

International Benchmarking Review of UK Human Geography



Arts & Humanities
Research Council

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Foreword

The Economic and Social Research Council (ESRC), the Royal Geographical Society (with IBG) (RGS-IBG) and Arts and Humanities Research Council (AHRC) have worked in partnership in order to review the standing and contribution of UK human geography against international standards. This is the sixth in the series of ESRC sponsored disciplinary reviews.

A Steering Group, chaired by Dr Rita Gardner, CBE, RGS-IBG, comprising prominent UK academics, users of human geography research and funders was formed to initiate and oversee the review. The Group, in consultation with the UK human geography community, appointed an International Panel of leading international experts, chaired by Professor David Ley, The University of British Columbia. The Panel made an independent assessment of the UK's performance in human geography research and identified a number of recommendations. The Steering Group Members are listed in Appendix 2 and the International Panel Members in Appendix 1.

We, the review partners, endorse the Panel's view that UK human geography ranks first in the world. Underpinning this are the findings that it is an empirically and conceptually innovative, diverse, vibrant discipline and in many areas sets the intellectual agenda. Furthermore, its interdisciplinary nature allows for the exchange of innovations beyond the discipline's boundaries. The many accounts of research impact on policy and practice detailed in Appendix 3 and the confidence of the UK human geography community in embracing this agenda are also very welcome highlights of the report.

The report's recommendations will be considered by the review partners and actions planned in response. These actions will be publicised later in the year. We hope that the review's findings will also be considered more widely by all those with an interest in the development of UK human geography.

We would like to thank David Ley and the Panel members for their commitment to, and hard work in, producing this important review and all who participated in the discussions and consultations involved.

Professor Paul Boyle, Economic and Social Research Council



Dr Rita Gardner CBE, Royal Geographical Society (with IBG)



February 2013

Executive Summary

In our judgement, documentary and oral evidence support the conclusion that UK human geography is empirically and conceptually innovative, diverse, vibrant, and is resourcefully navigating the institutional environment of UK higher education. In many sub-disciplines it is world leading, setting the intellectual agenda and providing articulate spokespersons and persuasive authors to present new knowledge and fresh conceptual insights. The field is radically interdisciplinary in its projects, partnerships, and publications; the geographical imagination seems inherently to cross boundaries. It absorbs new insights and is in a state of constant re-invention. The quality of its undergraduate students is superior to other social science disciplines according to secondary education results, and this quality moves successively up the student and faculty hierarchy. We note from bibliometric data that UK human geography surpasses in volume and citation impact the output from other countries and also exceeds comparator disciplines in the UK on most bibliometric indicators. Cumulatively, this evidence supports the conclusion that human geography as a whole in the UK ranks first in the world.

There are many areas of strength in the nine sub-disciplines of human geography that the Panel reviewed in some detail. In the past decade cultural and social geography, political geography, and society and environment studies have been in the ascendancy in terms of intellectual innovation, but other fields have maintained their long-standing quality including historical geography, urban geography and others. In all fields there are contributions that set a global standard.

Inevitably our survey revealed some points for improvement. We offer five recommendations.

1) **Internationalisation.** We noted some blind spots in international research coverage. There is a tendency when working within the advantages of an English-language environment to assume that others will make the effort of conceptual and linguistic translation. In a fast changing landscape of emerging economies and new global geopolitics, the Panel recommends faculty appointments with regional expertise in the Global South be added across the sub-disciplines of human geography.

2) **Quantitative methods and Geographical Information Science (GIS).** The Panel makes several suggestions for enhanced training in mixed methods including quantitative techniques. More surprising to us has been underinvestment in Geographical Information Science (GIS), a suite of spatial skills developed largely by geographers. The Panel recommends more

focused investment in GIS laboratories and renewed commitment to hiring in this sub-discipline.

3) **Mitigating precarious early careers.** The Panel is very concerned by the precarious conditions of early career scholars, which threaten the reproduction of the talent pool that will provide the next generation of disciplinary leaders. We recommend a series of mentoring and modest funding initiatives to build a more supportive infrastructure to create a more stable and attractive career pathway for early career scholars.

4) **Minority representation.** Like other social sciences, human geography has an under-representative faculty by class, ethnicity and gender. The Panel makes suggestions for moving toward a more balanced staff structure.

5) **Disseminating success.** In a competitive environment for students and funding we suggest a more pro-active approach to disseminating disciplinary successes to the media and on to government and civil society networks.

1. Introduction

1.1 The Project

1.1.1 Terms of reference and commissioners.

The review is charged 'to benchmark the current position of UK human geography research against the best done world-wide, highlighting strengths and weaknesses as appropriate'. The emphasis of the report is to be on the past decade of research. The review is to include an assessment of research quality, research capacity and research impact. The human geography review is the sixth in a series commissioned by the Economic and Social Research Council (henceforth, ESRC) in the UK.

The review is managed by the ESRC in partnership with the AHRC and the RGS-IBG. It is overseen by a Steering Group including UK academics, non-academic stakeholders and representatives of ESRC, AHRC and RGS-IBG.

1.1.2 The evidence base. The International Panel (Appendix 1) met in the RGS-IBG building in central London from 28 May-1 June 2012. Staff at the RGS-IBG and ESRC were most welcoming and assisted the Panel in a professional and effective manner while respecting the Panel's independence. The week began with an orientation from the ESRC and the Director of the RGS-IBG. The Panel then met close to 150 stakeholders in UK human geography in morning and afternoon sessions. The largest single group of meetings was with members of nine research sub-disciplines, each session comprising 8-15 academic geographers. Other sessions included meetings with PhD students, early and mid-career scholars, heads of departments, university administrators, and public and private sector users of geographical research and Geographical Information Science (GIS), most of whom were also employers of geographers. All of these face-to-face sessions were immensely informative and are reflected in our analysis. Of course we cannot judge the representativeness of some of the smaller groups in particular, nor the completeness of the information they shared with the Panel.

The ESRC also arranged for a number of valuable submissions and consultants' reports, most of which were available to the Panel before the London meetings:

- Overviews of research trends and outputs since 2000 completed by representatives of the nine human geography sub-disciplines
- Two-page assessments by heads of UK geography departments of strengths, weaknesses, overall health, and future opportunities and challenges to human

- geography in the UK (15 submissions were received)
- A statistical profile of UK Human Geography: Briefing Document: Statistical Overview and Commentary by Paul Wakeling (2012)
- Bibliometric Data for the ESRC International Benchmarking Review of Human Geography by Thomson Reuters (2012)
- A Short Introduction to UK Research Funding Policy by David Mills (2012)
- Survey of Users of Human Geography Research by Steve Johnson, David Gibbs and Ian Mills (2012).

In addition, the RGS-IBG provided informative briefing notes as context for recent developments in the discipline. Overall a rich source of evidence was provided to the Panel, and these documentary and interview materials are the basis of the assessment that follows. Inevitably our report is assembled from the evidence we received. At issue could be the representativeness of views expressed by the stakeholders we spoke to, and the reports that were submitted to us. Moreover, in the absence of international comparative benchmarking criteria – other than citation scores – the Panel has also used its own judgement from experience in five different countries and from frequent UK contact (where three of us received at least one degree).

1.2 The National Academic Context

Any review of an academic discipline, nationally defined, should begin by sketching out the local context in which scholarship is embedded. The institutional environment was referenced on numerous occasions during interviews as shaping the organisation and even the outputs of research. So we begin by briefly noting that context, which over the past generation has become constitutive of the academic landscape, and thus of scholarship itself.

1.2.1 An audit culture. The audits of university departments in the UK by periodic Research Assessment Exercises (the RAE, and from 2014 the Research Excellence Framework, or REF) followed an initial 'selectivity exercise' in 1981. By the 1990s, with significant prestige and financial awards at stake, competition in the research environment intensified both between and within departments, and administrative and research horizons were focused around generating outputs for the periodic performance assessments. There was some concern at the time that 'longer-term intellectual projects are threatened'.¹

¹ N. Thrift and D. Walling (2001) Geography in the UK 1996-2000, *The Geographical Journal* 166 (2): 1-29, p. 2.

Nonetheless, accountability aided an improvement in overall research standards and has supporters especially among departments who have benefitted substantially with high performance scores. A university administrator told us that the geography department at his university had exceeded its performance targets and was one of a few campus units to be rewarded, with its resource base to grow by one-third. Of course in such a system other departments are losers. Another administrator told us that on his campus geography is challenged, because it cannot attract 'research stars'. In a cost-benefit analysis, only large undergraduate numbers presented a compelling reason for its continuity. Competition then has led to concentration of resources and capacities, and to broader inequalities within the system overall. On several occasions we heard of the three cornerstones of the emerging research culture: competition, concentration and collaboration (in research clusters and team projects).

1.2.2 Marketisation. The onset of the full fee-paying undergraduate teaching model for 2012-13 identifies further marketisation of higher education, with the abolition of the block teaching grant in the face of national fiscal cutbacks. This new policy shift has accentuated system uncertainties. University administrators had different expectations of the impacts of the new fee structure, and were engaged in planning exercises despite their variable readings of an unknown future.² There was concern that postgraduate fees would be adversely impacted and that rising fees might impede the recruitment of UK students in favour of wealthier overseas students. Might the profile of some London institutions, with over half the student intake from overseas, become a broader aspiration? There was evidence too that student demand would be a driver of the success of disciplines and, within them, of sub-disciplines.

2. Research Quality

2.1 Positioning Human Geography in the UK

Geography as a discipline has deep classical roots, with early prominence among Greek and Roman scholars; Strabo's *Geographica*, written 2000 years ago, ran to 17 volumes. Geography has always been an interdisciplinary project, concerned until the past half century primarily with the relations between peoples and their natural environment. New scientific discovery was closely bound up with exploration, and its correlates, trade and colonialism. Exploration, map-making, new geographies, and military and economic expansion were often an integrated project.

The well-established prominence of geography in UK education is not unrelated to the nation's history of trade, exploration and imperialism; certainly the cartography of empire – 'the red patches on the world map' – was a source of broad public knowledge. Geography's strength as a school subject (unlike its lesser development in the United States) has contributed to the vigour of the discipline in UK universities, and their shared leadership with the United States in producing Anglophone geographical knowledge.³ Undergraduate students in the UK are well-satisfied with their programmes, retention rates are high, and several surveys are in agreement that geography graduates perform well and above comparator disciplines in the labour market.⁴ Moreover, the student pool is of high quality, with data examined by Paul Wakeling describing applicants to human geography programmes as 'Having higher (achievement) scores on average than those applying to all comparator disciplines'.⁵ The quality and interdisciplinary character of geography students has aided their subsequent movement into kindred disciplines and also sustained the long-standing export of geographers to overseas universities. From this intellectual stock has developed the global prominence of UK human geography over the past half century.

Until the 1950s, society-environment relations in a regional context remained the dominant intellectual paradigm, but during that decade the 'modernisation' of human geography was announced by the quantitative revolution and its call to an analytic spatial science, with

² Initial data suggest that human geography will lose 40 per cent fewer applicants than the average across the social sciences and humanities for 2012-13: R. Gardner and C. Souch (2012) Supplementary Briefing Notes from the RGS-IBG for the ESRC Human Geography International Benchmarking Review Panel, p. 6.

