

Institution: KING'S COLLEGE LONDON
Unit of Assessment: 14 GEOGRAPHY & ENVIRONMENTAL STUDIES
<p>1. Unit context and structure, research and impact strategy</p> <p>Context:</p> <p>This submission is primarily-based on research conducted by members of the Department of Geography, King's College London. Founded in 1922, it is one of the largest and most interdisciplinary in the UK, with over 80 academic, teaching and research staff. It has more than 450 undergraduate students on its RGS-accredited BA and BSc Geography programmes, 290 postgraduate students across six Master's courses and over 100 PhD students.</p> <p>Since 2016, the Department has been part of the new School of Global Affairs (SGA) (Acting Head: Herrick), and, from 2018, has been physically co-located with SGA colleagues in the Global Institutes, the Department of Global Health & Social Medicine and Department of International Development in new accommodation in Bush House, Aldwych. This facilitates interdisciplinary problem-solving research that addresses pressing global challenges such as climate change adaptation, disaster mitigation, poverty alleviation, sustainable development, the reduction of gendered violence and effective water management. As such, this submission includes six staff from the Department of International Development and the Global Institutes, as well as one member of the Department of European & International Studies: all co-operate closely with those in the Department of Geography.</p> <p>Geography at King's has an excellent global research reputation (e.g. one of the top 10 UK departments, QS World University Ranking, 2020). It has interdisciplinary expertise straddling the social and natural sciences, with a significant proportion of its work concerned with the complex interaction of human and physical systems (e.g. as manifest in pioneering work in areas including urban political ecology, the conservation of ecosystem services, water resource management and the monitoring and management of environmental hazards such as landslides, wildfires and floods). This interdisciplinary orientation and applied focus are reflected in its research structures.</p> <p>Research structure:</p> <p>King's recognises the importance of personal scholarship and research independence but encourages collaborative, interdisciplinary research involving teams of researchers at varying career stages. Currently, the Department of Geography has five established Research Groups (the organisational pillars around which research and research-led teaching is managed), and three Activity Hubs (designed to generate impact in areas that cut across physical and human geography) (<i>Figure One</i>).</p> <p>All academic staff, research staff and PGRs are affiliated to at least one research group, which provides them with mentorship, strategic direction and support, including bespoke opportunities to present their work in seminars, reading groups and grant workshops. Each research group is also directly associated with a Master's programme that cultivates future research capacity. Heads of research groups lead on the implementation of the Department's research strategy and have a small research budget designed to support group activity. All five research groups are represented at the Department Research Committee, alongside Department Impact leads (Löfstedt and Schreckenber), the interdisciplinary research champion (Dawson), a PDRA representative, the Faculty Research Development Manager and the School Research Manager. The Committee meets quarterly, and as well as standing items (research income; REF; impact) incorporates regular external presentations on grant opportunities, media & communications, open access and Equalities, Diversity & Inclusion. The committee has an £8,000 annual budget to pump prime research, and £8,000 to develop research impact.</p>

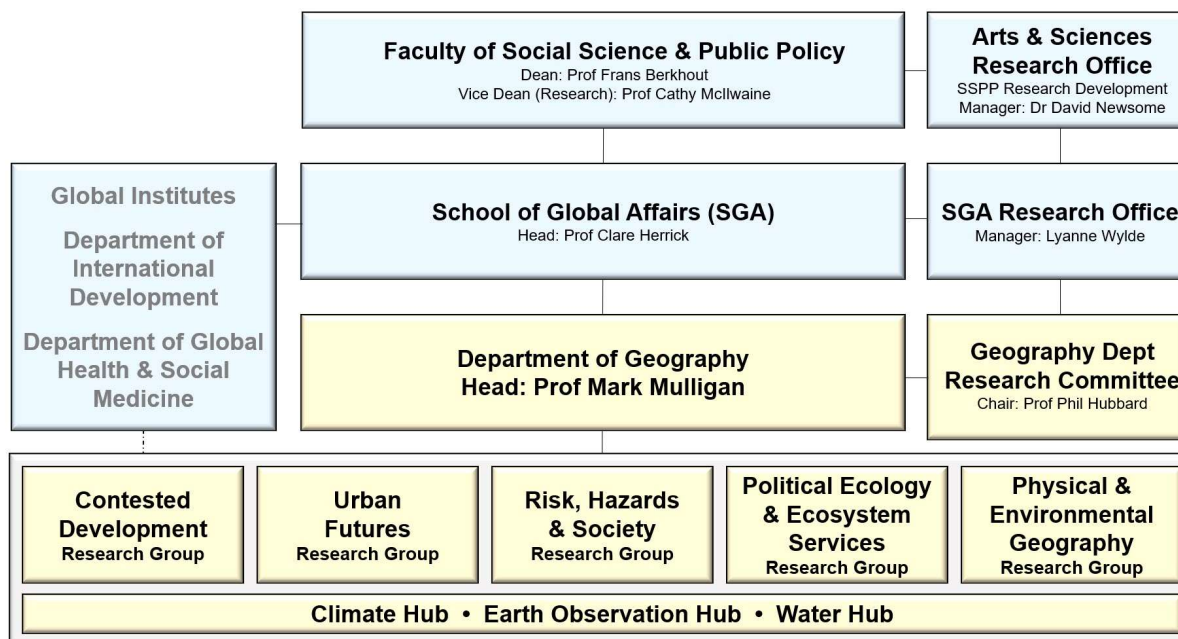


Figure One: Organisational structure,
King's College London UoA14 Geography & Environmental Studies

The five Department research groups focus on demonstrable areas of expertise as follows:

- Contested Development** provides critical perspectives on the relations between state formation, geopolitics and uneven development. The group incorporates colleagues from the Department of International Development and the Global Institutes, and, as such, represents one of the largest groupings of development expertise associated with a UK Geography department. Members are engaged in projects across Africa (**Bracking, Brooks, Craggs, Evans, Herrick, Loftus**), South/South East Asia and the Middle East (**Akhter, Goodburn, Mirumachi, Mustafa, Natarajan, Susewind**) in addition to parts of Latin America (**Boesten, McIlwaine**) and small island-states (**Schofield**). Contesting simplistic divisions between global North and South, members make critical interventions in debates surrounding global poverty, health and migration (e.g. **Sumner** has developed measures of global poverty now adopted by the UNDP and World Bank, **Herrick** has assessed the effectiveness of health partnerships in the context of Ebola, and **Brooks** has challenged orthodoxies of charity-giving through his work on second-hand clothing), while work on violence (e.g. **Boesten, McIlwaine, Mustafa, Natarajan**) offers a uniquely-transnational perspective on domestic and political violence (with both **Mustafa** and **McIlwaine** holding grants in the BA Heritage, Violence & Dignity programme). This research group underpins the MSc Environment, Politics & Development.
- Physical & Environmental Geography** develops understanding of interacting hydrological, geomorphological, ecological and atmospheric processes, including indicators of past, present and future climate. Much of this research is applied in nature and some directly contributes to decision-support. Studies focus on arid/semi-arid areas and aeolian environments (**Baas, Breeze, Drake**), urban environments (**Chadwick, Francis**), grasslands (**Catford**), closed canopy forests (both tropical and high latitude) (**Dawson, Mulligan**), and ice sheets (**Edwards**) as well as lakes, estuaries, rivers and the riparian zone (**Catford, Chadwick, Francis, Mulligan, Schillereff**). The group's work is strongly international in orientation, including major projects conducted at the global scale such as the £9m EC Horizon 2020 Protect sea-level change project (Co-I

Edwards). Notably, it was one of the first research groups in the UK to link computer-based simulation and laboratory work to field environmental monitoring using both *in situ* sensor networks (e.g. the low-cost environmental sensors developed by **Mulligan** and **Schillereff**) and airborne/satellite remote sensing (as manifest in the world-leading thermal remote sensing, wildfire and IR spectroscopy projects led by **Wooster** and his extensive team of PDRAs in the NERC National Centre for Earth Observation and the associated World Class Lab on airborne instrumentation). This research group links to the MSc Environmental Science for Environmental Sustainability.

