnipotence of manipulation (Baudrillard, 1983, p. 43).

This suggests that it is principally private capital (i.e. that which is easily quantifiable) that creates “reality” and that “reality” has established a disconnect between subject and object, individual and society, man and nature. Many of the built environment programmes of study perpetuate these notions rather than challenging the assumptions. The wider implications of actions over private capital can be ignored so long as the underlying natural climate does not appear to be imminently in crisis. When this happens, it is either too late or it is time to rethink the formula.

At the outset, the stakes were high but largely unscientific (a large part of the romantic movement of the nineteenth century drew its strength from looking back to an “ideal” past). Today, the stakes are higher and the scientific evidence is undeniable. Knowledge is greater but that knowledge at one level is incomprehensible, ignored at another and too awful to contemplate at another. Knowledge tends to come from a movement of the past and what follows from this is the notion that the future is a modified continuity of the present (Krishnamurti, 1996). According to Koch and Smith (2006) civilization in the west has grown to a greater extent than any other civilization in history. As a consequence, it is difficult to see beyond it. Its ongoing successes disguise its longer term shortcomings because these remain unseen so that the whole:

[...] Western economy constituted a sort of “positive unconscious” of development knowledge, that is, a field of which development experts were unaware but which nevertheless was constitutive of their conceptions and practices (Escobar, 2005, p. 141).

This “social stock of knowledge” (Berger and Luckmann, 1976) suggests that in order to understand and confront the problems associated with, for example, climate change, a change of system provides more of the same without solution. The problem is perhaps more fundamental than that. Systems and their regulations can go so far but at the end of the day it is a behavioural issue that requires addressing. In the context of this paper, the issue is, first, what level of literacy do surveyors have in the field of sustainability and, second, how are academic institutions addressing and incorporating these issues into their surveying syllabi.

### **Sustainability literacy**

The real issue is not so much the level of technical knowledge accumulated through study but the depth of the mind that meets knowledge (Forbes, 1997). As such a change of mindset “[...] to bring about ecologically sustainable practices” is probably not sufficient in itself as “[...] thought has to be translated into action” (Engel-Di Mauro, 2008, p. 91). Sustainability literacy might go some way to achieving this. It is a means of expressing an individual’s ability to interact with the social, environmental and economic aspects of sustainable development (Parkin *et al.*, 2004). “In a sustainability context, this means that to promote less harmful behaviour, prevailing attitudes, beliefs and values need to be challenged at all levels, personal, cultural and institutional”

(Murray and Murray, 2007, p. 288). In this respect, there has to be some negotiation between the private and the social, between the individual client and the global implication of particular courses of action.

The concern here is how students become aware of the multi-faceted aspects of sustainability in order to make sense of integration into their decision making. It is clear that changes in behaviour will be needed to deliver sustainable development. But, attitude and behaviour change is a complex subject. Information alone does not lead to behaviour change or close the so-called “attitude-behaviour gap” (Department for Environment, Food and Rural Affairs – DEFRA, 2005).

As with any decision, information is gathered as codes and then interwoven into patterns. These patterns are “[...] preconceived notions which have often been built up through a combination of upbringing, education and experience” (Dent and Temple, 1998). It is therefore not entirely the role of the educator to bring sustainability into the mix. If there is not already an appropriate code in a student’s upbringing it is hard to influence. As Freire (1973, p. 67) states “to teach is not *to transfer knowledge* but to create the possibilities for the production or construction of knowledge”. Built environment professionals have to recognise that “climate change [...] is no longer simply an environmental problem but a wider issue affecting economic stability” (Town and Country Planning Association/Friends of the Earth – TCPA/FoE, 2006, p. 1). This being the case, then why do:

[...] most existing building performance assessment methods fail to assess buildings in use, fail to contribute to improving the performance of buildings, fail to link the performance to appraisal and valuation methods and practice and also do not sufficiently account for the existing building stock (RICS, 2008a, p. 5).

Is this a failing in the education system leaving students illiterate in the area of sustainability? If, therefore we need to make “sustainability literacy” a core competency for professional graduates (DEFRA, 2005) how can this best be achieved?