³ The UK and the US produced approximately equal numbers of geographical papers from 2000-10 whereas in comparator social sciences, US production exceeded that in the UK by a ratio of 2 or 3 to 1. Thomson Reuters (2012) Bibliometric Data for the ESRC International Benchmarking Review of Human Geography, p. 13.

⁴ R. Gardner and C. Souch (2012), pp. 6, 10.

⁵ P. Wakeling (2012) International Benchmarking Review of Human Geography: Briefing Document: Statistical Overview and Commentary, p. 25.

the later development of computer cartography and GIS. While this was an Anglo-American initiative (with significant outliers, for example in Sweden), seminal integrative statements came from UK authors. In short order there followed an innovative Marxist agenda stressing capitalist relations in the 1970s and 1980s and a humanistic critique concerned with an emphasis on human agency and the meanings of place in the same period. The critical intuition of Marxism has influenced a number of perspectives today (for example political economy, post-colonialism, critical geopolitics) while humanistic orientations to culture and the meanings of place reappeared in the cultural turn of the 1990s. More recently, several new theoretical perspectives have questioned the humanism of the cultural turn.

Human geography has become a much more complex discipline at the convergence of the social sciences, the natural sciences and the humanities. Interdisciplinarity and openness to innovation are core characteristics, as historical geographers work with those in museum and media studies, political geographers engage international relations, and GIS faculty work with specialists in computing and IT studies.

This status is conducive to creative experimentation, but also some occasional faddishness. It produces versatility and debate in interdisciplinary research but also some ambiguity in terms of core identity. There are 62 named geography units in UK universities, located in no fewer than 43 uniquely named schools or faculties. Only half the units are in unmerged, stand-alone departments or schools of geography.⁶ Geographers themselves are equally nomadic; though data are soft, one indicator suggests that more university geographers work outside geography departments than within them, indicating the recognition of their skills in other disciplines.⁷ This ingrained capacity for interdisciplinarity and lateral vision may also explain why geographers are found in senior university administration.

2.2 The Distinctiveness of UK Human Geography Since 1990

In the increasingly networked world of the early 21st Century, we might expect to find growing connection and convergence among national centres of academic research. Yet national distinctions in academic cultures still remain. A specific institutional status, historical trajectories, and idiosyncratic events have together

shaped a distinctive UK narrative in human geography. One approach to documenting these is to compare recent patterns of hiring between UK and American universities.

Recent job advertisements in human geography, UK and US, by sub-discipline

Sub-discipline	UK per cent	US per cent
Cultural/Social	25	2
of which: Cultural	15	
Development	11	3
Economic	10	3
Environment/Sustainability	11	25
GIS/Quantitative	2	23
Health	5	2
Historical	2	2
Human		19
Political	13	1
Population	2	
Regional/Area Studies	1	7
Urban	13	8
Others	4	5

There are several caveats to note in making this comparison. Positions were defined by a simple count of keywords; so for example an advertisement that identified an 'urban economic' speciality would lead to a separate count of 'urban' and 'economic'. UK data were collected directly from departments by the RGS-IBG in 2012 and cover appointments in human geography during the past three years, while US entries were drawn from human geography advertisements posted in the Jobs in Geography section of the Association of American Geographers (AAG) Newsletter between Spring 2008 and Spring 2012. The US data include job listings by a larger number of small institutions that may not have a strong research orientation, and where more generic teaching assignments (such as regional or 'human geography' designations) are more likely. The AAG listings also include postings by some departments outside geography open to hiring a geographer.⁸ So this is an inexact comparison over a short time period, but nonetheless some general contrasts are striking. First, the GIS/quantitative fields and to a lesser extent environment/sustainability listings are far more prominent in the US. Second, the primary status of the cultural/social category is evident in the UK, though there is a fair secondary balance across many sub-disciplines. However, the cultural/social cluster is

⁶ R. Gardner and C. Souch (2012), Figures A1, A2.

⁷ P. Wakeling (2012), p. 18.

⁸ The clearest example of postings from outside geography departments in *Jobs in Geography* was many listings for an 'Urban Planner' from university Planning Schools. These were omitted from the record (though they do illustrate the potential 'export' of geographers to other disciplines).

much reduced in the US to around the same number of appointments as other systematic branches of the discipline, and well behind the leading category of urban geography.

Contrasts as striking as these raise questions on both sides of the Atlantic. The lack of specificity of American advertisements contrasts with the defined systematic fields in the UK case. Has American human geography placed too much emphasis on the GIS/quantitative sub-discipline and too little on systematic fields, while the UK discipline has under-valued the opportunities of GIS? Has human geography in the UK placed too many eggs in the cultural/social basket while overlooking other specialities such as historical geography or area studies?

It is significant to note the continuing traction of UK cultural and social geography as illustrated by recent appointments. A review of UK geography in the 1992-96 period noted how 'above all else, the period... will be remembered as the years in which the theoretical high ground in UK human geography experienced a rapid and significant 'cultural turn', leaving other sub-disciplines 'profoundly impacted', not least by 'the shift of large numbers of postgraduate students into the field' and 'the development of cultural perspectives in almost every branch of human geography'.⁹ By the next quinquennial review, 'Few would deny the current high visibility of social and cultural geography in British human geography'.¹⁰ A decade later the field continues to garner a high share of new appointments. Two points will have to suffice here. First, this trend is distinctive to UK human geography. While there has been some transfer of this research focus overseas, the principal concentration remains in the UK. Second, the primary status of cultural and social geography over a 20 year period raises the expectation of a significant continuing return on investment.

2.3 Thematic Areas in UK Human Geography

The following remarks on sub-disciplines within human geography emerge in particular from interactions with the respective research groups as well as from our own observations. Inevitably the selection of these nine sub-disciplines leaves other fields under-represented in the report. As we have noted several times, human geography is inherently interdisciplinary, and emphasis on these units of knowledge should not obscure the proclivity of the field to cross borders and participate in interdisciplinary teams to secure adequate explanations.

⁹ K. Richards and N. Wrigley (1996) Geography in the United Kingdom 1992-1996, *The Geographical Journal* 162 (1): 41-62, from pp. 53, 54.

¹⁰ N. Thrift and D. Walling (2001), p. 11.

2.3.1 Cultural and social geography includes world leaders and is at the forefront of theoretical and methodological developments in recent UK human geography. Its practitioners are prominent in premier geography publications. The journals, *Cultural Geographies* and *Social and Cultural Geography*, have a strong UK presence. The sub-discipline has a visible impact on shaping intellectual thought and debates in cross-disciplinary fields (eg, social theory; cultural economy; material culture and landscape history; transnationality and mobilities; religion; feminism; sexuality and queer theory; childhood and youth; media and visual culture; and health). It has introduced new perspectives to other sub-disciplines, notably economic, historical and political geography. In addition to substantive contributions – for example, its long-standing interests in social justice and inequality – the field is known for its engagement with social theory (including non-representational theory, actor-network theory and theories of relationality and hybridity) and methodological innovation, including visual and participatory methodologies. Social and cultural geographers are also actively involved in policy-related research; with its emphasis on engaging public agencies and championing socially relevant work, a focus on 'impact' accords well with this sub-disciplinary tradition.

While cultural and social geography occupies a 'mainstream' place in UK human geography, it remains at heart diverse, complex, transgressive, and transdisciplinary. Engagement with transdisciplinary thinking, and the interweaving of empirical and theoretical work in theory building should continue to deepen. Bridging the 'social' and 'cultural' sides in creative ways will reap dividends, as will developing strategic interfaces with other sub-disciplines (for example, the new RGS-IBG 'social justice' study group plans to build synergies with critical geopolitics). While large-scale research in interdisciplinary teams should be encouraged, a diverse funding landscape that supports smaller grants is also crucial to encourage bottom-up innovation, ownership, and risk-taking. Methods training for postgraduate students and early career faculty need to cater to mixed methods, especially in an era when large social data sets are becoming increasingly available. Micro-studies with small samples should be complemented by more consideration of larger social problems requiring mixed methodologies (for example, the 2011 riots, or austerity and social polarisation). Innovative ways of supporting

international collaboration and fieldwork beyond the Anglo-American world (eg, partnership grants, building doctoral networks) will expand international reach, and reshape the field's contours as it encounters less familiar terrain.

2.3.2 Development geography in the UK is world leading in its research agendas and quality of scholarship, exemplified by its leadership roles in international interdisciplinary networks and empirically grounded as well as theoretically informed research. Development geographers are among the most cited authors in the top-ranking interdisciplinary journal, *World Development*. At its best, development geography serves as a beacon for the rest of the discipline through its engagement with collaborative modes of knowledge production, often with non-academic partners, and its concerns with poverty alleviation. Outstanding work is currently being conducted on the rapidly changing contours of a globalising world in research areas such as climate change, human mobility, urbanisation and poverty, aided by the ability of some of its members to bridge human and physical geography.

The field is currently buoyant with a strong supply of postgraduates taking up academic careers. The new impact criterion is not considered a problem as research already engages policy making, development practice and debate, and is enhanced by collaboration, for example with the United Nations (UN), government bodies, and non-governmental organisations (NGOs) as well as with poor and excluded communities. Development geographers are also aided by access to a wide range of funding sources, so that postgraduates are less dependent on the ESRC. Given the centrality of overseas fieldwork, however, there are deep-seated concerns, across all career stages, about changes in research infrastructure. The decentralisation of funding to Doctoral Training Centres (DTCs), while commendable in some respects, leads to unpredictable responses to the high costs of overseas fieldwork; regretfully in the Panel's view the basic ring-fenced funding allocation of £450 for every student is insufficient.¹¹

Other issues facing development geography include its modest profile within UK human geography; its scholarship needs to be placed more centrally in the discipline. Global coverage is uneven, emphasising India, Africa and parts of Latin America (but not

its largest country, Brazil), and limited in East Asia (including China) and South East Asia. The field has not engaged adequately with emerging research networks in these latter regions. Its future potential hinges on whether there will be institutional support to ensure that development geography is well positioned to reorient its own energies in a fast-changing world.

2.3.3 Economic geography has achieved significant and frequently pioneering academic and policy impacts during the past decade. Core concerns with uneven distributions and flows of economic activities, materials, capital, and labour engage pressing contemporary issues, including economic globalisation, the shift to creative and knowledge economies, how firms, workers, consumers and finance are organised and governed in globalising value chains, forms of urban, rural and regional growth that are sustainable, the heightened role of financial networks, transport and logistics underpinning international trade, and the formation of new markets. These topics mark the growing influence of economic geography in the social sciences, evidenced by expanding citation in neighbouring disciplines and the productive liaison with economists in the new *Journal of Economic Geography*.

Since the 1970s UK and US economic geographers have vied to lead theoretical advances, with the US relinquishing global intellectual leadership to the UK in the 2000s. Seminal here have been ESRC strategic priorities and funding, collaboration with European researchers, institution-building initiatives (like the Summer Institute in Economic Geography, and the International Geographical Union Commission on The Dynamics of Economic Spaces), active trans-Atlantic collaboration, and ESRC funded seminar series.