- **Political Ecology & Ecosystem Services** represents one of the largest UK concentrations of expertise in political ecology, with notable research on infrastructural futures (**Angel, Akhter, Bryant**), the impacts of the privatisation of water (**Angel, Loftus**), plumbing poverty (**Meehan**) and the calculative challenges associated with the financialisation of nature (**Bracking, Demeritt, Loftus, Purcell**). This newly-convened research grouping brings this critical work into dialogue with more applied work at the physical/human interface: major foci here includes ecosystem services assessment and the social impacts of nature conservation (**Dawson, Mulligan, Schreckenberg, Tebbs**), food security (**Dawson**) and the relations of development and resource management (**Akhter, Mirumachi, Mustafa, Schreckenberg**). Emerging work on nature-based solutions, urban energy transitions and hydrogeopolitics - including the NERC-funded Nature4SDGs project (PI: **Schreckenberg**) and the EC NAIAD and ReSET projects (PI: **Mulligan**) - is establishing a focus on the role of nature in achieving Sustainable Development Goals. This research underpins the MA Geopolitics, Territory & Resources.
- **Risks, Hazards & Society** addresses the interdisciplinary challenges of risk, combining natural science expertise on environmental hazards with social science expertise on the construction of risk and its communication. Research foci include comparative studies of risk governance tools across multiple sectors and nations (**Demeritt, Löfstedt, Rothstein, Wooster, Mulligan**); institutional constructions of climate risk and resilience (**Adamson, Berkhout, Hulme**, now Cambridge); climate-driven migration (**Adams, Pelling**); management of multi-hazard risk (**Pelling, Malamud**); nature-based solutions to climate risk (**Mulligan, Francis**); environmental and health risk communication (**Löfstedt**); landslide early warning systems (**Malamud**); and natural hazard forecasting (**Demeritt, Malamud**). Group members are involved in major collaborative programmes (e.g. **Malamud** and **Pelling's** role in the £20m UKRI-GCRF Urban Disaster Risk Hub; **Malamud, Millington** and **Pelling's** role in the £3.3m DFID/ESRC Urban Africa Risk Knowledge programme; and **Demeritt** and **Wooster's** role in the £10m Leverhulme Centre for Wildfires, Environment & Society with Imperial College). This group links to the MSc Risk Analysis, Adaptation & Resilience.
- **Urban Futures** builds upon King's rich tradition of urban geography (via the continuing participation of Emeritus staff Tim Butler, Chris Hamnett, and Debby Potts), and offers policy-relevant perspectives informed by critical urban theory. Recent research foci include the historical and contemporary visioning of the future city (**Craggs, Dickens**), feminist/queer perspective on urban life (**Andersson, Hubbard, Mcllwaine**), questions of well-being and health (**Green, Herrick, Shiode**), urban nature and animal geographies (**Chadwick, Francis, Hubbard**), the geographies of housing affordability (**Hubbard, Potts, Reades**), the monitoring of 'smart cities' (**Datta**, now UCL, **Shiode, Zhong**), infrastructure futures (**Akhter, Meehan, Pelling**) and socio-technical experimentation in cities (**Berkhout**). As stated in the REF2014 submission, this group is increasingly embracing the principles of comparative urbanism (as manifest in work of **Datta, Mcllwaine, Potts**), moving beyond a London-centric focus to one considering the relationality of cities. This research group links to the MSc Sustainable Cities.

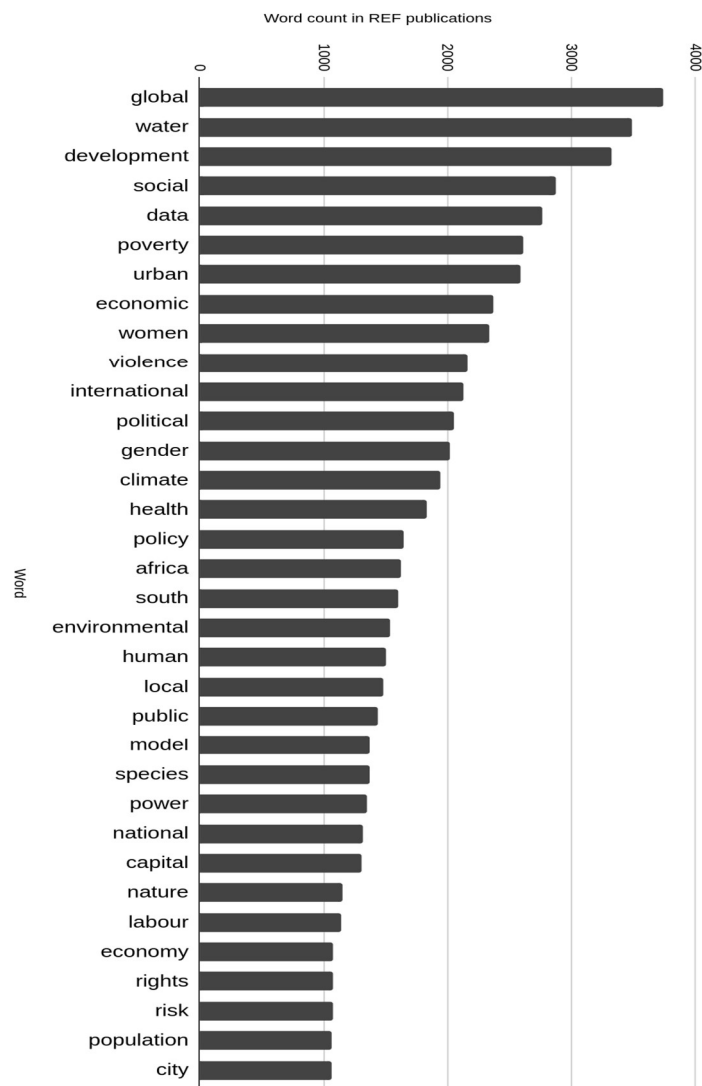


Figure Two: Research themes and content, based on word counts of REF2 submitted outputs, King's College London UoA14 Geography & Environmental Studies

Research & Impact strategy:

The Department's 2014 Research & Impact strategy aimed to improve the **quality, scale** and **impact** of research so that the majority can be defined as **world-leading**. This has involved:

- Recruiting **high-quality** staff from different **disciplinary backgrounds** to encourage the use of diverse methods encompassing qualitative, participatory work (interviews, ethnography, and arts-based methods) through to innovative quantitative analyses of 'big data': this has included early career researchers in **emerging fields** as well as internationally-recognised experts who provide research leadership (e.g. **Hubbard**, Urban Futures; **Dawson**, Political Ecology & Ecosystems Services, and **Mcllwaine**, and **Bracking**, Contested Development).