The report “Sustainable development in higher education – current practice and future development”, (Higher Education Academy – HEA, 2006, p. 6) identifies the following skills and knowledge as representing sustainability literacy:

- an appreciation of the importance of environmental, social, political and economic contexts for each discipline;
- a broad and balanced foundation knowledge of sustainable development, its key principles and the main debate within them, including its contested and expanding boundaries;
- problem-solving skills in a non-reductionist manner for highly complex real-life problems;
- ability to think creatively and holistically and to make critical judgements;
- ability to develop a high level of self-reflection (both personal and professional);
- ability to identify, understand, evaluate and adopt values conducive to sustainability;
- ability to bridge the gap between theory and practice; in sustainable development, only transformational action counts;
- ability to participate creatively in inter-disciplinary teams; and
- ability to initiate and manage change.

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In the context of professional surveying programmes of study, how effectively are these skills and knowledge bases being integrated into programmes?

### Graduate surveyors' survey

Changing value perceptions indicate that the understanding of the concept of property value is in transition. An isolated analysis of mere financial variables is no longer adequate for capturing a broadening approach to the concept of property value. In fact, it is becoming evident that a property's economic value also depends on the building's capacity to create and protect environmental, social and cultural values (RICS, 2008b, p. 13).

Taking this quote as a starting point, this research study attempts to assess the level of integration of environmental sustainability into existing real estate programmes. To evaluate graduate surveyors' attitudes and experience of environmental experience, questionnaires were distributed within the property industry in London during September 2008. The group administration method was adopted to collect the survey results. One of the advantages of adopting this method is that it generally attracts a high cooperation rate at a low cost. In addition, and unlike the postal survey, the group administration method also allowed explanation of the research/study to the respondents (Fowler, 2002). The approach was used with the agreement of the Human Resources teams of major London practices who were willing to allow the survey to be completed during the graduates' induction sessions.

In total, 96 graduate surveyors were surveyed from five firms. These were Knight Frank, Cluttons, NB Estates, Savills and King Sturge. The surveys were conducted between 8 and 26 September 2008.

The questionnaire consisted of 19 questions in total – 11 closed questions and eight open questions. The questions covered the following main areas:

- programmes of study;
- mitigation;
- responsibility;
- work impacts; and
- sources of information and understanding.

This survey follows on from a similar study of RICS members in the Planning and Development Faculty. This earlier study (Comerford, 2007) suggests that there is a need for greater integration of climate change issues into built environment programmes, particularly those recognised by the RICS.

### Survey findings

#### *Programmes of study*

Questions in this area concentrated on how climate change in the built environment was presented and integrated into programmes of study. The questionnaire contained two main questions in this area of concern. The first related to curricula connections to climate change. In this respect this study adopted the three levels of integration identified by Dawe *et al.* (2005, pp. 4-5) as a means of testing how far educators see the relative importance of sustainability as a part of real estate programmes. Accordingly, graduates were asked to assess the extent to which they considered their studies

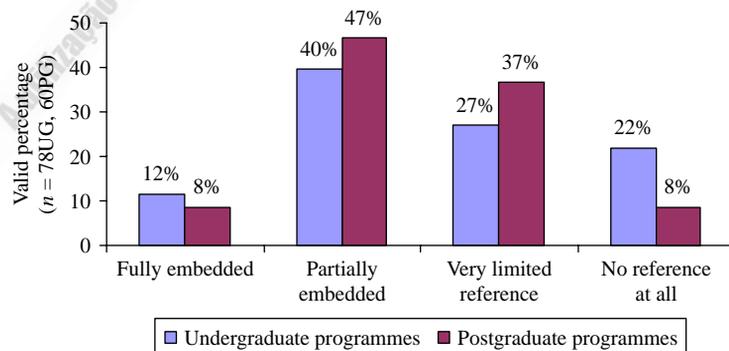
embedded climate change in the built environment (ie fully embedded, partially embedded or very limited embedded).

From the results shown in Figure 2, it is interesting to note that almost 50 per cent of graduates from both undergraduate (UG) and PG real estate programmes had very limited or no reference to climate change (49 per cent UGs and 45 per cent PGs). From the analysis, there was no significant difference between undergraduates and PGs apart from where respondents considered that there had been no reference at all to climate change issues on their programmes. In this category, only 8 per cent of PGs responded compared to 22 per cent of those who had graduated from undergraduate programmes. This might be of concern to organisations such as the RICS who emphasise the importance to the profession of integrating sustainable solutions in advice to clients.