However, practitioners identified impediments that together have slowed the progress of an otherwise productive decade. They include recent retirements by key scholars, fewer economic geography courses overall in undergraduate programmes, a marked reduction in analytical and quantitative training, and lessened theoretical and methodological capacity with the current pluralism that characterises economic geography. Some believe the rise of cultural geography may also help explain reduced interest in the sub-discipline.¹² At the same time the infusion of social and cultural insights has opened up new questions in economic research, for example in corporate behaviour. Economic geographers

¹¹ In an August 2012 funding guide to DTCs, ESRC raised the possibility of additional discretionary funding. 'The actual allocation of funds towards fieldwork is at the DTC's discretion, based on the funding available within the DTC, and ESRC will not normally supplement the grant for additional fieldwork costs.' But this outcome is at present probably too imprecise and contingent to be an incentive for overseas doctoral research. http://www.esrc.ac.uk/_images/PFG_DTC_Version_August_2012_tcm8-14766.pdf, at p. 27.

¹² The 'cultural turn' in sociology was also seen as a cause for the reduced prominence of economic sociology, an interesting convergence of judgements with those in economic geography. See ESRC (2010) International Benchmarking Review of UK Sociology, p. 15.

are beginning to be hired into management schools (where restrictions are often placed on publishing in geography journals). A noticeable consolidation of research clusters has appeared in a dozen universities, offering local multipliers but at the same time overall shrinkage of economic geography across the higher education network. A shrinking base makes it harder to pursue new opportunities: to extend cross-border initiatives with economics and with development geography around UK issues; to join other human geographers in new fields (such as geographies of waste, social enterprise, agri-food and rural development, or higher education); and to expand a presence in public debate.

2.3.4 Historical geography and the history and philosophy of geography continue to be leading sub-disciplines in UK human geography. They produce world leading and agenda-setting research respected by global audiences within and outside the discipline, particularly in history, heritage studies, the history of science, and science studies. Outstanding work continues, especially in the areas of geography and empire, geography, science and technology, global historical geographies, maps and mapping, print and visual culture, historical GIS, and historical geographies of the environment. UK contributors are heavily represented in the important *Journal of Historical Geography* and the triennial International Conference of Historical Geographers, a major global networking opportunity.

A noteworthy indicator of the success of historical geography is its attraction of top-flight PhD students, who find its combination of probing empirical work and theoretical innovation compelling. Exemplary here is the sustained success of early career scholars who have won prestigious Philip Leverhulme Prizes (10 in the past decade). Equally significant are the effective linkages with public history, efforts that augur well in regard to the ‘impact’ agenda. Substantial collaborations with heritage organisations, museums, mass media, and public policy agencies exemplify success in transmitting the broader societal impact of research.

Four concerns were presented to the Panel. First, the funnelling of funding exacerbates the current concentrated nature of research within a smaller number of departments, leaving some scholars potentially isolated and with limited opportunities for PhD training. Second, given the nature of historical research, which tends to be produced through the ‘lone scholar’ and by archival immersion, we were told that the reduction of previous small grant schemes could have a disproportionately punitive effect on

this sub-field. Third, there seems less engagement with environmental history in comparison to North America, while limited foreign language training has led to the relative neglect of non-Anglophone historical geographies and philosophical traditions. Fourth, some decline in appointments and in the teaching of courses in the history and philosophy of geography (often previously required courses) were also noted, with a related concern about capacity to continue to attract the best PhD students. Nonetheless overall, this sub-field has continued to excel in research outputs through a difficult period of institutional reconfiguration and has earned sustained support.

2.3.5 Political geography has been growing in size and vibrancy in recent years. Its renewed reputation as a world leading sub-discipline reflects the emergence of a strong cohort of early-career scholars who have introduced new research topics alongside some of the field’s traditional concerns. The Panel notes in particular the community-building role of the political geography research group. Areas of strength include critical geopolitics and critical security studies, citizenship and governmentality, feminist political geography, electoral geography, the geopolitics of energy and resource geographies, and participatory political geography. Emerging themes include the political geography of global health, peace/alternative geopolitical studies, geopolitics of climate change, urban geopolitics and post-colonialism. New research directions appear on the horizon, including the political geographies of financialisation and austerity, new regionalisms and nationalisms, and a cluster of topics emerging from the ‘nonhuman’ turn in social and political thought.

Significant overlap with cultural and social geography in some of this research has led to new sites for the study of politics (for example, the body, affect) and some methodological innovation. Recent work in the political geography of energy and resources also overlaps strongly with society-environment research, while robust connections with economic and urban geography are evident in work on new regionalisms and global cities. The field maintains effective connections with North American political geography, many of whose leading figures were UK trained. Additional important interdisciplinary linkages exist with international relations.

Nonetheless, political geography faces several unique challenges. The generational distribution means that there are few senior scholars available to sit on appointment and promotion committees. Political geography thus risks being under-represented in decision-making bodies. The discipline-wide challenges

facing early career scholars are of particular urgency. International field research is limited and regional or area studies scholarship in particular struggles to find publication venues. While methodological innovations – ethnography, visual methods, participatory research – have been critical to the resurgence of the field, practitioners now frequently look to collaborators in other fields for quantitative expertise. Finally, political geography is less well-represented in major funding initiatives than other sub-fields, an issue that could hinder further development.

2.3.6 Population geography and demography in the UK is of high quality. Established on the three legs of changing patterns of fertility, mortality, and migration, the sub-discipline also offers a demographic perspective to cognate fields such as health geography and development studies. Research demonstrates the role of space and place in demographic processes in order to address such big interdisciplinary questions as the impacts of climate change on global migration. Overall, there is strong coherence within this sub-discipline despite the fact that many scholars come from different academic backgrounds and/or work outside geography departments. The prominence of population geography is advanced by the UK base of the important international journal, *Population, Space and Place*. Further, participation by UK scholars is notable in EU framework programmes.

Important contributions within UK population geography include: ethnicity and segregation; fertility; health and illness; historical demography; migration (modelling and diaspora studies); population and development/environment; and population mapping (especially the media-savvy *Social and Spatial Inequalities* web site, www.sasi.group.shef.ac.uk). The most important emerging areas in this sub-discipline are methodological contributions to longitudinal studies; data linkage; small-area population geography; and population ageing. Important areas receiving limited attention include wider aspects of an ageing population (for example, implications for quality of life and how ageing will be affected by current health trends like the obesity epidemic). A major challenge will be the availability of accurate information on population change if the traditional census is abandoned, requiring innovative database matching methods. Further, most work currently being undertaken is UK-focused, with limited access or contributions to international research, which is a weakness that should be corrected for a ranking of world-class status.

The research intensity of this sub-discipline is evidenced by the establishment of two ESRC-funded

population centres with participation by geographers: the ESRC Centre for Population Change (Southampton and St Andrews), and the interdisciplinary ESRC Centre on Migration, Policy and Society (Oxford). Also noteworthy is the applied impact of some of this research (eg, Diamond's method for addressing census under-reporting).

2.3.7 Quantitative geography, GIS and cartography are important components of UK human geography, producing world-class scholarship with high international impact. Important core methodological contributions have been made to studies of land use, transportation modelling, complex systems modelling, micro-simulation, agent-based modelling and spatial statistics. In addition, geographers in this sub-discipline are at the vanguard of three broader changes within the social sciences. First, they have made significant contributions to what has been called 'neogeography' – developments in Web 2.0 mapping technologies that allow non-specialists to assemble and interact with online geographic information. Second, they have been at the forefront of utilising large, open, spatially referenced government data sets in a range of applications. Third, they have been heavily involved in developing innovative methods of visualisation, modelling and simulation. Evidence of the international impact of this sub-discipline includes the publication of several highly cited books, significant collaboration in US and European initiatives, the fact that specialist journals are UK-edited, and that scholars publish in top journals, including *Science and Nature* which rank amongst those with the highest impact factors.

However, the sub-discipline faces significant challenges. Most importantly, there is a relatively small cohort of young geographers taking up these research interests given the reduction of training in quantitative methods in most undergraduate and postgraduate geography programmes, and diminished departmental priorities in this research area, most surprising in light of the growth of this field, particularly GIS, in the US. If the current trend continues, UK geographers may soon lack the skills necessary to analyse and interpret the large data sets mentioned above, although several of the methods have been developed in UK. We were informed (though this could not be checked), that less than 10 per cent of academics in human geography are skilled in quantitative methods and are teaching or involved in research in the field. Given the trajectory of future research directions in geography internationally that include an emphasis on GIS and geospatial skills, renewed investment in the training of UK geographers in quantitative geography, GIS and cartography should be a high priority.

2.3.8 Society and environment research is a rapidly expanding, heterodox field that cross-cuts many of human geography's sub-disciplines. It is also interdisciplinary, with research stretching across the social sciences, humanities and physical sciences, and with collaborations that sometimes include such disparate partners as science and technology studies, anthropology, and geomorphology. Unlike other sub-disciplines it has no home journal or recognised study group, and the nature and extent of the field remains a matter of debate even among those working in it. Nonetheless, any inventory of research is bound to impress. Areas of particular strength include the political economy of natural resources and environmental change; urban political ecology and sustainable urbanisation; environmental risk assessment, forecasting and disaster management; environment and development; sustainable consumption; climate adaptation; participatory environmental decision-making; and histories of environmental thought. This world leading field also includes distinctive recent work, including the role of the nonhuman world ('more-than-human' geography) and research on corporeality and embodiment as it relates to nonhuman nature.

The rapid expansion of society-environment research partially reflects its abandonment in previous decades, when the trajectories of human and physical geography diverged. Its revitalisation is thus one of geography's recent success stories. While current work is notable for its theoretical, philosophical and empirical contributions, it has offered less methodological innovation, which it tends to borrow from elsewhere. It is also less engaged in areas traditionally strong in North America, such as land use/land change analysis, earth systems science and the application of GIS to society-environment research. Collaboration between the social and environmental sciences remains limited, due in part to institutional constraints. For the purposes of ESRC research grants, for instance, we were told by researchers that joint human-physical geography research is not deemed 'interdisciplinary', while studentships that previously encouraged such interdisciplinary work have been discontinued – though a new scheme offers some opportunities.¹³ Expertise in quantitative skills and GIS is also limited, although frequently present in interdisciplinary teams.

The problem-driven nature of the sub-discipline leads to substantial work of impact value. This is especially true in natural hazards planning; flood forecasting and

flood governance; climate change and the management of extreme events; urban environmental planning; and water resources and management. Scholars also fill advisory roles on bodies such as the Royal Commission on Environmental Pollution, the Food Standards Agency, the UK Cabinet Office, the UK Government Office of Science Foresight, and the Department for Environment, Food and Rural Affairs (DEFRA)/ Department of Energy and Climate Change (DECC) Social Science Expert Panel.