- Developing a collaborative **intellectual environment** that is **fully-inclusive**, recognising that diversity of experience (e.g. ethnic, gender, age) produces research that challenges established thinking: to foster collaboration, there are twice-weekly Departmental Seminars open to all staff and students, as well as annual lectures, workshops and *ad hoc* events that frequently straddle the human/physical divide.
- Strategically focusing on **global challenges** through **interdisciplinary research** - with field research conducted in over 95 countries across seven continents (*see Section Four*) - while also using London as a 'laboratory' in which physical and human geographers cooperate on projects including studies of personal air pollution exposure, flood mitigation, and adaptation to heatwave risk, among others.
- Enhancing the **quality of research** through universal and improved **individual annual mentoring** and **Performance & Development Review** processes, supportive multiple-reviewer grant application **peer review** processes and **REF output feedback exercises** involving external advisors: regular presentations at staff meetings and individual mentoring meetings have defined what is expected of world-leading research, and emphasised the importance of quality over quantity as a metric of research performance.
- Supporting staff at all career stages to **seek increased research funding**, with a central aspiration being to develop **larger, collaborative projects reflecting our increased capability to address global challenges**: in this REF cycle, the value of the average funding award from external sources has doubled, with many awards of more than £1m - including ERC awards (e.g. **Catford** and **Zhong**) - and examples of substantial research centre funding (e.g. the Leverhulme Centre for Wildfires, Environment & Society lead by **Demeritt** and **Wooster**).
- Promoting the **impact agenda** through the appointment of two Department impact leads, pump-priming money, and bespoke events fostering engagement with policy-makers: an increased share of research is conducted with non-academic beneficiaries, with notable secondments including **Schreckenber**, Director of the £45m DFID/ESRC/NERC-funded Ecosystem Services for Poverty Alleviation research programme (2017-18); **Pelling**, thematic adviser to UKRI Global Challenges Research Fund; **Wooster**, National Centre for Earth Observation (NERC); **Adams**, seconded to the Cabinet Office as Head of Science Engagement for the 26th UN Climate Change Conference, 2021-22.
- Contributing to **public and media debates** around **social and environmental problems** by exploiting the visibility of our externally-facing Research Hubs, increased use of @KCLgeography twitter handle (6,500 followers), and writing for popular news outlets (e.g. *The Conversation*, *Guardian Society*, and *Huffington Post*): this has also included increased use of our own 'Exchange' exhibition space (*see Section Three*).
- Enhancing **future research capacity** by developing clearer links between our research, our suite of six research-led master's courses, and pathways within doctoral training centres (e.g. ESRC London Interdisciplinary Social Science DTP, London Arts & Humanities DTP and NERC London DTP), providing a pipeline of future research leaders: for example, Leverhulme Early Career Fellow **Breeze** completed his PhD at King's, while **Angel** completed King's Environment, Politics & Globalisation MA before his PhD at King's.

Future plans:

Looking forward, the Department's strategy is to build on recent successes by creating a more **inclusive research environment**, consolidating **critical mass** in our five research groupings, further increasing **income generation**, and maintaining the vitality of our **interdisciplinary** culture by developing new research priorities within, and across, different research groups. Each group has well-developed plans for the next REF cycle, as follows:

- **Contested Development** will further explore the societal impacts of rapid economic and technological change in emerging economies, including studies of environmental, labour and gender justice and issues of unequal access to state resources. A notable collaboration here will be the participation of members of the Departments of Geography and International Development (along with the Department of War Studies) in the Visual & Embodied Methodologies network (co-ordinated by **Boesten** and **Mcllwaine**), encouraging the interdisciplinary co-production of arts-based knowledge in areas where traditional methods have been found wanting (e.g. the intersection of gendered violence and geopolitical conflict).
- **Political Ecology & Ecosystem Services** will build upon two traditions at King's Geography: one in critical political ecology and the other a more policy-oriented focus on ecosystem services mapping, monitoring and modelling. New interests at the interface of these groups – and the idea of developing more critical approaches to ecosystem services – will coalesce in projects exploring natural resource and energy geographies in relation to questions of power and social justice. For example, work on hydro-hegemony will increasingly be connected to critical studies of grey and green water infrastructures, while the contested politics of climate-driven resource transitions will be a central thematic linking this research group to Urban Futures.
- **Physical & Environmental Geography** will continue to develop innovative, applied remote sensing, monitoring and modelling research addressing sustainability challenges. It will also further collaborations with other research groups by exploring the links between environmental change and security in water, food and ecosystems, with a focus on climate change adaptation and mitigation. It will also increasingly address the impacts of environmental pollution on human health (including microplastics, air, water and noise pollution) using innovative, low-cost sensing. The group will also work with other research groups to improve environmental monitoring and forecasting by combining state-of-the-art algorithms for analysis of satellite data with local 'citizen science' initiatives to provide more accurate forecasting of wildfire, droughts, floods and extreme weather.
- **Risks, Hazards & Society** will build on existing work involving the scientific monitoring, remote sensing and modelling of natural hazards such as wildfires, floods and landslides (e.g. drawing on ongoing work of the Leverhulme Centre for Wildfires, Environment and Society); will undertake international comparative research on risk governance regimes and the mobility of policy tools in post-Brexit Europe, and develop research on risk communication strategies in the face of climate change in both global North and South.
- **Urban Futures** will increasingly focus on the impacts of urban infrastructures and architectures on health, well-being and security. This will include consideration of how changing housing provision and the verticalisation of cities shapes quality of life; how plumbing and water poverty shapes health outcomes and how new understandings of mental health will be shaping the post-COVID city (through engagement with King's ESRC Centre for Society and Mental Health). There will also continue to be profitable connections between this group and Physical & Environmental Geography via an emergent focus on urban ecologies and animal life in the city.

Such emerging and new initiatives will be generating visible outcomes and impact over the next REF cycle: future strategy will be to ensure the Department maintains the capacity to develop and lead large-scale international, collaborative research that is grounded in geographical traditions and prepared to address **global challenges** through **interdisciplinary** working at the physical/human interface. This is encouraged via a pump-priming Faculty Research Fund (16 awards to Geography in the REF period, total value £167,759) and the College-wide "Kings Together" initiative which has funded 21 projects with Geography PIs (total £331,085) since its 2016 inception. These investments will bear more fruit in the next REF cycle.