The second question, based on the HEA progress report considered the teaching approach adopted. This report identifies three prevalent perspectives in the presentation of sustainable development in the teaching environment. These are:

- (1) *Educators as role models and learners*: this orientation places an emphasis on how the tutor can act as a role model for students in order to offer a credible and authoritative perspective on the realities of putting sustainability principles into practice.
- (2) *Experiential learning by reconnecting to real-life situations*: this focuses on real and practical life issues and actual experiences as learning situations.
- (3) *Holistic thinking*: many of the skills and knowledge for sustainable development are associated with complex, multi-layered and interconnected systems such as interdisciplinarity and critical thinking (HEA, 2006, pp. 4-5).

In this case, evidence from the survey suggests that, whilst there was a fairly even spread of experience across undergraduate programmes, there was a significant difference in the area of interdisciplinary working. The analysis suggests that respondents coming from PG programmes identified a greater emphasis on a more holistic approach. This might be supported by the notion that PGs tend to be more



**Figure 2.** During your programme of study, how was the climate change agenda presented?

|                        |                           |
|------------------------|---------------------------|
| Fully embedded         | Z = 0.63 P-value = 0.528  |
| Partially embedded     | Z = -0.81 P-value = 0.415 |
| Very limited reference | Z = -1.22 P-value = 0.223 |
| No reference at all    | Z = 2.29 P-value = 0.022  |

mature thinkers and are able to assimilate information from different sources and subject areas. As such they may be capable of seeing the integrative nature of climate change in the built environment when it is presented to them (Figure 3).

*Mitigation*

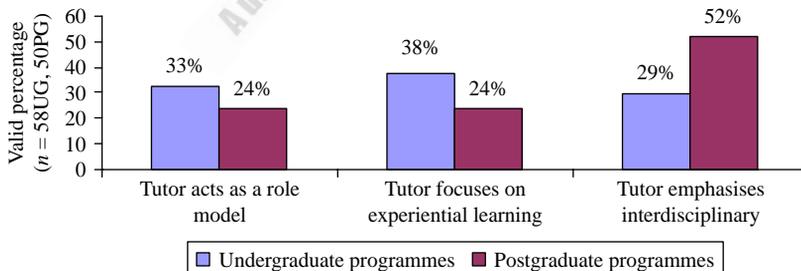
Questions here considered actions that should be taken (and by whom) to limit the effects of climate change in the built environment. The principles provided to the graduates were the RICS Sustainability Policy Principles developed by the Presidential Commission on sustainability and cited in RICS (2007a, c) and range from the natural to the built environments and community development to individual design and management issues.

This area sought to determine which actions were the most important in limiting the effects of climate change on the built environment. The evidence from the survey (Figure 4) shows a strong bias towards the sustainable use of resources and a reduction in energy consumption. These areas were more significant than the more social/community principles presented to the graduates.

*Responsibility*

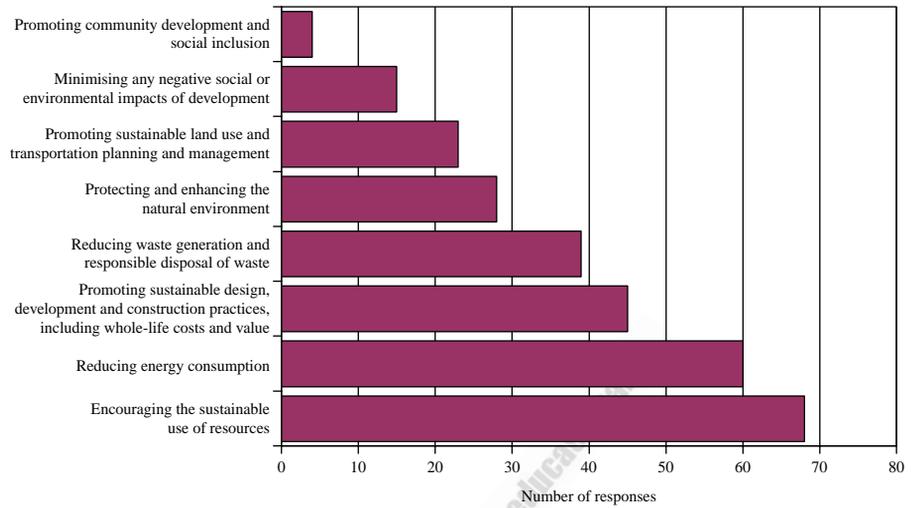
Questions here looked at levels of responsibility across a range of organisations. Figure 5 shows the results from a specific question which sought to find out at what level the graduates considered responsibility lay. The evidence here suggests that graduates consider central government as having most responsibility followed by industry, international co-operation alongside individual responsibility. This then begs the question “what is the nature of the state?” and where should power lie in the climate change debate?