2.3.9 Urban geography has played a major role in UK human geography. The city was a central conceptual category in the development of quantitative spatial analysis in the 1960s/1970s, where urban form and land use were often the focus of explanation. Similarly the rise of a Marxist geography in the 1970s/1980s was frequently mooted around urban questions. It is notable that UK-trained geographers like Brian Berry and David Harvey were international pioneers in this work, though subsequently based in the US.

More recently, there is a sense that although still prominent and popular, urban geography is no longer foremost in the discipline. Nonetheless sustained innovative work in UK urban geography continues, notably in such fields as the global/world city problematic (with both advocates and critics of this concept), in the study of class relations in cities (especially gentrification) and ethnic/racial settlement, in studying new forms of urban enterprise such as the creative economy, in critical approaches to neo-liberal urbanism with its impaired rights to the city among marginalised groups, and in new patterns of security and surveillance regimes. In such areas UK urban geography continues to rank at the highest level internationally.

Publications include highly cited contributions both to vanguard disciplinary journals and also to specialised periodicals, including *Urban Studies*, *Urban Geography* and the *International Journal for Urban and Regional Research*. Urban geographers have often emerged as leaders in interdisciplinary research and are well represented as students and faculty in Planning Schools and Urban Centres. It was suggested that a new research initiative should be launched by ESRC to document and explain the growing inequalities within and between UK cities and to outline policy options. Urban geography could contribute effectively to such an impact-oriented mandate as its practitioners did to earlier large research programmes such as the localities project. Urban geographers identified some barriers to sustaining

¹³ More promising is a new initiative between ESRC and Natural Environment Research Council (NERC) to fund 10 new interdisciplinary studentships across the DTC network for 2012-13. This is a small beginning to be sure, but an opportunity that might expand with high quality research outputs.

research excellence. First, the erosion of quantitative skills limits capacity to work with new large data sets, and, second, a growing shortfall in the provision of individual grants to scholars introduces a particular penalty for early career scholars.

2.4 Emerging Research Areas

The RAE overview report highlighted recent research at the borders between geography, social theory and philosophy, pointing to work focusing on natures-cultures, and on understanding the relationships between materialities, emotions and practices. Our meetings with several sub-disciplinary panels (historical geography, environment and society, social and cultural geography) reinforced this assessment. Indeed, many among the environment and society sub-disciplinary group felt strongly enough about the new work in natures-cultures as to question the ontological basis of the category 'environment and society' itself. UK human geography is also poised to be at the vanguard of productive linkages between geography and art, particularly around rethinking creative practices as shared forms of knowledge production. This emerging research area was highlighted in the historical/history and philosophy of geography sub-disciplinary overview, as well as being reflected in recent AHRC grants. Additional emerging areas discussed in department heads' reports included: political economy and social justice; energy and security; and the interrogation of technologies, economies and politics of global surveillance and militarism.

It was not possible under the constraints of this report to examine in detail nascent fields, of which health geography is perhaps foremost. This research area was mentioned by several sub-disciplinary groups (notably population and cultural/social) as vibrant, and a case where interdisciplinarity has added real strength to the old medical/epidemiological research model. Aided by relatively satisfactory funding options, geography has become a significant player in health research. Health geographers have earned a very strong international reputation highlighted by, for example, their leadership in the journal *Health and Place*. Moreover, they exemplify the impact achievements of UK human geography through their strong research links to policy makers and end users.

2.5 Evidence of Global Leadership

Human geography in the UK has always played a formative role in the international development of the discipline, producing seminal books and articles that are widely read and promote new research agendas.

Research is characterised by intellectual diversity, openness to new ideas, significant theoretical and methodological innovation, and substantial empirical achievements. The diaspora of UK geographers still has significant influence globally, especially in North America and other English-speaking countries. Many key recent developments in the discipline have a UK provenance, including but not restricted to: research on imperialism and post-colonialism in geography; place and science studies; electoral geography and critical geopolitics; new materialisms, including 'hybrid' or 'more-than-human' geographies; new ethnic formations in cities; mobilities and migration research; feminist and queer geographies; rural geographies; innovation in GIS; and new approaches to research methods, including innovations in visual and ethnographic methods. UK geography is also notable for its contributions to the 'spatial turn' in the social sciences and the humanities more generally, as well as for lively and generative engagements with philosophy and continental philosophy in particular. These engagements have begun to resonate well beyond the boundaries of the discipline.

Not all areas of the discipline are equally strong. Despite some brilliant innovators, Geographical Information Science as a whole in the UK is under-represented compared with the United States and Canada, while quantitative methods are less widely employed and taught in the UK today than in previous eras. Both trends may reflect the impact of the 'cultural turn' in UK geography. The rebalancing of the field may also have led to a decline in the relative importance of economic geography and demography, although the former in particular has benefitted from new perspectives arising from other parts of the discipline. But sub-fields are often thinly spread spatially, with few scholars working in particular areas at any one institution. A culture of active sub-disciplinary research groups, organised on a national scale through the RGS-IBG, partially counteracts this tendency. The reinvigorated Political Geography Research Group is a leading example of the role these groups play in facilitating national conversations and supporting new and emerging research themes.

The global prominence of UK human geography may also be assessed by additional indicators. Many of the discipline's leading journals are sustained from the UK. Nine of the top twenty human geography journals by Web of Science impact rankings are UK-based, with four UK-originating journals listed in the top five (*Global Environmental Change*, *Progress in Human Geography*, *Transactions of the Institute of British Geographers*, and *Journal of Economic Geography*). Likewise, UK geographers

play a significant role as editors and/or editorial board members on most of the discipline's top journals (though an exception is the *Annals of the Association of American Geographers*).

The international leadership of UK human geography is also evident in bibliometric data. While citation analysis is an imprecise tool, it does offer one of the few comparative benchmarking indicators, and its general trends agree with our qualitative assessment. During the 2000-10 period UK-based scholars contributed a higher global percentage of articles in human geography journals than was true of equivalent outcomes among all UK comparator disciplines: sociology, politics, urban studies, development studies, social anthropology and environmental studies.¹⁴ Indeed, with one exception, UK human geography contributed a higher total number of papers than the other disciplines, and its share of the world total over the decade was equal to that of the United States (28.6 per cent). UK output far exceeded the levels in the remaining countries selected for comparison: Australia, Canada, Germany, Netherlands, New Zealand and Sweden. However, the global share accounted for by these countries rose during the decade at the cost of the UK and US proportions.

While the quantity of papers published in leading journals provides a rough sense of the vitality of UK geography, it must be kept in mind that geography is a somewhat larger discipline in the UK than in many other countries; in the United States, reflecting underdevelopment in the schools, some leading universities do not have geography departments, and the size of the country's leading departments is often smaller than those in the UK. A somewhat better measure of intellectual leadership is citation impact.¹⁵ The citation rate of UK geography articles in the 2000-10 period was 26 per cent above the world average, and rose through the period. Only Sweden had a higher citation impact, but the smaller publication totals in that country render its scores far more volatile. Significantly, the citation impact of UK human geography is considerably higher than that of the US. Moreover, the output of highly cited papers by UK geographers (those that are among the top 10%, 5% or 1% globally) in the period 2000-10 is above the level expected in every year but 2010.¹⁶ Only social anthropology outperforms geography on this measure, and the discipline fares

significantly better than planning and development, politics, and sociology.

Finally, among a tentative assessment of book publications by Thomson Reuters, UK human geography far exceeded all comparator disciplines in global share in the most recent five-year period. While journal articles remain the most important venue for the publication of research, book publication remains healthy. An impressive number of globally significant volumes were published during the period analysed across the sub-disciplinary groups. Accordingly, the Panel affirms the recent decision to give books double weighting in the REF process.

The bibliometric measures are unambiguous in identifying the primacy of UK human geography. In output levels, production matches even the United States and in citation impact exceeds it. In comparison with other social sciences, human geography's grasp of the global market is equally impressive. Together with the other markers of excellence noted earlier, there is unambiguous evidence for the global pre-eminence of UK human geography.

2.6 Areas for Improvement

2.6.1 Relative weakness in quantitative methods and GIS.

Quantitative geography, GIS and cartography produce world-class scholarship with high international impact. Innovations have been initiated, including new mapping technologies, utilisation of large geo-referenced data sets, and visualisation, modelling and simulation. To maintain the leadership position, more young geographers should be attracted to the field by targeted training programmes, research opportunities and teaching positions. In contrast we heard repeatedly of reduced training and expertise in quantitative methods, and to our surprise, that underinvestment in GIS positions and equipment was leading to some movement of the sub-field into more welcoming university niches. In an increasingly information-based society this disturbing trend should be corrected for the sake both of research competence and also for the equipping of students in the professional and technical job market.

The relative neglect of quantitative methods in undergraduate and postgraduate training is not unique to human geography and has been observed in many

¹⁴ All bibliometric results are taken from Thomson Reuters (2012) *Bibliometric Data for the ESRC International Benchmarking Review of Human Geography*.

¹⁵ Citation impact measures citations per published paper.

¹⁶ The lower citation rates in 2010 are difficult to interpret, but may possibly reflect a cyclical anomaly linked to the RAE 2008 as they were shared by other UK comparator disciplines.

social sciences.¹⁷ Consequences are (1) a decline in quantitative literacy, (2) a smaller recruitment base for advanced quantitative methods, (3) a lower return to investment in longitudinal and space-referenced data because many lack necessary data-analytic skills, (4) a lack of necessary competence among students for entering the professional workplace where such skills are in demand, and (5) a growing methodological divide between human and physical geography.

It is important to change perspectives so that different methods are seen to be complementary, emphasising the additive rather than divisive attributes of quantitative methods, qualitative methods and visualisation (mainly GIS and cartography). For example, modelling and simulation would benefit by incorporating behavioural rules, values, norms and perceptions in models. Agent-based modelling provides a point of departure. More serious attention to mixed methods may have a desirable side effect: a growing interest in quantitative methods and GIS/cartography. In an information society where visualisation is becoming a dominant and effective mode of information dissemination, GIS and cartography provide unique opportunities to innovate and strengthen the field and increase its impact. It is recommended that the ESRC support visualisation of time- and geo-referenced data, building on work by Dorling, Rogers (at *The Guardian*), Rosling (Gapminder), Centre for Advanced Spatial Analysis (CASA) and others.

2.6.2 Internationalisation. In conversations with UK geographers (aside from development geographers), the Panel did not discern a priority in extending the global reach of human geography. There was considerable confidence that the discipline is world leading and that its innovations and publications travel well. But the discussion tended to falter concerning meaningful engagement with other regions on their own terms, through the whole cycle of conducting fieldwork to building theory from non-UK precedents. There are exceptions of course, scholars who have developed deep roots in other places (mainly development geographers). But there was little evidence of a priority to engage with the international field widely conceived, through comparative work, multi-sited study, or border-crossing fieldwork.