2. People

King's Geography has maintained a strategy of **recruiting, developing** and **nurturing** excellent researchers at all levels, ensuring there is equality of opportunity for all to benefit from career development opportunities. Academic staff are supported to work closely with postgraduates, research staff, technicians, and professional services staff, creating a vibrant, collaborative culture directed towards the generation of world-leading research. Major steps have been taken to ensure that all can participate in this research culture irrespective of disability, ethnicity, gender or caring responsibilities: in recognition of this the Department of Geography attained an Athena SWAN Bronze award in October 2019. Regular and varied social events linked to seminars and student assessments (such as PhD poster sessions), as well as boat trips and country walks, contribute to a friendly and inclusive atmosphere.

Staffing strategy and staff development:

The current Head of Department, **Mulligan**, has autonomy within the School of Global Affairs to manage staffing resource, with advice from a Departmental Steering Group drawn from all genders and career stages. The innovation of three Deputy Head positions (Student Experience, **Herrick**, Research, **Hubbard** and Education, **Malamud**) has enhanced leadership capacity and succession planning.

Staff retirements and departures since 2014 have allowed for a renewal of the Department's research culture. For example, the arrival of new Reader and Professorial appointments (**Dawson, Schreckenber, Hubbard, Mcllwaine, Bracking**) has provided research leadership on environmental, urban and development research respectively; a range of other appointments at Lecturer and Senior Lecturer Level (**Akhter, Catford, Dickens, Edwards, Meehan, Schillereff, Tebbs**) has enhanced capacity in priority areas including global climate change, environmental monitoring and urban political ecology. This interplay of research leadership, and new, often early career, appointments, exemplifies King's staffing strategy.

All new members of academic staff receive induction at Departmental, School and College level. The Centre for Research Staff Development (see **REF5a**) ensures all have access to training and development opportunities. As well as induction events and bespoke training for Early Career Researchers, there is an Emerging Leaders Programme designed to create a 'High Performance Culture': those benefiting from this training in the REF period include **Mirumachi** (now leading our Water Hub), while **Francis** completed the Strategic Leaders Programme and is now Associate Dean (Academic Affairs). Additionally, **Herrick** completed the Senior Leaders Programme run by the Leadership Foundation, as well as the Aurora Women's Leadership Programme, both funded by the College: she is now Acting Head of SGA. The Research leadership developed within Geography is also demonstrated by the presence of geographers in key SSPP Faculty research leadership positions: Dean (**Berkhout**), Vice-Dean for Research (**Mcllwaine**) and Pro-Dean Impact and Innovation (**Schreckenber**)

The College upholds the principles of the Concordat to Support the Career Development of Researchers (2019), providing clear pathways to promotion and ensuring all research staff (e.g. RAs) are aware of relevant training opportunities. Ongoing appraisal of training needs occurs through forward-looking annual Performance & Development Reviews, required for all research staff and linked to a £1,500 annual research and professional development allowance. The success of these processes is manifest in an impressive track record of research staff employment after King's: recently-employed RAs are now in lecturing positions at Bath, Birkbeck, Cambridge, CNRS (Paris), Cornell, Huazhong Agricultural University, and the LSE, as well as research scientist positions in the Canadian Forest Service, National Physical Laboratory (London), and UNEP World Conservation Monitoring Centre.

For both academic and research staff, Performance & Development Reviews feed directly into mentorship, recognition pay and promotion processes. The latter is tied to the Faculty Academic Performance Framework and all who meet the criteria are encouraged and supported to apply. The success of this process is evidenced by the large number of internal promotion successes in the REF period including **Adams, Adamson, Akhter, Andersson, Brooks** and **Chadwick** to Senior Lecturer, **Baas, Catford, Edwards, Loftus**, and **Mirumachi** to Reader, and **Boesten, Herrick, Mustafa, Mulligan, Schreckenber**g and **Sumner** to Professor.

The most important aspect of the strategy for promoting a research environment with a high level of participation is ensuring all staff receive a basic research allocation of 40% of their time. Additionally, Teaching & Research staff can 'buy-out' teaching through grant income (with a one-to-one relationship between directly-allocated FTE on research grants and teaching reduction). The overall Workload Allocation Model strives to achieve **equity** in loads across all career stages, taking into account all teaching, administrative, supervisory and leadership roles: average female and male FTE teaching loads for T&R staff are within one student contact hour of each other, as are those for professors and non-professors. All staff can identify one teaching-free day in the College timetabled to ensure at least one uninterrupted research day per week.

As well as ensuring that research activity is explicitly factored into workloads, a vibrant and inclusive research culture has been encouraged by:

- Maintaining a one-year-in-seven sabbatical system prioritising large grant applications and publishing projects, claimed through an application process, and subject to post-sabbatical review.
- Granting staff access to a proportion of research overheads through a Faculty-run Principal Investigator Incentivisation fund which gives those with active grants up to £3,000 annually to support additional fieldwork, travel or subsistence costs; purchase of datasets; or employment of a research assistant.
- Investing in additional professional support services to reduce staff time spent in teaching and research-related administration, with digitisation of policies and procedures via a fully-live online staff handbook.
- Giving all teaching and research staff research and professional development allowances of £1,500 annually to support travel and accommodation associated with professional networking activities and research dissemination.
- Providing forums for debate, including the twice-weekly geography research seminars that offer a focus for debate and intellectual exchange: external speakers have included Yvonne Buckley (2020), Jenny Robinson (2019), Gillian Rose (2018), Uma Kothari (2018), Gerry Kearns (2017), David Thomas (2019) and Erik Swyngedouw (2015).
- Supporting staff applications to the King's Undergraduate Research Fellowship (KURF) scheme which allows staff to employ undergraduates as researchers on a £1,000 bursary: 23 awards have been made to Geography since 2013-14, allowing research to be carried out to the mutual benefit of students and staff.
- Managing a peer mentoring system providing all academic and research staff with access to an individual research mentor who gives practical advice, constructive criticism and encouragement: in addition, College-level peer review of all grants in excess of £100,000 is mandatory, and mock interviews conducted in support of these as appropriate.

Mentoring, along with peer review, is also a mechanism to maintain standards of research integrity. The Department has three staff members on the College Research Ethics Panel while **McIlwaine** is Faculty Research Integrity Champion. King's is also a signatory of the Concordat for Research Integrity (2019), and has governance structures to ensure that research is conducted to high standards: all human participant research is subject to ethical scrutiny, and

fieldwork subject to health and safety reviews by a fully-qualified SGA safety officer. All procedures and facilities are now set out in a formal induction pack, and early career T&R staff receive an overall 25-50% reduction of teaching and administration loads during their first three years to assist them launching their research careers. The College also offers a wide range of bespoke mentoring schemes to support ECRs in the crucial transition phase of their careers, including the 'B-Mentor' programme for BAME academics.

Research students:

The current cohort is 106 (88 F/T and 18 P/T, end of 2019-20), as compared with 122 reported in REF2014, a decrease reflecting the desire to reduce supervisor loads and increase the quality of students admitted. However, this remains one of the **largest** scholarly research postgraduate communities of any Geography Department in the world. This cohort is supported by the PhD tutor, admissions team and professional support staff who constitute the postgraduate Board of Study (chair: **Bracking**).