Climate change does not recognise borders or municipalities and as such “[...] ‘things’ are neither wholly dependent or independent, but unique in the innovations they make of their conceptual and physical inheritance” (Young, 2002, p. 194). This lack of clear independence of the physical inheritance is picked up in deliberations by Okereke and Bulkeley (2007) who identify four conceptual topics in global climate governance theory. These are the nature of the state, the character of power in the international arena, the underlying dynamics of climate governance and governance as a process.

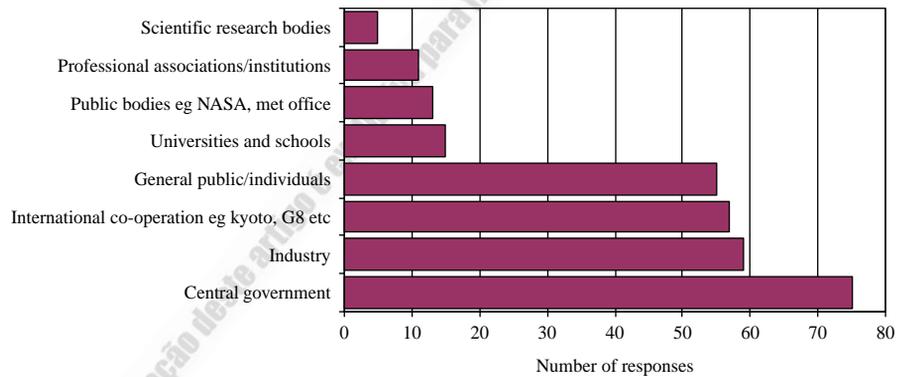


|  |                           |
|--|---------------------------|
| Tutor acts as a role model             | Z = 1.02 P-value = 0.310  |
| Tutor focuses on experiential learning | Z = 1.59 P-value = 0.113  |
| Tutor emphasises interdisciplinary     | Z = -2.45 P-value = 0.014 |

**Figure 3.** Experience of the issue of climate change in your programme of study



**Figure 4.**  
Three most important actions that should be taken to limit the effects of climate change on the built environment



**Figure 5.**  
Three responsible organisations

So whilst it is clear that graduates see responsibility resting at three levels (i.e. international, national and personal) the debate is more complex than that. It is necessary, in the context of climate change governance to question the nature of private and public authority to unpack “[...] a multiple and more complex accounts of power [...] and [...] the influence of competing rationalities” (pp. 39 and 43). These also have to be seen in the environment of “[...] changes in property rights, structures of production and political economy’ which is percolating through many societies” (Okereke and Bulkeley, 2007, p. 41).

Similar results were identified in the earlier study (Comerford, 2007). What is also interesting from Figure 5 is the fact that the bodies that graduates identify most with responsibility and just those organisations that invariably tend to take short term views. There may therefore be a mismatch between what these organisations recognise as responsibility and the responsible actions needed to address the long term consequences of climate change in the built environment.

Questions in this area were also asked about both governmental and professional surveyors' actions necessary to mitigate the effects of climate change in the built environment. Responses included not only the practical aspects of energy efficiency measures and providing advice to clients but also the need to take "[. . .] responsibility for your lifestyle".