This raises issues of the modest resources for conducting field research outside the UK, the lack of time for extended overseas fieldwork within the PhD

degree, the paucity of language training opportunities, as well as seemingly modest awareness of international funding opportunities. Perceptions here, however, may be bleaker than realities, for DTCs can allow up to one extra year's support if a student needs to acquire or develop a working ability with a difficult language in order to carry out fieldwork or other parts of their research. Increased participation is required in language training to ensure human geography's full involvement in a world increasingly shaped by BRIC (Brazil, Russia, India and China) and other emerging economies. The geographical imagination should encompass all possible worlds, including those beyond the Anglo-American heartlands. One of the challenges of English-language research is the default expectation that conceptual as well as linguistic translation is a problem for others. The erosion of the area studies tradition has not helped here, and appointments in human geography with Global South expertise are urgently needed.

Turning from field research to conceptual development and the use of public data sets, the level of international engagement is far more favourable. Many researchers – one example is the globalisation and world cities network – are involved in international research with standardised data sets that does not require the logistical challenges of working in the field, though neither does it lead to detailed regional knowledge, nor in most cases, the possibility for acquisition of non-Western ways of knowing.

2.6.3 The institutional environment and research outputs. Research in science studies by historical geographers and others has shown that place matters in the construction of knowledge. Applying this insight to the present, the national institutional context today matters in the shaping of research questions and research practice. It is important to ask what work is facilitated and what is impeded by the institutional context of UK human geography. A conjecture earlier in the RAE cycle was that, 'longer-term intellectual projects are threatened'.¹⁸ In this light we are concerned that work requiring longer lead times to publication might be sacrificed, for example projects involving overseas field-intensive research, especially when language acquisition is a necessary preparation, or large projects with lengthy periods of data collection or complex problem-solving. So too in terms of outputs, the past disincentive to write books could

¹⁷ For example, 'the deficit in quantitative methods' drew a rebuke from the International Panel reviewing UK Sociology: ESRC (2010), pp. 23-4, 38. See also the recent position statement on a 'quantitative skills deficit' by the British Academy (2012), Society Counts: Quantitative Skills in the Social Sciences and Humanities: www.britac.ac.uk/policy/Society_Counts.cfm

¹⁸ N. Thrift and D. Walling (2001), p. 2.

affect the scope of research objectives. In this context, is there a danger that research outputs are becoming foreshortened by the RAE cycle? Might the scale of research ambition have become more limited? These are important questions though the evidence base does not permit definitive answers.

Another concern is whether new institutional contexts are facilitating or impeding young and early career scholars. The substantial barriers to a secure career trajectory in the current fiscal environment of higher education are an abiding anxiety. The erosion of individual research grants was constantly raised as a significant concern. Though fully unintended, to compromise young scholars would be the worst of outcomes. Aside from broader funding policy, there is opportunity too for more formalised mentoring models initiated by departments and sub-disciplinary research groups.

3. Research Capacity

3.1 Student and Faculty Numbers¹⁹

In 2011 2,746 undergraduate students were admitted to human geography degree programmes, comprising 70 per cent of the applicants and 18 per cent of the applications (UCAS code L7).²⁰ Applications rose by 23 per cent, 2006-11, though there was a small dip in 2011. Accepted applicants are well qualified, with significantly higher school A-level results than five comparator social sciences. This excellent student body provides a strong base for postgraduate recruitment. Few undergraduate applicants come from abroad though their number is growing.

In 2010-11 the number of undergraduate students in human geography was 9,745 FPE (full-person equivalent) (Higher Education Statistics Agency (HESA) data). Since a large number of students combine geography with another degree, the number studying geography is considerable higher.²¹ The number of FPEs has fluctuated since 2006, but overall showed a slight gain by 2011. Seven geography units have more than 600 FPEs in their degree programmes (led by the Open University).

The number of postgraduate students was 1,915 FPE in 2010-11, with two locations containing more than 200 FPEs: LSE and King's College London. Like most other comparator social sciences, the number of students has increased slowly. Manifest changes include a shift from part-time postgraduate students to full-time and a more rapid growth in taught postgraduates (MA/MSc) than in research postgraduates (PhD). Two-fifths of postgraduates are from overseas, indicating a significant international component.

Staff numbers are difficult to determine because of coding problems. HESA data show 1,165 FTE (full-time equivalent) staff in UK institutions of higher education naming human geography as their subject discipline by highest degree qualification. Of these only 450 are within the geography cost centre.²² If this figure is accurate it means that two-thirds of human geographers are working outside geography units. The total FTE staff in the Geography cost centre was 1,935 in 2010-11; the mean size of units was 29. While

¹⁹ Most of this section is drawn from Paul Wakeling's (2012) statistical overview. Wakeling notes that with coding problems and changing definitions these figures are less robust than they might appear to be.

²⁰ Each applicant can make up to five applications through the UCAS scheme. Note that data apply to single-degree programmes only. Many other students take geography in combined degree programmes. In addition numbers exclude applicants for Physical Geography (UCAS code F8).

²¹ N. Castree (2011) estimated that in Britain 22,500 students were taking a degree in geography in 2008-09, of whom 19,500 were full-time undergraduates: N. Castree (2011) 'The future of Geography in English universities', *The Geographical Journal* 136 (4): 512-519.

²² The HESA Cost Centre code is commonly used to categorise staff. Cost centre coding is not satisfactory, however, and HESA announced a revision of the 'Geography' cost centre in May 2011, to be redefined as 'Geography and Environmental Studies' in data collection as of 2012-13. With its diffuse identity and shifting definitions in official statistics, existing figures on as basic a variable as staff numbers in human geography must be considered to be uncertain.

Durham and LSE recorded over 80 staff, there are more than 20 units with ten or fewer staff. Some 56 per cent of permanent FTE staff in the Geography cost centre²² are aged under 45, giving the discipline an encouragingly youthful age profile.

3.2 Postgraduate Training

While doctoral training in the UK is considered effective in producing scholars who are theoretically innovative and attuned to taking risks, there is less emphasis on a broader overview of the field including instructor training in comparison with North American PhDs where training includes up to two years of course work and teaching experience and training. UK-based postgraduate students we spoke to considered it important to offer training in both quantitative and qualitative techniques while giving them freedom to determine their own methods to facilitate innovative work. Aside from coursework Master's degrees, the continuing model of the (quasi-) independent scholar unimpeded by much course work continues to be the approved genre, and was seen by the student group as encouraging not only independence but also creativity, quality and research innovation.

At the same time the group expressed stress in having to finish a PhD in three or four years, with the additional requirements of publication in international peer reviewed journals, presenting conference papers, and organising conference sessions. Teaching experience is also increasingly seen as desirable in job applications; the emphasis was on any teaching experience as opposed to having taught a full course which is increasingly expected in the North American context. Work-life balance in time management and job mobility is an added factor. These issues led to ambivalence at the prospect of additional professional training, for example in statutory methods courses. Further training in quantitative methods, foreign languages, or studying abroad were all trumped among respondents by the pressure to finish on time.

Approximately 50 per cent of UK doctoral students in human geography entered an academic career in 2009-10 following their graduation (a slightly lower figure than in other social sciences). The doctoral students we met anticipated an uncertain future of temporary appointments lasting from nine months to three years, with the opportunity to go immediately from postgraduate status to a permanent appointment now considered virtually impossible. There is considerable pessimism among this cohort about current funding cuts to higher education and the effect of fee increases

on the stability and growth of the academic job market. In this distressing environment, they do see human geography training as permitting passage to a number of cognate departments, and this was acceptable, if not their first preference. The versatility of geography in an interdisciplinary milieu is regarded as a bankable asset.

While it is early days to judge the success of the ESRC's DTCs, there was agreement that the centres would provide a comprehensive training, with the caveat that training of qualitative methods prior to the DTCs has been stronger than quantitative methods; additional emphasis on mixed methods approaches will also be needed. We understand that it is the ESRC's intent to increase capacity in the training of quantitative methods across the DTC network.

3.3 Early Career Scholars

While the pipeline of PhD students in human geography is strong, the bleak job market for early career scholars could lead to the loss of a new generation of geographers if key issues are not addressed; some potentially top scholars have already left for other disciplines (for example, Planning and Business Schools) or left academia. Early career scholars spoke of the development of two tracks after the PhD: a small number who would benefit from prestigious postdoctoral fellowship schemes that come with generous research funding and time for publishing and building the next project; and a larger group who will have to be content with fixed term posts with no research funding and heavy teaching loads if they remain in academic geography. The disjuncture is particularly sharp for those who have garnered little teaching experience within the three- to four-year frame for completing a PhD. There is broad agreement that there should be more support for carving out post-PhD career pathways to reach less precarious positions within a given time frame.

Providing some resources, even at a modest level, to support junior scholars to make the leap from doctoral research to the next innovative project will reap dividends. Small grants that are within the reach of early career scholars will encourage continued innovation at a time when they may be at their most open and entrepreneurial. Creating the infrastructure to support grant writing and access to mentorship in the immediate post-PhD period will make considerable difference to future careers (particularly in the context of time-squeezed PhDs). Research assistantships, for example, can facilitate the learning of new skills (eg, research proposal development) and also allow junior researchers to engage in joint publishing by working in a research

team under the leadership of senior scholars.²³ While the Future Leaders scheme is promising, it will be targeted at the few. What is needed is an ecosystem that can nurture excellence for a larger number. At the same time mentoring must include the option of alternative career trajectories, including industry, NGOs, international agencies like the UN, and in some specialties, self-employment consultancies.

3.4 Age Profile and Diversity

A general demographic concern about the ageing and future supply of social scientists does not seem to be a relevant worry. According to Paul Wakeling's statistical overview, the age profile for FTE staff in geography departments is younger than the other cost areas to which it was compared (archaeology, architecture and planning, and social studies). Almost 30 per cent of FTE staff in geography are under the age of 35, while 56 per cent are under the age of 45.²⁴ An exception to this trend was stated in our meeting with the quantitative/GIS/cartography sub-disciplinary group, who noted their increasingly 'senior' age profile and were concerned that with the next wave of retirements there will be a shortage of replacements among a shrinking younger cohort.

In terms of gender and ethnic diversity human geography has a record as unsatisfactory as most other social sciences. For full-time staff, men outnumber women by a ratio of 2:1, with more women at the lower ranks and a narrowing cohort in more senior positions. Women account for 44 per cent of FTE under the age of 35, but only 16 per cent of FTE at the level of Professor.²⁵ Data on minority status are incomplete, but confirm what is evident from any gathering of UK human geographers, or indeed most other social science groups. The lack of ethnic diversity among Geography FTE is notable according to ethnic self-declaration: 9 per cent of staff are members of ethnic minorities, and excluding non-UK nationals the figure falls to four per cent.²⁶ To situate this data, the UK census (2001) indicated a population that was 92 per cent white and eight per cent ethnic minorities. Similar

to the gender profile, the white/ethnic minorities imbalance increases greatly as one moves up the ranks, with minorities accounting for only one per cent of FTE staff at the Professorial rank. Government Widening Participation (WP) initiatives and other programmes offer encouragement for diversifying the discipline, though there is also a view that while the WP is admirable in principle, it may be hard pressed to reach its objectives. Greater diversity may well encourage more internationalisation in teaching and a broadening of research experiences.²⁷

3.5 Funding and Infrastructure

3.5.1 QR and non-QR. A quite differentiated picture of departmental funding opportunities emerges when considering the following: a department's location in the institutional ranking of the RAE/REF exercises, which determines its share of the 'Quality Related' (QR) funding of £31 million granted in 2010-11 for research infrastructure and environment in Geography,²⁸ and whether the department is in a DTC which will affect its ability to compete for a portion of non-QR funding (a total of approximately £41 million was awarded to DTCs in 2011-12).