All students have at least two academic supervisors, both required to complete supervisory training. Student progress, and training needs, are formally reviewed twice a year, with self-assessment by the student, assessment by the supervisory team and review by the Associate Dean (Doctoral Studies). Students must also pass an upgrade after 9-18 months on the programme, based on an upgrade report (usually 15-20,000 words) and a viva involving an independent assessor and a panel chair.

All five research groups sustain large and vibrant PGR communities, and require PGRs to present their work on at least once during their studies. Intellectual induction into scholarly networks also occurs through reading groups, seminar programmes and field excursions organised at a Department level, while there are also wider Faculty networks which aim to support PGR students (e.g. the Gender Studies Seminar Network convened by **Boesten** and the 'climate coffee mornings' organised by **Edwards**). All Departmental PGR students have access to a social/networking budget and conference/travel bursary, whilst College funding is also made available for annual, offsite writing workshops. UKRI-funded students have also benefited from funded policy internships (e.g. PhD students James O'Neill and Tim Harris were interned in the Parliamentary Office of Science and Technology). Formal research methods training is either through the ESRC-funded LISS DTP or NERC DTP, while at the College level, the Centre for Doctoral Studies ensures all postgraduates are given access to appropriate support services.

The quality of support for PGRs is evidenced in 152 PhD awards 2014-2020 (cf. 86 awards declared in REF2014), 93% submitted within 4 years (cf. 88% in REF2014). First destination professional employment is dominated by core academic posts, with applied careers well-represented through business and NGO/government employment. First academic destinations include many centres of excellence in UK Geography (e.g. recent ex-students in tenured lecturing posts in Bristol, Edinburgh, LSE, London South Bank, Nottingham, Reading, UCL, UEA) and overseas (e.g. Cornell, George Washington, Stavanger). Others have been able to market their expertise: for example, Laura Canevari used her PhD research to create a new climate change consultancy (Itaca) based in Panama, and obtained a contract from the Jamaican Ministry of Agriculture and Fisheries to continue the policy research she started in her PhD.

The outstanding research of our PGR body is signified in the fact that many routinely publish first-author outputs in quality journals even before the completion of their PhD: e.g. *The Cryosphere*, *Environment and Planning C*, *Environmental Biology of Fishes*, *Environmental Innovation and Societal Transitions*, *PLoS One*, *Sexuality & Culture*, *Science of The Total Environment*.

Equality, Diversity & Inclusion:

Given the strategic aim of creating a more **diverse and inclusive** research environment, Departmental policies go beyond College requirements to actively encourage a truly-inclusive environment where all colleagues can succeed regardless of background. The fact there is a wide range of teaching and research on gender, sexuality and race in this UoA, and a nuanced understanding of these issues among staff, has helped create a positive environment where this goal has been embraced. This was recognised in the award of an Athena SWAN Bronze award in October 2019 which, in part, acknowledges the following steps taken by the Department:

- Chair of the Equalities, Diversity & Inclusion Committee (**Schillereff**) has been established as a key position in Departmental governance: ED&I is a standing item on the agenda of all key committees including the Department Steering Group, Departmental staff meetings and student-staff liaison committees.
- Recruitment panels for all academic appointments are drawn from all career stages from PhD upwards: all appointment panels over the REF period have included at least one female member of staff, and typically have been gender-balanced.
- Since 2017/18, promotion requests have been assessed by members of the Departmental Steering Group rather than the Professoriate, meaning applications are looked at by a mixture of female/male assessors at different career grades: revision of the Faculty's Academic Performance Framework (overseen by **Hubbard**) means promotion is no longer judged against criteria that disadvantage those with caring responsibilities (e.g. attendance at overseas conferences).
- The King's Parents and Carers Fund provides return to work funds for all academic and research staff after a period of maternity/adoption/paternity/caring leave (up to £10,000 to mitigate the impact of extended leave on career progression due to suspension of research activities): two in this UoA have received this support since 2014.
- A Parents' and Carers' Conference Fund provides financial support for caring to facilitate attendance at conferences and networking events (with a total of £3,000 available to staff and postgraduates per annum).
- There is a compassionate system of flexible-working arrangements for staff with caring commitments or long-term health issues, with flexible-working both informally and formally facilitated: formally, nine requests (5 male, 4 female) for flexible-working requests relating to caring or health issues were approved 2014-2020.
- Colleagues are encouraged to keep meetings and other communications within 'core' working hours: seminars alternate between lunchtimes and late afternoon slots to ensure all can attend at least some of these, and there is a considerate email policy that strongly discourages emailing colleagues outside of the standard 9-5 working day.

Consequently, the Department has become more diverse in terms of its age, gender, ethnicity and nationality since 2014. At that time, only one in five of all senior posts (SL, Reader, Professor) in the Department were female, but by 2020 this exceeded one in three. Additionally, the overall proportion of female academic staff in the Department has increased from 31% in 2015 to 40% in 2020 (*Figure Three*), in excess of subject benchmarks as defined by HESA/RGS-IBG 2014.

Overall, 31% of those included in this UoA submission are female, but they account for 42% of submitted outputs, suggesting that efforts to increase diversity are reflected in improved research quality.

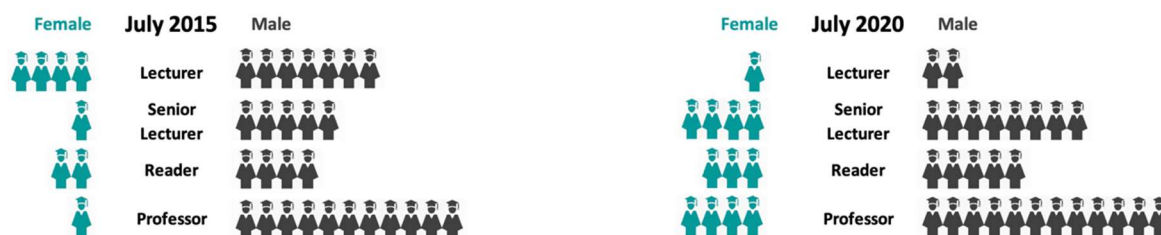


Figure Three: Gender breakdown, King's College London, Department of Geography 2015-2020

Since 2014, the gender and age profile of grant holders has also diversified, with more Early Career staff contributing to grant applications as PIs and Co-Is and more pro-active support for female PIs making large research council applications. Historically, there were a small number of key (male) players in the Department winning large grants, but there is now a growing diversity in the both the age and gender of those running large, funded projects (e.g. income declared in REF4b associated with female-PI projects accounted for £61,000 or 5% of total in 2013-14 but rose to £407,000, or 16%, by 2019-2020).

While there have been positive developments in this REF cycle, outstanding Action Points remain from the Athena SWAN submission. Specifically, there is a need to deliver on King's Race Equality Action Plan, noting Departmental academic staff remain majority (85%) white and from the UK (70%) whilst King's UG population is now more than 50% BAME. Here there will be implementation of the recommendations of a working group established in 2019 to explore BAME experiences within the Faculty, as well as more explicit **research** on geographies of race & racism to assist in the goal of **de-colonising the curriculum** and our **research practices**.