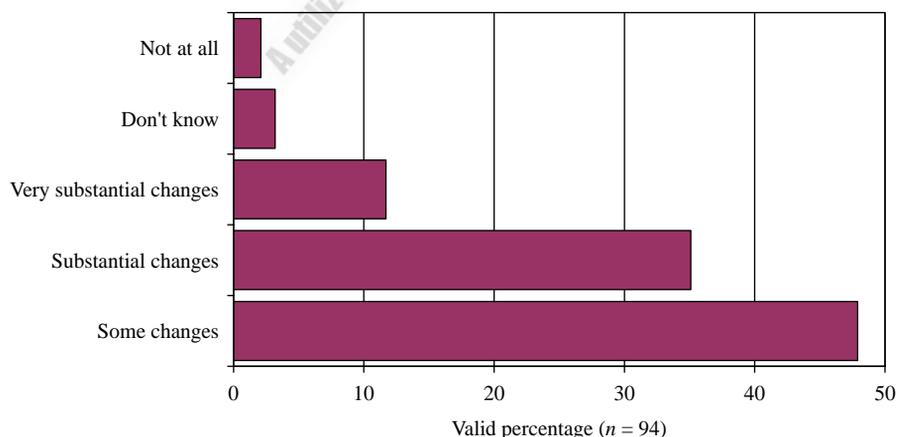
#### *Work impacts*

Respondents were asked to rank the impact on their jobs over the next five years and to consider in what ways this may be apparent. The two questions related to this topic suggest that graduates generally see some substantial change taking place. Figure 6 shows that only a very small percentage predicted no change and around 12 per cent saw very substantial change in working practices due to climate change in the built environment.

It is interesting that the RICS see this slightly differently, particularly in the field of valuation and investment advice:

Investors are cut off because their principal advisors, valuation practitioners, are almost entirely focussed on rather isolated correlation analysis based on mere financial performance data, and neglect to incorporate value assessments of the current and ongoing benefits of sustainable design. This practice has led to both a one-sided understanding of the economic value of property and to an artificial separation of economic, environmental, social and cultural measures and components of value (RICS, 2008b, p. 10).

There is a clear need here to incorporate sustainable factors (beyond the economic) into appraisal work and the advice that the surveying profession gives to its clients. It might be anticipated that this would be a part of the training either at formal academic award level or part of the RICS Assessment of Professional Competence process. However, it has been suggested that "[. . .] the worth of asking the right question is often given a lower value by academics than the technical sophistication used in tackling the problem" (van Ginkel, 1998 quoted in Kevany, 2007, p. 112). This may be especially tempting on real estate programmes which rely on a level of technical knowledge to meet the needs of the profession. In fact, at the general level it has been suggested that the reason why sustainability has not become more embedded in programmes is due to



**Figure 6.**  
Do you think that your job will change over the next five years to take account of climate change issues in the built environment?

overcrowding and time pressures. However, it should not be understated that “[...] if learners are not encouraged to assess their impact, this is a neglect of their responsibilities and ours as educators” (Kevany, 2007, p. 114).

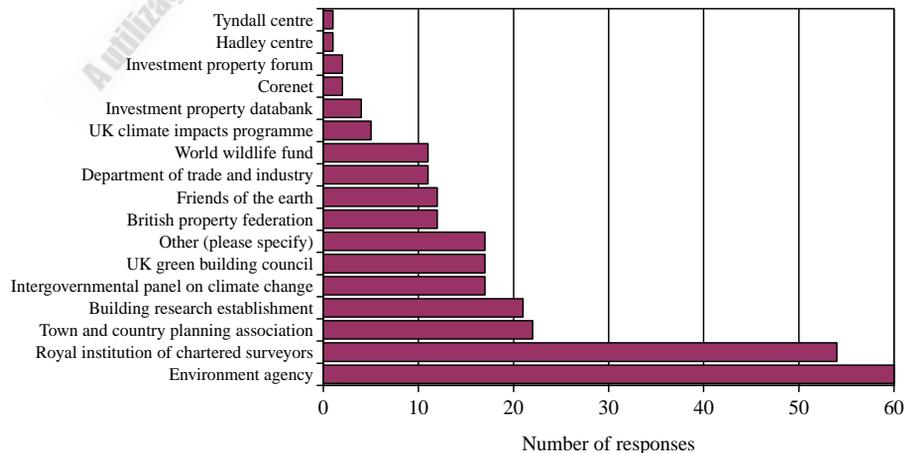
*Sources of information and understanding*

This final area concentrated on organisations, publications and levels of personal understanding. This area contained eight questions ranging from organisations who have contributed to knowledge through to assessing respondents understanding and the contribution of the RICS specifically to the debate.