While some figures are difficult to interpret as they combine revenues for both human and physical geography,²⁹ funding within geography departments is markedly unequal in both QR and non-QR revenue streams. Over half of all non-QR research revenue of £180 million between 2005-06 and 2009-10 was concentrated in ten departments (out of 67), and these coincided closely with high performers on the QR stream.³⁰ Although average annual growth in earned research income during this period averaged 11 per cent, recently human geography has submitted a lower number of ESRC grant applications and has tended to have a variable but currently low success rate; in 2010-11 ESRC funded six of 42 applications. Nonetheless ESRC was funding 111 human geography projects in 2010-11 worth over £58 million from a range of programme categories. Many other funding bodies were awarding grants to human geography, including

²³ The ESRC's Research Grants Scheme can provide opportunities of this type- see: www.esrc.ac.uk/funding-and-guidance/funding-opportunities/research-schemes.aspx.

²⁴ P. Wakeling (2012), pp. 20-21.

²⁵ *Ibid.*, p. 22.

²⁶ *Ibid.*

²⁷ See W. Locke and A. Bennion (2010) *The Changing Academic Profession in the UK and Beyond* (Open University: Centre for Higher Education Research and Information), p. 19.

²⁸ P. Wakeling (2012), p. 8. Wakeling notes that a quarter of the total was awarded to only five of the 48 competing units in 2011-12. Overall, the Geography 'Unit of Assessment' has fared well in comparison to comparator subjects in funding council QR support.

²⁹ For physical geography's role in raising Geography's QR budget, see Gardner and Souch (2012), p. 4.

³⁰ P. Wakeling (2012), p. 13. He notes an r^2 of 0.83 in departmental performance from the QR and non-QR funds. Data in the rest of this paragraph are taken from Wakeling (2012).

the AHRC tally of £3.8 million for projects in cultural and historical geography. The vast bulk of non-QR research income between 2005-06 and 2009-10 was received from the UK Research Councils (40 per cent), with the rest coming from other UK government bodies (20 per cent), UK government and health authorities (20 per cent), and the remaining 20 per cent from UK industry, UK charities, and EU and overseas sources. Given cuts in government funding the potential of this latter group of funders might be more fully explored.

3.5.2 Research funding and research risk. The effect of the changes taking place in the academic landscape as a result of increasing ‘competition, concentration and collaboration’ can be understood in relation to risk, specifically the degree to which attempts to reduce institutional risk may affect intellectual risk taking. Of particular concern to respondents was whether the option for creative ‘blue sky’ thinking - risk characteristics that make UK human geography world class – was being squeezed out of the system as it becomes increasingly competitive and concentrated. The view was expressed by some that funding for ‘blue sky’ thinking is now really only available through the European Research Council. The aim of ESRC to reduce research applications by 50 per cent by 2015 to drive up quality through demand management is expected by some to favour more established scholars leading to diminished opportunity for more risk-inclined early career scholars. Hopefully, this tendency will be mitigated by the new call by ESRC for ‘transformative research’, an initiative that supports projects at the frontiers of the social sciences that challenge current thinking. Early career scholars are particularly encouraged to submit applications.

It was considered to be too early to tell how the increase in fees would affect university funding, except that, ironically, it would increase the level of institutional risk in the system with fears that departments excluded from DTCs would face the possibility of downsizing (or worse) as well as the very real possibility of a two tier level of staff being created, some with teaching only posts and while others would be research intensive. Neither of these developments was viewed positively, particularly as they further reduced possibilities for early career researchers. There have also been changes of late in programme delivery. The ESRC’s First Grants Scheme and Postdoctoral Fellowships have been discontinued

and these funds and others have been consolidated into the Future Leaders Scheme (70 – 80 awards per annum). It remains to be seen whether as many early career human geographers will be supported by Future Leaders’ funds as by the earlier programmes. One funding stream for which there has not been significant interest by researchers is Secondary Data Analysis Initiatives. This is an important source of funding that might be more widely promoted.

The most common funding demand among early and mid-career scholars was for small grants and most importantly, the time to do research. Indeed, some scholars feel that having small pools of university monies are as important as ESRC funds. It was argued that people often feel more invested in small grants as they can do the research themselves. Large grants, moreover, run the risk of reducing the ‘biodiversity’ of human geography research, though they have their place in terms of being able to deal with scale and complexity.

Overall there was dissatisfaction with the amount of time spent applying for grants and the low success rates, which are thought to be a disincentive for maintaining submissions. There is also pressure to be engaged in more collaborative and interdisciplinary grants, which are more time consuming to assemble, although they generate significant opportunities and geographers have been effective in this competition.

Much concern was expressed about the potential for the DTCs to eliminate ‘fair’ competition through the concentration of PhD training into centres, which exclude many post-1992 universities. Specific examples of this perceived unfairness include the inability for joint ESRC/Department for International Development (DFID) funds to include support for a PhD student if the applicant is not affiliated to a DTC. The majority of the comments about unfairness centred on the internal allocation mechanisms of DTCs and the degree to which the number of awards for each discipline were determined collegially or by university managers, the latter route being interpreted as introducing a lack of transparency.

The current allocation of ESRC doctoral studentships shows that Politics/International Relations and Economics received studentships over 50 per cent above target.³¹ While geography did not suffer from this allocation, other disciplines did. Such figures could raise the risk that some disciplines are gaining research capacity at the expense of others.

³¹ Data appear in R. Gardner and C. Souch (2012), Appendix B. Part of this outcome is attributed to co-funding that raised the number of available DTC studentships from 600 to 645. Clearly human geographers need to be alert to the opportunities of co-funding. See www.esrc.ac.uk/funding-and-guidance/guidance/postgraduates/dtc/dtc-policy/studentship-distribution.aspx

4. Research Impact

4.1 The Impact Criterion

The off-campus impact of research is becoming a new research assessment criterion. Impact language is already embedded in UK Research Council grant submissions, and will account for 20 per cent of assessment for the next (2014) REF exercise. There is a great deal of debate and some confusion about the nature and parameters of impacts and uncertainty over how to document and measure them. There appears to be incomplete information and misinformation in the academy around the details of impact evaluation. For example, we were told by researchers that impact is supposed to refer to the assessment period, which is widely considered to be inappropriately short for social science based research, the impact of which can often take years to materialise. In contrast, ESRC notes that Higher Education Funding Council for England guidelines allow for examples of enabling impact from research completed during the REF assessment period (1 January 2008 to 31 July 2013) to be underpinned by excellent research dating from 1 January 1993. Again, while impact is usually designated as any influence or benefit outside of academia, respondents reminded the Panel that such an interpretation precludes impacts within academia, which can be wide ranging, from training the next generation of scholars, to setting a research agenda, to conceptual, theoretical and methodological innovation. But ESRC observes that such contributions will in fact be assessed separately in the REF process.

However, despite these concerns there was overall an optimistic spirit through the discussions: motivated by past achievements, there was confidence that research in human geography would successfully meet the challenges of impact criteria.

4.2 Disciplinary Responses

We have already referred to the impact agenda a number of times in this report. The subject emerged in most of the sub-disciplinary meetings, and as reported earlier there was limited concern about its implications due to the practical and policy-related outputs of existing research, other than as another hurdle to climb in assembling a research proposal. The sub-disciplinary reports commissioned for the Panel included abundant illustrations of the impact content of past geographical research across a wide swath of human geography (we have assembled this impressive dossier in Appendix

3). Heads of department that we met were confident from past experience that the discipline could take this additional challenge in its stride. We are told this view is not shared by everyone, but limited contrary evidence was presented to us in discussion or documentation to assess opposing views.

The diversity and length of the inventory of past research in Appendix 3 demonstrates that emphasis on impacts brings this version of research accountability to a habitat where human geography has long been at home.³² Importantly, the Survey of Users of Human Geography Research commissioned for the Panel, plus the meetings with public and private sector employers, NGOs and community groups, allowed a robust probing of the relationships that appear to be emerging as human geographers engage more actively with users who are increasingly sensitised to the challenges and opportunities of re-configuring extra-academy relations. The range, strategic intent and effectiveness of impacts elaborated in statements and presentations of sub-disciplines and heads of department were confirmed by these presentations. The special insights and capabilities that human geographers bring through their research into decision-making settings were noted. One positive outcome is that the impact programme is mobilising conversations between researchers and those who will be impacted upon, making the research design and conduct of the research more participatory. This was commented on very favourably by early career researchers as well as some of the user group participants. Other user groups were hesitant to conclude a culture shift had been made, suggesting instead that in the end academic research was ruled first and foremost by its own criteria and not by real world applications. Postgraduate students considered impact to be important; they wanted their research to do new work that was socially relevant, but were concerned that REF impact indicators might not encompass their definition of impact. Encouragingly, a sense of partnership was often expressed, as users suggested and explored avenues that might reproduce the vitality of human geography in new directions. The ability to achieve such aspirations, they noted, would be greatly facilitated by continued access to available data sets and involvement in the development of new databases. Also assumed is literacy in quantitative and qualitative methods.³³

Although many human geographers and users spoke positively about the impact project, there was a strong

³² See also the list of topics identified by public, private and NGO users of human geography research in S. Johnson et al. (2012) Survey of Users of Human Geography Research.

³³ 'Quantitative research skills are highly valued, especially at national government levels', S. Johnson et al. (2012) p. 2.

view from all quarters that the discipline needs to be more effective in communicating its relevance as context and issues change. A strategy for more effective messaging of geographical research to the networks of the market, government, and civil society might be an important assignment.

5. Conclusions and Recommendations

5.1 The Primacy of UK Human Geography

Our unanimous conclusion from the evidence presented to us is that human geography in the UK is innovative, vibrant, and in most sub-fields is the world leader. Its students and staff are gifted and committed, its research outputs are disproportionately influential, read and referenced throughout the English-reading world – and, in translation, beyond. It is radically interdisciplinary and with the spatial turn in the humanities and social sciences has become an exporter of ideas and faculty to other disciplines. In the 1960s and 1970s the overseas export of geographers was substantial, and though slower today and more likely to be two-way, this trade in academic knowledge continues. UK geographers have an art not only for innovation but also for synthesis and a large number of the seminal publications (books as well as articles) continue to have a UK origin. So too among the major disciplinary journals – the UK publishes more than its share. Bibliometric indicators reveal that both in volume and in citation impact UK human geography exceeds the scores of other countries and almost all UK comparator social sciences. Cumulatively, this evidence supports the conclusion that human geography as a whole in the UK ranks first in the world.

In addition, at an institutional level, the RGS-IBG with its presence in central London is an outstanding resource for promoting the discipline (see Appendix 5).