3. Income, infrastructure and facilities

Geography's total earned research income increased from £7m in the last REF cycle to over £12m in the current one. The breadth of funders - and the distribution of funding across different researchers - shows that King's geographers are undertaking research that addresses the global challenges which constitute the research priority for many funders.

Research support:

Since REF2014, research and enterprise activity has been supported by the Arts & Sciences Research Office (ASRO), which provides advice in developing, negotiating and managing research grants. The Faculty's Senior Research Development Manager (SRDM), based in ASRO, supports the development of high-quality applications by raising awareness of funding opportunities, supporting application writing, providing funder-informed critical feedback, hosting mock interviews, and communicating funders' strategic priorities.

The SRDM is part of the Faculty research leadership team, working closely with the Vice-Dean (Research), **Mcllwaine**, who holds a substantial annual budget for research development activities and pump-priming. With the SRDM, the Vice-Dean oversees the work of the SGA Research Managers who support all elements of grant application, including costings, sign-off/approval, and submission.

Research income:

Despite a competitive funding environment, overall Departmental grant activity (in terms of both applications and awards per FTE) have increased since 2014 with a total income of £12,622,232 in the REF period. On average, applications in the REF cycle equate to 1.1 per FTE per annum, with an average value of £199,000 (cf. 2014 when this was 0.86 per annum and £138,735). Success rates remain ahead of sector norms (e.g. ESRC responsive call success rate of 17% and NERC responsive call success rate of 20% as of July 2018) with more than 25% of applications resulting in an award across the REF period. There has hence been a sustained record of research funding success in this UoA in this REF cycle (see *Figure Four*).

Grants come from a diverse range of international (15%) and UK funders (85%), with highlights including projects addressing global challenges such as **climate change** (e.g. **Berkhout's** role in the £9.58m global Wellcome Trust Pathways project on equitable healthy cities, funding the London Hub for Urban Health, £162,540 to King's), **disasters** (e.g. **Wooster** and **Demeritt's** role in the £10m Leverhulme Wildfire Research Centre, £3,250,000 to King's), **global poverty** (e.g. **Sumner's** role in the ESRC Global Poverty and Inequality Dynamics Strategic Research Network, £150,000 to King's) and **ecosystems degradation** (e.g. the £1.3m NERC ColombioBIO programme, £343,322 to King's, PI: **Dawson**).

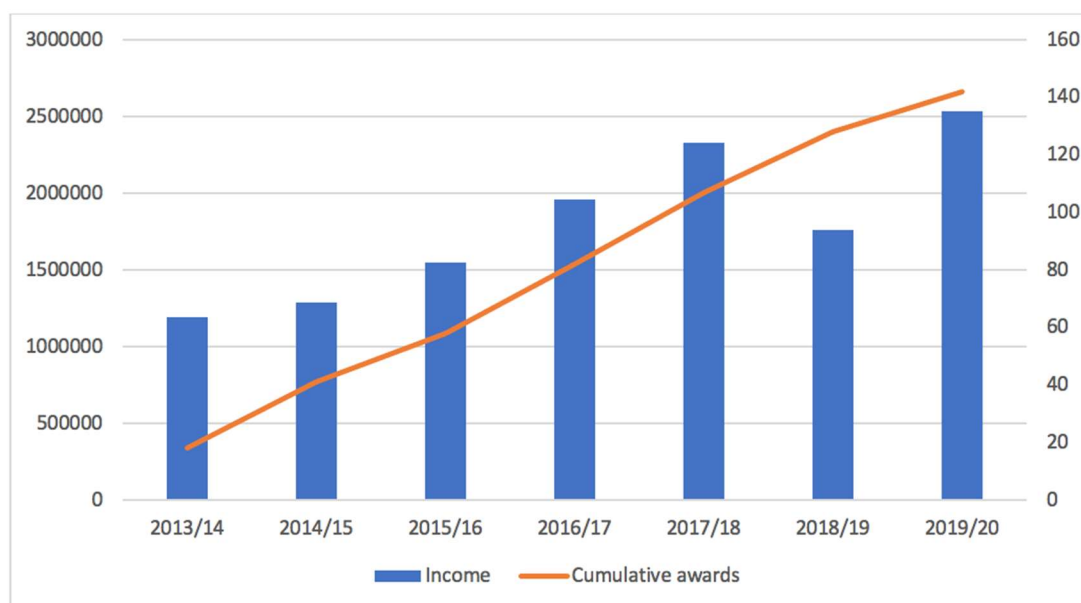


Figure Four: Research Income by Year and New Awards 2013-2020, King's College London UoA14 Geography & Environmental Studies

European funding has increased since 2014, and included an ERC Consolidator Award - Predicting impacts of alien plant invasions on community diversity (£1,681,757) (PI: **Catford** starting 2021); ERC Starting Grant - Redefining Variability: Evaluating Land Use and Transport Impacts on Urban Mobility Patterns (£1,218,750) (PI: **Zhong**, taken to UCL), European Centre for Medium-Range Weather Forecasts - Development of the global fire assimilation system (£178,512, PI: **Wooster**), EC NAIAD - Nature Insurance value: Assessment and Demonstration (£222,999, Co-I: **Mulligan**), EU Horizon 2020 - Projecting sea-level rise (£337,135, PI: **Edwards**), EU FP7 - European Eco-innovation & The Green Economy (£94,926, Co-I: **Berkhout**), European Space Agency - Satellite Air Quality Modelling (£298,314, PI: **Wooster**) and the EU Horizon2020 - Restarting Economy in Support of Environment through Technology, £1,756,460, Co-I: **Mulligan**, starting 2021).

In addition to these major awards, mid-sized funding from UKRI continues to be a significant source of funding (62% of the total), with grants from BBSRC (e.g. UK-China Agritech Challenge - Utilizing Earth Observation and UAV Technologies to Deliver Pest and Disease Products, £207,341, PI: **Wooster**), ESRC (e.g. Gentrification, Displacement, and the Impacts of Council Estate Renewal in C21st London, £321,412, Co-I: **Hubbard**), EPSRC (e.g. Fire Emissions Factor Measurements to Support Real-Time Air Quality Forecasting, £40,100, PI: **Wooster**) and NERC (e.g. NERC India-UK Water Centre (IUKWC) Synergistic utilisation of EO-based soil moisture observations, £10,000, Co-I: **Tebbs**).

Other noteworthy sources of funding include charities such as The Leverhulme Trust (e.g. Peopling the Green Sahara? A multi-proxy approach to reconstructing the ecological history of the Saharan Holocene, £210,106 PI: **Drake**), the British Academy (e.g. Decolonising geography? Disciplinary histories and the legacies of empire, £162,351, PI: **Craggs**) and The Wellcome Trust (Morbidity, Mortality and Occupational Health in the Victorian and Edwardian Post Office, £394,762, PI: **Green**). Additionally, small grants remain of significance, particularly in terms of support for ECRs (e.g. RGS - Quantifying phosphorus fluxes using Holocene lake sediment, £19,998, PI: **Schillereff**).