Figure 7 shows clearly that the organisations that have contributed most to their understanding of climate change issues as they impact on the built environment are The Environment Agency and the RICS. In one sense, this is encouraging as it suggests that the profession is being well served by its professional institution. However, on the other hand, it does raise questions about the depth of understanding and integration of the issues across a broader range of disciplines. From Figure 7, it would appear that, generally, findings from organisations such as the Tyndall and Hadley Centres, Investment Property Forum and Investment Property Databank are not getting into the classroom.

This concern is slightly enhanced when it is becomes apparent that, whilst over 50 per cent of respondents identified the RICS as contributing most to understanding, only 20 per cent of them considered this contribution to be successful (Figure 8). Continuing professional development (CPD), website and journal were generally referred to by respondents as sources of information from the RICS but the sentiment in comments such as “it has helped contribute to surveyors’ awareness but no groundbreaking influences’ and “I have read some relevant RICS reports, but, some better reports were written by other bodies” and “it has been fairly successful, but I believe it can do better” were common.

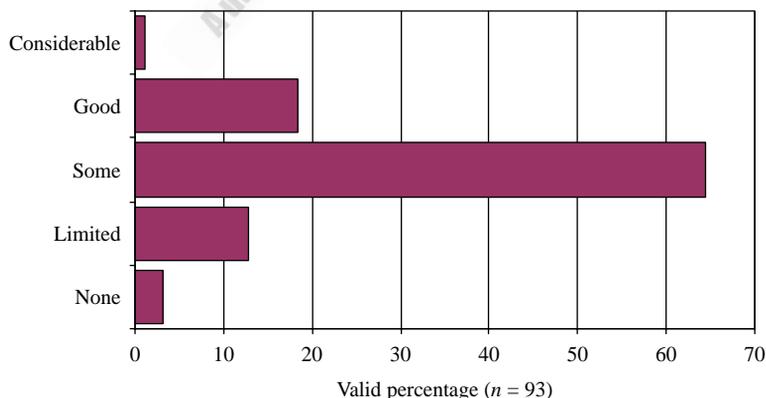
The graduates were then presented with a list of publications and asked to identify three in order of importance. The full list, significant recent publications regarding climate change and the built environment, is included here as follows:



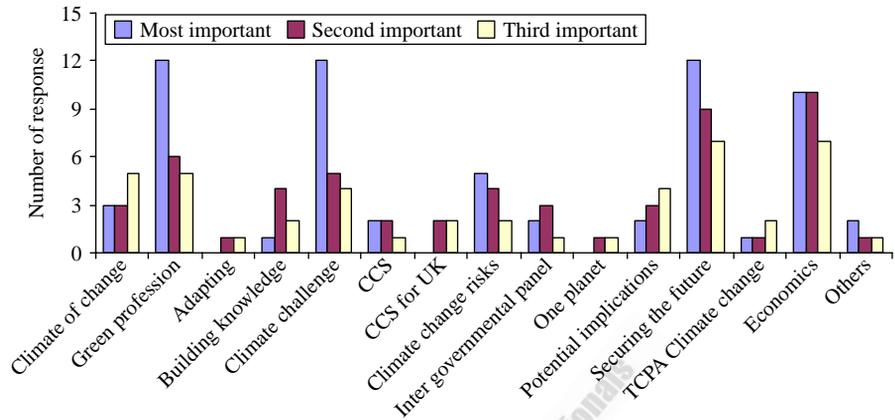
**Figure 7.** Organisations that have contributed most to your understanding of climate change issues in relation to the built environment

- A climate of change: final report of the local government agency (LGA) Climate Change Commission (LGA).
- A green profession? (RICS).
- Adapting to climate change: a checklist for development (South East Climate Change Partnership).
- Building knowledge for a changing climate (EPSRC).
- Climate challenge (Her Majesty's Government (HM)).
- Climate change and sustainability: the crucial role of the new local performance framework (communities and local government, DEFRA).
- Climate change scenarios for the United Kingdom (UKCIP, DEFRA, Tyndall Centre, Hadley Centre).
- Climate change: the risks for property in the UK (University College London Environment Institute).
- Intergovernmental Panel on Climate Change Working Group report.
- One planet business: creating value within planetary limits (WWF).
- Potential implications of climate change in the built environment (Building Research Establishment).
- Securing the future: the UK Government sustainable development strategy (HM Government).
- TCPA climate change by design guide (TCPA).
- The economics of climate change: the stern review Cambridge University Press (CUP).