Many departments have responded effectively to the challenges and opportunities of an institutional audit environment. While the impact agenda might be seen as another administrative intervention to the research process, we are confident from the past record – as were heads of department we spoke to – that the discipline will meet the challenge creatively and successfully (see Appendix 3). More broadly, there can be little doubt that the audit culture has profoundly affected human geography like other social sciences. While it is intended to shape the research agenda and has successfully raised productivity and resourced targeted fields effectively, there are concerns that some impacts may be less advantageous. To what extent is the relative fortune of sub-disciplines shaped by student demand rather than by more objective curricular objectives? To what

extent is the research process and its outputs geared to the timing and expectations of the RAE/REF cycle rather than conventional models of scholarship? What kinds of research are suffering – such as long-term projects or overseas projects? – in the current research environment? And what kinds of people? How, for example, is the move away from individual research grants affecting early career scholars, or sub-disciplines like historical geography? Moreover, competitive national allocation policies have widened the gap between departments, with a leading group of very successful and well-positioned units and a tail of often gifted but less well-endowed departments. Creation of the Russell Group, comprising universities where geography is strong, presents the institutionalisation of advantage, and is unlikely to mitigate growing inequality.

We note in addition growing complexity in the research and funding environment. This clearly accounted for some of the frustration among scholars about the addition of a new impact criterion. Growing institutional complexity also contributed to incomplete information and some misperceptions held by our respondents to programme availability and eligibility.

5.2 Recommendations

Despite global primacy, there are inevitably areas for improvement, and the charge to the Panel was to identify weaknesses as well as strengths.

5.2.1. Internationalisation. Of all disciplines, geography – ‘earth writing’ – should have a cosmopolitan outlook. But human geography in the UK is unequally international. First, much of the effort is left to development geography; it is important that all sub-disciplines share an international curiosity so that Anglo-American preconceptions can be critically assessed. Second, global coverage is variable, with particular under-representation in East and South East Asia and parts of South America. Extending the global reach to position the discipline effectively to navigate a rapidly changing world of emerging economies, shifting geopolitics, and different definitions of geographical knowledge will require increased international collaboration at all levels, from postgraduate student exchange to intercontinental research collaborations on major grants to strengthen reciprocal intellectual development. Levers such as joint research funding with international partners, greater engagement with area studies, and building networks through former postgraduate students who have returned ‘home’ should be explored. More passive internationalisation through the use of accessible comparative data sets is useful, but is unlikely to lead to a more critical view

of Western presuppositions or the acquisition of detailed regional knowledge. Increasing incentives and resources are necessary for conducting overseas fieldwork, for providing language training opportunities, and for increasing awareness of international funding opportunities. There is also some urgency for appointments with Global South expertise, including language facility and an ability to engage those regional geographies on their own terms and not as an exemplar of an Anglo-American conceptual model.

5.2.2. Quantitative methods and Geographical Information Science. The Panel heard concerns frequently expressed about the erosion of quantitative literacy. This of course is not particular to human geography, but is a problem in many social sciences. Nor is it particular to the UK, but is an issue in other countries (though perhaps less so in the US). More surprising to us is the state of play with GIS. From what we were told there has been underinvestment in this field by UK geography departments, and parts of the field are migrating to more welcoming places, including separate institutes (eg, CASA) and other disciplines (such as Planning, Architecture, and Computer Science). In comparison, geography departments in the US have seen significant advantages to promoting GIS as a priority. Funding opportunities, institutional development, and the consolidation of significant research skills that have strong applications and student job prospects provide GIS with a significant asset base. In light of large new databases, demand for GIS skills will be maintained and UK geography would benefit from stronger endorsement for the field in new positions and laboratory funding.

The decline of quantitative literacy requires a broader range of remedies. The pilot project on teaching quantitative geography by the RGS-IBG is a valuable development, and discipline-wide recognition of this problem and mobilisation to address it is an important step forward. Free web-based training modules and webinars are valuable. At the same time the cross-disciplinary nature of the problem suggests additional proactive measures at all levels. The new DTCs should be committed to a full programme of research methods: quantitative, qualitative and mixed. We recognise that the ESRC endorses quantitative training programmes, including its support for the National Centre for Research Methods (NCRM) – where training courses include GIS applications – plus the European Science Foundation's Quantitative Methods in the Social Sciences programme. A significant resource for human geographers as well as other social scientists is ESRC's Advanced Training Network which provided 400

subsidised courses through 2011/12 in conjunction with participating DTCs and the NCRM.

Such proposals run into at least one practical barrier: the desire of students and the funding requirement for an on-time completion of the doctoral programme may well trump the advantages of further training. The cost of this straitjacket needs to be measured against methods training that is often incomplete, and limited or no teacher training among graduates that impede their subsequent effectiveness as instructors. This limitation is likely to become increasingly serious if more postgraduates move into jobs with heavier teaching loads (notably in units with less research and RAE/REF-based funding).

5.2.3 Mitigating precarious early careers. We were dismayed by the precarious status of early career scholars, who represent the next generation of disciplinary leaders. Academic careers must be supported at crucial transitions to ensure that top-flight scholars remain in the academic system. Securing an eventual permanent position is uncertain and revolving short-term posts are a fact of life. The immediate post-PhD years should be stabilised by a more generous competitive programme of postdoctoral scholarships, which would also give clearer and earlier signals to both successful and unsuccessful candidates about eventual career probabilities. We heard very little about formal mentoring or formal professional development programmes in departments, which could prepare students more adequately for an academic career. Mentoring is needed too in the early years of a career; in the department of one of the panelists, each new faculty member selects two mentors and meets with them at least twice a year to discuss professional milestones and research strategies. At the same time in the present bleak economic environment, mentoring should include discussion of other career tracks outside the university, including industry, NGOs, international agencies, and for some, self-employment consultancies. The active sub-disciplinary research groups could also play a mentoring role, with workshops on professional development including the preparation of grant applications, and with networking that brings young scholars into contact with large collaborative projects. We were told that gaining such access is difficult. This is another reason why ESRC and other funding bodies should offer small grants for lone scholars to launch research careers. To ensure high success rates for young scholars it would be necessary to limit such a programme to applicants within a fixed period (we suggest 5 years) of receiving the doctorate.

What is required is a full support infrastructure for

early career scholars so as to create pathways out of present precarious conditions: such pathways should include postdoctoral fellowships, research assistantships, small grants and grant writing support, and mentorship with senior scholars.

5.2.4 Minority representation. UK geographers agree that the under-representation of social, cultural and gender minorities, especially in the top echelons of the discipline, is unacceptable. The Panel does not write from a superior vantage point for the same might be said of our own departments, and indeed of other social sciences. We are aware that there is no quick fix to a pattern of class, ethnic and gender under-representation. From the composition of current postgraduate programmes the gender differential will be the first to be reduced, but the same cannot easily be said of ethnic and class minorities. Here change will need to begin at undergraduate recruitment and perhaps before. The RGS-IBG is already active with its Geography Ambassador scheme sending undergraduates into high schools to talk to students who would not necessarily be thinking of applying to university to study geography. These same students could be encouraged to apply for postgraduate degrees by drawing on an initiative similar to that of PIKSI (Philosophy in an Inclusive Key Summer Institute) at Pennsylvania State University. Ten students from under-represented groups are competitively chosen to attend a one week residential programme where two eminent professors in the field lead seminars, including sessions on how to apply to postgraduate school. The summer institute model could be adapted by one or several geography departments.

5.2.5 Disseminating success. In an environment that values research impacts and where sharp competition for students and funds prevails, the dissemination of research achievements is a significant task. The Panel recommends that a committee including the RGS-IBG and several heads of department determine best methods to communicate research successes and impacts effectively to the media and onward to government and civil society.

Appendix 1: Panel Members

Professor David Ley (Chair), University of British Columbia, Canada
 Professor Bruce Braun, University of Minnesota, US
 Professor Mona Domosh, Dartmouth College, US
 Professor Susan Elliott, Dean of Applied Health Sciences, University of Waterloo, Canada
 Professor Richard Le Heron, University of Auckland, New Zealand
 Professor Linda Peake, York University, Canada
 Professor Frans Willekens, University of Groningen, The Netherlands
 Professor Brenda Yeoh, Dean of Arts and Social Sciences, National University of Singapore, Singapore

Appendix 2: Steering Group Members

Dr Rita Gardner CBE (Chair), Director, Royal Geographical Society (with IBG)
 Professor Tim Allen, PRA Consultancy Services Ltd
 Professor Paul Boyle, Chief Executive, Economic and Social Research Council
 Professor Michael Bradshaw, University of Leicester
 Professor Harriet Bulkeley, Durham University
 Professor Paul Cloke, University of Exeter
 Professor Stephen Daniels, University of Nottingham
 Mr Rowan Douglas, Willis Research Network UK/Europe
 Mr Gary Grubb, Arts and Humanities Research Council
 Professor David Livingstone OBE, Queen's University Belfast
 Professor David Martin, University of Southampton
 Professor Paul Milbourne, Cardiff University and ESRC Evaluation Committee Member
 Professor Gill Valentine, University of Leeds
 Professor Katie Willis, Royal Holloway, University of London

Appendix 3: Impacts from Human Geography Research (from sub-disciplinary submissions)

Notable examples include identifying 'food deserts' in UK cities (subsequently taken up by the US Congress), the first mapping of UK creative industries and creative 'hot spots', incorporating cultural services in national ecosystem assessments, instituting competency groups (knowledge-controversies/ouce.ox.ac.uk), applied work in health geography (deliberative-mapping.org), novel ensemble forecasting methods for the European Flood Alert System, influencing World Bank thinking on gender and violence and DFID's thinking and policy around state formation, offering design input into the Chilean state e-procurement platform, and expert witness testimony on violence in Latin America,

critiquing female circumcision in Gambia, mining in El Salvador, Ecuador, Canada and the US, compensation payments to farmers in Peru for human rights violations, and advocating fair tracing giving consumers more traceability information (www.fairtracing.org), as a political and ethical strategy in value chains to make visible knowledge-power relations. There is work on changing practices in development organisations, advice to the Wales Rural Observatory and the Welsh Assembly, and developing Chatham House processes around discussions of UK food.

Human geographers are active in UK, European and international debates in such fields as segregation, gentrification, rural and urban homelessness, low paid workers in London, in mapping and visualisation of urban inequalities, in immigration policy and outcomes, in showing educational outcomes from parental choice policy, social inequality and injustice (www.worldmapper.org) and in making the case for social sciences. Then there is information dissemination in civil society and the media communicating climate change (including Polar: The Arts and Science of Climate Change conference held at the British Library, The Empire of Climate Change, a BBC radio series), and assessing UK constituency boundaries, Tibetan-Chinese relations, democratisation in Europe Organisation for Economic Co-operation and Development (OECD), security measures and the 2012 Olympics, and science priorities for the Canadian Arctic. Consultation has informed the European Commission on growing socio-economic inequalities across Europe, Her Majesty's Treasury on the competitiveness of London's financial district, the UK government's Financial Inclusion Taskforce, and the World Bank and OECD on the globalisation of trade in retail services.