Infrastructure and facilities:

In the last REF cycle, Geography was based in split-accommodation in the basement, fourth and sixth floors of the King's Building and the Strand basement. In 2018, Geography moved to the refurbished North-East wing of the Grade-II listed Bush House, the former BBC World Service building. This has enabled Geography staff, researchers and postgraduates to move into bespoke accommodation co-located with colleagues in the Global Institutes and the Departments of Global Health & Social Medicine and International Development. Professional Services colleagues are also within the same building. As well as teaching space and staff offices, Bush House contains multiple informal collaborative spaces and kitchen areas. 'The Exchange', an open-plan public engagement space fronting on to Aldwych, has already been well-used for Geography research exhibits and events, with the Programming Manager (Jayne Peake) included as a Co-I in some research grant applications in order to maximise impact and facilitate collaborations with artists.

On the Strand Campus, the John B Thornes Laboratory remains a dedicated teaching and research space, consisting of a large central teaching zone complemented by five auxiliary labs. This was part of a £1.2m strategic investment from the College, and is used for spectroscopy, sediment analysis, quantification of environmental pollutants in water/soil, and light microscopy for ecological studies. It also contains an electronics workshop. The latter is a central resource for maintaining research leadership in Physical & Environmental Geography at King's, particularly in emerging areas of airborne remote sensing low-cost sensor design. The electronics workshop allows the rapid prototyping and construction of low-cost environmental sensors (e.g. the King's FreeStation.org project, which in 2020 collected more than thirty million readings from 154 self-built loggers deployed in nine countries), with the aid of an Additive 3D-printer, soldering stations, workbenches and specialist staff. The laboratory has recently-expanded technical resources, with the procurement of a handheld X-Ray Fluorescence analyser, liquid & solid sample Total Carbon analyser and an updated state-of-the-art suite of Geospatial equipment, including a portable laser scanner and differential GPS. Laboratory instrumentation such as a laser particle sizer, ion chromatograph and workshop resources are used by researchers from across King's (e.g. Informatics and Life Science & Medicine). The lab was awarded Gold in the Laboratory Efficiency Assessment Framework 2020, based on the sustainability of procurement, equipment and waste disposal.

A comprehensive suite of observational equipment is deployed to dedicated monitoring sites in the UK and overseas (enabling NERC research by **Baas**, **Mulligan** and **Wooster**), and includes a major airborne remote sensing capability that King's runs on behalf of the NERC National

Centre for Earth Observation. Major campaigns using this capability are funded and coordinated with the European Space Agency and NASA. Other significant field equipment includes that deployed for the measurement of smoke constituents (aerosols, greenhouse gases and other air pollutants) from biomass burning in many different biomes worldwide (UK, Canada, Indonesia and South Africa) with support from NERC (**Wooster**). This capability is backed up by a dedicated combustion chamber facility developed at BBSRC Rothamsted (funded by EPSRC and NERC) enabling controlled fire experiments to be conducted and measurement procedures to be optimised. In addition, a human geography 'laboratory' provides digital voice recorders, camcorders, video technologies, and a range of computer software packages to facilitate data analysis. Facilities are managed by full-time, professional services staff, comprising: a Laboratory and Resources Manager, Research Computing Support Officer; two Laboratory Technicians, an Earth Observation Technical & Planning Specialist and a Field Instrument Technician, all of whom are PhD-qualified.

PGRs have access to all field and laboratory equipment, regardless of their funding, with benefits for their projects and research training. Similarly, unfunded pilot work by staff, including ECRs, is supported to open up new areas of research via a Department Research Fund as well as an annual discretionary Strategic Fund that has allowed for purchase of equipment and resources supporting new research techniques (e.g. in 2019, this fund paid for drone pilot training to enable select members of the Department to become licensed drone operatives).

Despite our large PGR population, PGRs are provided with space in Bush House and IT facilities that are substantially in excess of UKRI guidelines. All 2nd and 3rd year PhD students have their own desk and dedicated PC with IT support; where possible, PGRs in similar fields are grouped together to encourage synergy and sharing of ideas. There is also a dedicated Linux research computing cluster in the Department and access to the College super-computing cluster 'Rosalind'.

King's Library Services support King's researchers with managing, curating and disseminating their scholarly publications and research data, in line with funder policies and the REF Open Access policy. They oversee the PURE institutional repository and have delivered a range of in-person and online training sessions on Open Access publishing, Research Data Management, and REF compliance (REF-returned staff published 178 outputs with 'gold' open access in the period 2014-2020). The Maughan library on Chancery Lane, obtained by King's in 2001, boasts over 1,250 networked reader places, carrels and group-working areas, and holds more than 750,000 items including books, journals, DVDs, CDs, and theses.

4. Collaboration and contribution to the research base, economy and society

King's has a commitment to society beyond the traditional roles of education and research and aspires to serve the wider community and environment (local, national and global) in which it operates. To enhance impact and public engagement, the Department is guided by King's Strategic Vision 2029 which prioritises innovative, world-leading research that has a positive impact internationally, nationally and regionally, while retaining a particular focus on London as a **globally-connected** and **post-colonial** city. It recognises that King's College is particularly well placed to influence policy given its physical location between the City of London, government and leading arts institutions.

Geography embraces the challenge of contributing to policy and practice, and encourages staff to produce work that engages a wide range of research users, beneficiaries and audiences to that end. At the same time, King's geographers continue to take leading roles within the academic discipline, enjoying an increasingly global reputation for research excellence that is reflected in multiple international collaborations and connections.

Approach to Impact:

Producing world-leading and impactful research focused on meeting societal need is central to the College's Research & Innovation Strategy: this is formalised in the College promotion criteria and the Academic Performance Framework, and has been recognised externally (e.g. King's was 9th in the Times Higher 2020 Global Impact Rankings).

At a Faculty level, the establishment of a Pro-Dean for Research Impact (**Schrekenberg**) has supported this goal, guided the development of REF Impact Case Studies and promoted a culture of impact. Since 2017, a dedicated Faculty Impact Fund has pump-primed impact activities, alongside a smaller Departmental fund. King's also hosts an EPSRC Impact Acceleration Account worth £1.1m, and an ESRC Impact Acceleration Account, worth more than £1 million over four years from April 2019 (with awards to **Mcllwaine, Mulligan Rothstein and Schrekenberg**).

The Department of Geography embodies King's culture of impact. Impact is a standing item on the agenda of all Geography staff meetings and Department Steering Group meetings. The Department has two impact co-leads, with **Schrekenberg** responsible for REF impact case studies, and **Löfstedt** responsible for impact activities outside the REF (e.g. an event at the House of Commons in Feb 2018, hosted by Stephen Timms MP, showcasing the Department's portfolio of impact activities).

The range and scale of impact delivered by King's Geographers touches the intimate and everyday (e.g. the **Impact Case Study** on survivor-led recovery by **Pelling**) alongside the strategic and global (e.g. the **Impact Case Study** on the measurement of global poverty by **Sumner**). But whatever the scale, King's Geography is increasingly committed to a joint co-production of knowledge with societal partners. It involves collaboration with industry, government and civil society, both internationally and within the UK (particularly London). Long-standing relationships between researchers, policy-makers and communities lie at the heart of this collaborative culture: here it is notable that sixty-plus London-based organisations take part in our Environmental Internship programme for Masters students, embedding impact through teaching as well as research (100 interns annually).