When asked to select publications that they had read or applied in their studies, respondents identified The Green Profession (RICS), Climate Challenge (HM Government), Securing the Future (HM Government) and The Stern Report (CUP) as the most influential. These results are shown in Figure 9. Related to this, respondents were asked to identify ways in which their understanding could be enhanced. Many showed personal concern and hoped for more training and CPD opportunities.



**Figure 8.** Success of RICS have been in adding to the surveying profession's understanding of climate change issues in the built environment



**Figure 9.**  
Important publications  
relating to climate change  
in the built environment

### Some conclusions

The built environment is a major contributor to the potential crisis created by the planet's changing climate. This paper has set out to show that there is wealth of information available to make buildings more energy efficient and, in one sense, to suggest that we already have a solution or at least part of a solution. However, that is a technical solution and if implemented on its own it may just prove to be another "false dawn". The real solution is to see a more fundamental change in attitude which leads to a behavioural change to complement the technical advances. This can only be achieved through the way in which we handle knowledge and develop a literacy of sustainability which informs the way in which we act.

Some of the ideas put forward in the first part of the paper have been tested in the analysis of the survey undertaken for the second part of the paper. From these results the evidence suggests that it is generally "business as usual" in that programmes tend to see sustainability as a topic to refer to but not something that underpins the whole structure of the programme. On the other hand, it has to be admitted that it is difficult to easily integrate topics such as globalisation and climate change into vocational courses where the immediacy of other more operationally orientated topics capture the imagination more readily.

It is clear that the RICS accepts a responsibility to provide a professional service to its clients which includes solutions that address climate change and sustainability. How far this is being achieved and is apparent to graduate surveyors is open to question. Both the RICS and academic institutions may need to revisit the manner in which these topics are integrated into academic programmes both at undergraduate and PG level.

Having said that, it is also clear that in virtually all programmes there is some commitment to the issues. Whilst no one is suggesting that climate change should replace topics in existing syllabuses, based on the scientific evidence, it should be an integral part of any decision related to the built environment in order to achieve social, economic and environmental sustainability.

It is interesting to note that over the recent past on business courses much more credence (and research time) has been given to psychology (workplace productivity) and behaviour (finance and investment decision making). There is evidence that this is percolating through into professional surveying programmes but, at present, only in

specialist areas. Harnessing these initiatives into mainstream programmes will greatly improve a more inventive evaluation of built environment decision making which incorporates sustainability from a financial, environmental and social perspective. This in turn will help graduates from such programmes to have a greater understanding of the impact of their profession's advice to clients. As such, the profession of the future needs to be more proactive in presenting the mitigation/adaptation cases to clients as a matter of course. To achieve this needs both technical knowledge set within the context of climate science and a behavioural change set within a sound business paradigm.