A significant number of human geographers contribute as advisors (eg, Royal Commission on Environmental Pollution, DEFRA's Science Advisory Council, Food Standards Agency, UK Farm Animal Welfare Council, Genetically Modified Organism (GMO) Advising for UK Cabinet Office, DEFRA/DECC Social Science Expert Panel, Lead Expert Group for UK Government Office of Science, British Antarctic Survey, Foreign and Commonwealth Office, Ministry of Defence, Advisory Panel on Public Sector Information, UK Statistics Authority) and make high level impacts in the UN framework (eg, Intergovernmental Panel on Climate Change, UN HABITAT: State of African Cities 2010, State of Women in Cities: Gender and the Prosperity of Cities 2012-13, the International Organization for Migration).

There is growing evidence of new frontiers: films

(eg, *Liquid City: water, landscape and social formation 21st Century Mumbai* (2007), *Robinson in Ruins* (2010)); research exhibitions (eg, touring exhibitions on archaeologies of 'race' at Hadrian's Wall, families and food (Sheffield and Victoria & Albert, London), *Waste of the World* (The Bargehouse in London's Oxo Tower Wharf), *Hidden Histories of Exploration*, Paul Sandby: *Picturing Britain*); public history and heritage (eg, *Scotland: Charting the Nation*, *A Vision of Britain Through Time*, *Cultures of Enthusiasm*); working with new media (eg, *Memoryscapes* using downloadable audio-walks for MP3 and CDs, *Atlas of Rural England GIS*, a web resource produced by English Heritage), participatory geographies (eg, promotion of local alternative economies, public art in areas of disadvantage, participatory GIS, catalytic effects of public engagement), and activism in pedagogy.

The sheer scale and diversity of these accomplishments provide basis for optimism as human geography addresses impact criteria in research assessment.

Appendix 4: Departmental Submissions to the Benchmarking Review

All UK Heads of Geography Departments were invited to make a submission to the review using the following headings:

- UK Human Geography in an International Context - your impressions of the strengths and weaknesses of the UK Human Geography research area set within an international context, including any thoughts you have about cross-cutting and emerging research themes;
- Health of the Discipline - your views of the health of the discipline and its sub-disciplines in the UK, including training and capacity issues;
- Future Opportunities and Challenges for the Discipline - your thoughts on opportunities and issues that need to be addressed (both within your own institution and nationally) and on the wider impact of human geography research beyond the academy to ensure UK human geography continues to grow.
- Other Issues - any other issues that you would like the panel to be aware of.

Submissions were received from:

- Birkbeck College, University of London
- Cardiff University
- Glasgow University
- University of Hull
- Leicester University
- Loughborough University

- University of Newcastle
- University of Nottingham
- Open University
- Queen's University Belfast
- Queen Mary, University of London
- Royal Holloway, University of London
- University of Sheffield
- University of Southampton
- Swansea University

Appendix 5: The Royal Geographical Society (with the Institute of British Geographers) (RGS-IBG)

The merger of the Royal Geographical Society with the Institute of British Geographers in 1995 has created a formidable institutional presence in central London to advance the case for geography. The well-used RGS-IBG building on Kensington Gore is a centre of public education and community outreach and its library and artefacts provide a significant research archive on the history of discovery and exploration. With its substantial membership of over 15,000, and a staff of over 50, the RGS-IBG is successful in fund-raising and in initiating new projects in geographical education, as well as in providing seed grants for postgraduate and early career research. The building has become the venue most years for the Society's annual international conference, with around 1300 delegates. The RGS-IBG publishes three important journals: *Area*, *The Geographical Journal*, and *Transactions of the Institute of British Geographers*, and amongst other publications also co-ordinates a series of research monographs in collaboration with Wiley-Blackwell. The Society also supports 28 research groups across the range of the subject, including both established and new cross-cutting research interests. The groups are significant for networking and hold regular seminars, small conferences and special sessions at large conferences. Under creative leadership, the Society is a versatile organisation with a rapid response to new national policy opportunities and challenges, with a proactive ability to advocate for geography in decision-making circles. Current initiatives, for example, include a new project funded from several sources on best practices for the teaching and learning of quantitative methods. The RGS-IBG is a most significant dimension of the institutional capacity of UK human geography, and is unequalled in any other country. It is an extraordinary disciplinary resource with the capacity to act as a research depository, to launch pilot initiatives, to lobby for geography, and to present the discipline to a larger membership and public audiences through publications and frequent lectures and outreach events.

Appendix 6: Steering Group Response to the International Panel's Report

Human Geography International Benchmarking Review
Response of the Steering Group to the Report

The Steering Group warmly welcomes the International Benchmarking Review Report and thanks the members of the International Panel for their expertise, hard work and commitment to the process, and for producing a high quality report. We also thank the many members of the human geography community in UK higher education for the time and effort they put into drafting reports, presenting evidence, and in face to face discussions with Panel members.

The Group is especially pleased with the unanimous conclusion of the Panel that human geography in the UK is innovative, vibrant, and that as a whole it ranks first in the world. This is a position enjoyed by no other social science discipline in the UK that has been through the ESRC-led review process.

Among the other many positive aspects of the assessment, the Group welcomes and endorses, in particular, the following statements and conclusions:

1. UK human geography students and staff are gifted and committed and its research outputs are disproportionately influential, read and referenced throughout the English-speaking world – and, in translation, beyond.
2. The UK publishes more than its share of major disciplinary journals; bibliometric indicators reveal international primacy both in volume and citation impact; and a large number of the seminal publications (books as well as articles) continue to have a UK origin.
3. Research is characterised by intellectual diversity, openness to new ideas, significant theoretical and methodological innovation, and substantial empirical achievements.
4. UK human geography is radically interdisciplinary and with the spatial turn in the humanities and social sciences has become an exporter of ideas and faculty to other disciplines.
5. The range, strategic intent and effectiveness of human geography's research impact beyond the academy were confirmed.

The Steering Group is acutely aware of the amount of work required for Panel members to understand the rapidly changing UK Higher Education landscape and its potential implications; and of the difficulties that have arisen from UK data sources that do not meaningfully split human and physical geography. The very nature of the process has also meant that the focus, of necessity, has been on a limited number of key sub-disciplines, rather than on cross-cutting

themes. Information sources have ranged from formal, synthesizing reports and data digests to individual, sometimes anecdotal, comments from more than 160 individuals in discussion groups.

This is a timely Report that contains important recommendations for the discipline during a time of significant changes in, and pressures on, UK research and higher education. The Group welcomes the recommendations, has discussed them, and comments as follows:

1. Internationalisation: While the Report recognises that UK human geography is well placed for the future, with its traditions of inter- and multi-disciplinarity, international engagement and research impact on policy and practice, the Panel urges that the discipline continues to be outward-looking, responding in its research and its staff resources to new agendas arising from international geo-political and economic change. The Steering Group welcomes the recommendation that UK human geography needs to continue to invest in appointments with an international focus to maintain and advance its full engagement with geographical research in a changing world. It is also of the view that there is already a significant amount of international work currently being undertaken by UK geographers in the Global South, Europe and elsewhere, and by scholars from a wide range of traditions and sub-disciplinary areas, that is strong and provides a good platform on which to build further.

2. Quantitative methods and Geographical Information Science: The Report recognises the declining levels of quantitative literacy as an issue that spans the social sciences, including human geography; and expresses concerns about relative under-investment in GIS within human geography. The recommendation made is for stronger endorsement for GIS in new positions and laboratory funding; and for a broad range of remedies for quantitative skills development, noting that some are already in hand. The Steering Group recognises the different emphasis on GIS in the UK and North America, and sees the forthcoming review of the UK Benchmark Statement for HE teaching and learning in geography as an opportunity to reconsider, and potentially reinforce, existing statements on the importance of rigorous training in all methodologies, and specifically in quantitative methods and GIS. The Group also believes human geography is well placed to pilot and develop ways of addressing some of the generic issues around quantitative literacy in the social sciences, as shown by recent, project-based investment. The specific recommendation for ESRC to invest in visualisation of geographic data in addition

to continuing support for quantitative agendas is also welcomed.

3. Mitigating precarious early careers: The Report expresses serious concern for the position of early career scholars, in the context of the pre-eminence of UK human geography and the importance of sustaining disciplinary leadership in the future. The recommendation is for modest initiatives, including mentoring, to create a more supportive infrastructure and more stable and attractive academic career pathways. While the Steering Group accepts that this is an important concern, it considers it a generic issue in the HE sector rather than a subject-specific issue, but it shares concerns about its possible long term impact on research capacity in human geography and it sees some groups being more affected than others. While formal support is in place for new lecturers; such permanent post are relatively scarce at present, and it is the case that postgraduates and post-doctoral research assistants are often less well supported in formulating and establishing early career pathways. This is a matter that needs to be monitored.

4. Minority representation: The Report recognises that like other social sciences, human geography has an under-representation of minority ethnic groups among university students and staff, and of women especially in the more senior ranks of academic staff. The Panel, while realising that there is no quick fix to either issue, points to one example from the USA and welcomes current UK initiatives (Geography Ambassador Programme) in schools. The Steering Group accepts that these are widely recognised challenges, and agrees that examples of good practice in encouraging and supporting under-represented groups could usefully be drawn together and shared.

5. Disseminating success: Noting the increased emphasis on research impact and the increasingly competitive environment for students, the Panel recommends a more pro-active approach, involving the RGS-IBG, to disseminating research success (impact) to HE institutions, to the media, to government and to civil society. The Steering Group notes that while Research Councils, HEIs and departments are increasingly pro-active in this realm, there is both the scope and the need to enhance further the co-ordination of discipline-wide dissemination, led by the RGS-IBG.

In responding more fully to these recommendations, the Review partner organisations (ESRC, AHRC and RGS-IBG) will consider a number of specific initiatives and actions, involving other stakeholders and Steering Group members as appropriate. These will include considering:

1. If a specific initiative to further geographical collaboration with key emerging economies should be pursued and, if so, how.
2. How the community may in future best stimulate and support quantitative methods and GIS in human geography teaching and research, beyond current programmes.
3. The key pinch points and the options for funded initiatives to sustain early career scholars more fully; and how current good practice in institutional support can be shared more widely.
4. What approaches might be effective, feasible and fundable to encourage more young people from ethnic minorities to study geography at school and as undergraduates at university.
5. How an initiative to further co-ordinate discipline-wide dissemination might be funded/resourced.

The Economic and Social Research Council (ESRC) is the UK's largest organisation for funding research on economic and social issues, supporting independent, high quality research which has an impact on business, the public sector and the third sector. The ESRC's total budget for 2012/13 is £205 million and at any one time it supports over 4,000 researchers and postgraduate students in academic institutions and independent research institutes.

Economic and Social Research Council

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The Royal Geographical Society (with IBG) is the learned society and professional body for geography and geographers. Founded in 1830, today the Society is a world centre for geography: supporting research, education, fieldwork and expeditions, geography in society and also advising on policy issues.

Royal Geographical Society (with IBG)

1 Kensington Gore
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