## References

- Baudrillard, J. (1983), *Simulations*, Semiotext, New York, NY.
- Berger, P.L. and Luckmann, T. (1976), *The Social Construction of Reality*, Penguin Books, Harmondsworth.
- Comerford, J. (2007), *Climate Change: A Perception Survey. The Needs of the Profession*, Geographical Society's Library, London.
- Dawe, G., Jucker, R. and Martin, S. (2005), *Sustainable Development in Higher Education: Current Practice and Future Developments*, An Interim Report for The Higher Education Academy, York.
- DEFRA (2005), *The UK Government Sustainable Development Strategy*, Cm 6467, HMSO, London.
- Dent, P. and Temple, M. (1998), "Economic value – a methodological dilemma?", paper presented at RICS Cutting Edge Conference, Leicester.
- Engel-Di Mauro, S. (2008), "Beyond the Bowers-McLaren debate: the importance of studying the rest of nature in forming alternative curricula", *Capitalism Nature Socialism*, Vol. 19 No. 2, pp. 88-95.
- EPSRC/UKCIP (2007), *Building Knowledge for a Changing Climate*, Newcastle University, Newcastle-upon-Tyne.
- Escobar, A. (2005), "Economics and the space of modernity", *Cultural Studies*, Vol. 19 No. 2, pp. 139-75.
- Forbes, S. (1997), "Jiddu Krishnamurti and his insights into education", paper presented at First Holistic Education Conference, Toronto, Canada.
- Foster, J.B. (2009), *The Ecological Revolution*, Monthly Review Press, New York, NY.
- Fowler, F.J. (2002), *Survey Research Methods*, 3rd ed., Sage, London.
- Freire, P. (1973), *Education for Critical Consciousness*, The Seabury Press, New York, NY.
- Gill, S. (2004), "Literature review: impact of climate change on urban environments", working paper, University of Manchester, Manchester.
- HEA (2006), *Sustainable Development in Higher Education: Current Practice and Future Developments*, Higher Education Academy, York.
- IPCC (2007), *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, IPCC, Geneva.
- JLL (2008), *Sustaining Value*, Jones Lang LaSalle IP, London.
- Kevany, K.D. (2007), "Building the requisite capacity for stewardship and sustainable development", *International Journal of Sustainability in Higher Education*, Vol. 8 No. 2, pp. 107-22.

- Koch, R. and Smith, C. (2006), *Suicide of the West*, Continuum, London.
- Krishnamurti, J. (1996), *Questioning Krishnamurti*, Thorsons, Wellingborough.
- Leff, E. (2005), "Nature, culture, sustainability: the social construction of an environmental rationality", Conference, Oxford.
- Mathews, F. (1994), *The Ecological Self*, Routledge, London.
- Murray, P.E. and Murray, S.A. (2007), "Promoting sustainability values within career-oriented degree programmes. A case study analysis", *International Journal of Sustainability in Higher Education*, Vol. 8 No. 3, pp. 285-300.
- Okereke, C. and Bulkeley, H. (2007), "Conceptualizing climate change governance beyond the international regime: a review of four theoretical approaches", Tyndall Centre for Climate Change Research Working Paper 112, Tyndall Consortium Institution, Manchester.
- Pacala, S. and Socolow, R. (2004), "Stabilization wedges: solving the climate problem for the next 50 years with current technologies", *Science*, Vol. 305 No. 5686, pp. 968-72.
- Parkin, S., Johnson, A., Buckland, H. and White, E. (2004), *Learning and Skills for Sustainable Development: Developing a Sustainability Literate Society*, Higher Education Partnership for Sustainability, London.
- RICS (2007a), *A Green Profession? RICS Members and the Sustainability Agenda*, RICS, London.
- RICS (2007b), *Surveying Sustainability: A Short Guide for the Property Professional*, RICS, London.
- RICS (2007c), *The Future of Surveying Education in Universities*, RICS, London, Research Paper Vol. 7 No. 2.
- RICS (2008a), *Breaking the Vicious Circle of Blame – Making the Business Case for Sustainable Buildings*, RICS, London.
- RICS (2008b), *Sustainable Property Investment and Management. Key Issues and Major Challenges*, RICS, London.
- TCPA/FoE (2006), *Tackling Climate Change through Planning: The Government's Objectives*, Planning Policy Statement 26, Town and Country Planning Association, London.
- UKCIP (2001), *Social-economic Scenarios for Climate Change Impact Assessment: A Guide to their use in the UK*, UK Climate Impacts Programme, Oxford.
- UKCIP (2005), *Measuring Progress: Report for Climate Change through the UK Climate Impacts Programme*, UKCIP Technical Report, Oxford.
- Watchman, P.Q. (2008), *Climate Change. A Guide to Carbon Law and Practice*, Globe Law and Business, London.
- WWF (2006), *One Planet Business: Creating Value Within Planetary Limits*, World Wildlife Fund, Surrey.
- Young, D.A. (2002), "Not easy being green: process, poetry and the tyranny of distance", *Ethics, Place and Environment*, Vol. 5 No. 3, pp. 189-204.

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