While research is organised around groups that are focused on academic contributions and traditional modes of research dissemination (i.e. papers and conference contributions), our three activity 'hubs' act as impact and public engagement platforms bringing King's interdisciplinary research to a wider public and practitioner audience. Significantly, while research groups are led by senior staff, activity hubs are generally led by earlier career researchers (**Edwards, Mirumachi, and Tebbs**) adept at working with social media and innovative dissemination methods (including work with artists and performers). These hubs – the **King's Climate, King's Water** and **Earth Observation** – are progressing policy and public debate around key environmental issues by hosting events involving both academics and practitioners.

As such, King's Geographers do not simply disseminate their research widely, but involve different user groups in the design and execution of their research, developing pathways to impact that challenge established notions that impact follows research (for example, via the co-production of knowledge).

Relationships with key research users, beneficiaries or audiences:

King's Geographers play **active roles** as advisors to governments and leaders around the world in relation to **global challenges** including poverty alleviation, environmental regulation, risk mitigation and ecosystem management. Examples include:

- International civil society, especially non-governmental organisations and the UN family:** four UoA members are Coordinating Lead Author (**Pelling**) or Lead Author (**Adams, Edwards, Mirumachi**) of the Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report, and **Berkhout** was a Lead Author on the 5th Assessment Report (2014), to which **Pelling** was also a contributing author; **Bracking** was keynote speaker to the UNCTAD, Intergovernmental Group of Experts on Financing for Development, Third Session, Geneva, sponsored by the Friedrich-Ebert-Stiftung Institute (2019); **Berkhout** was inaugural Director of the ICSU/ISSC Future Earth programme (2013-2015); **Goodburn** contributed to a report on China's refugee policies to the UNDP Livelihoods and Displacement group, informing the UN Global Compact on Migration (2018); **Loftus** was member of an expert panel convened by the Special Rapporteur on the Human Rights to Water and Sanitation, and presented to the UN, Geneva (2019); **Mcllwaine** has advised UN Habitat and UN Women on SDG 11 and gender (2020); **Mirumachi** was lead-author, UN Environmental Programme GEO-6 Report (2017-19); **Mulligan** is Honorary Fellow of UN Environment World Conservation Monitoring Centre and his work is widely used in UN REDD+ forestry investments; **Pelling** has worked with Christian Aid and other humanitarian agencies to strengthen local well-being through post-disaster response and reconstruction (see **Impact Case Study**); research by **Sumner** on the impacts of COVID-19 on global poverty was published as a UNU-WIDER Working paper in 2020 and has been cited in over 2,500 news sources internationally.
- National government departments and agencies, including those from overseas governments:** **Brooks** and **Herrick** have undertaken partnership work as part of the King's-Sierra Leone global health partnership; **Dawson** provided expert assessments of marine ecosystems services to the Pitcairn Government Advisory Group, leading to the designation of the world's largest marine protected area, 2017; **Demeritt** and **Rothstein's** ESRC-funded ORA research on risk-based governance tools changed the way the Care Quality Commission used big data to identify failing hospitals; **Demeritt** was a Member of the Steering Board for the UK Government's Natural Hazards Partnership (2013) and the DEFRA-Environment Agency Flooding and Coastal Erosion Risk Management Advisory Committee; **Edwards** was co-author of the UK Climate Projections (2018) and completed an expert review on sea-level rise for the UK Government Office for Science (2017); **Evans** advised the Shadow Attorney General, Shami Chakrabarti, and the Shadow Solicitor General, on human rights legislation; **Hubbard** was expert witness to the Scottish Parliament on the regulation of Sexual Entertainment Venues (2015) and the All Party Parliamentary Group on Trafficking & Prostitution (2015); **Löfstedt** served on the Grenfell Tower Science Advisory Group reporting directly to the Government's Chief Scientific Advisor Sir Patrick Vallance (2018-19), and also the Cabinet Office's COVID-19 International Best Practice Advisory Group: he also conducted a review for the UK Food Standards Agency into food safety policy-making; **Mulligan** provided oral evidence to the Environmental Audit select committee (Planetary Health inquiry) and his spatial policy support systems were instrumental in building the case for a new 1.5m ha protected area in Bolivia (see **Impact Case Study**); **Mustafa** is part of a DFID-funded project helping NGOs in Pakistan to perform climate vulnerability assessments; **Shiode** provided expert advice to the initial 2020 ONS analysis of geographical concentrations of COVID-19 mortality; **Wooster** is the only non-Canadian on the Canadian WildFire Monitoring Satellite Science and User team, advising the Canadian Space Agency on its multi-million dollar satellite programme (see **Impact Case Study**).
- Local actors including community groups, activists, local government and businesses:** **Angel** works with Manchester's Carbon Co-op as embedded researcher on their *PowerShaper* project; **Demeritt** has helped Greenpeace Unearthed to advocate for improved flood defence in the UK; **Green** has supervised AHRC Case Studentship projects with English Heritage and the Postal Museum; **Hubbard** was consultant on Ikea's 'Better Lives at Homes' report, 2020, based on a survey of 38,210 people in 37

nations living under COVID-19 lockdown; **Mcllwaine** has worked with the Latin American Women's Rights Service, most recently on the Step Up Migrant Women Campaign, and presented this research to London's Victim's Rights Commissioner and at a Houses of Parliament event hosted by Jess Phillips MP to lobby the drafting of the *2019 Domestic Abuse Bill*; **Pelling** works alongside local authorities, international agencies, urban planners and residents to improve the design of disaster-impacted urban neighbourhoods and is also giving voice to the marginalised through the Urban ARK research project which has been working with Kenyan slum-dweller federation *Muungano wa Wanavijiji* to create inclusive decision-making spaces (see **Impact Case Study**); **Schillereff** was invited speaker at Cumbria Floods Partnership Knowledge Exchange event on the latest science on flood risk in the region.

Additionally, our three Activity Hubs are designed to promote external collaboration with training institutes, government agencies and independent trusts, with examples as follows:

- **Earth Observation** worked with the government-funded India UK Water Centre (IUKWC) using satellite soil moisture data to improve weather forecasting, climate modelling, flood prediction and agricultural applications, while ESRC-DFID funded research has identified the livelihood impacts of hydropower in Ethiopia for local and national government partners (**Tebbs**). Work with the Zoological Society of London has deployed satellite remote sensing for the conservation of marine animals (**Dawson**), while **Dawson**, **Mulligan** and **Millington** have used satellite data to characterise fire regimes over multiple spatial and time scales in support of policy-making in Colombia. **Wooster** has developed a series of operational satellite products for fire monitoring (including the ESA Sentinel-3 and Meteosat satellites), generating real-time data used by fire responders worldwide (see **Impact Case Study**), and is the Hub's link to NERC's National Centre for Earth Observation (NCEO) where he is a Divisional Director. **Mulligan's** spatial policy support systems, including low-cost FreeStation environmental monitoring stations, are used by more than 3500 organisations across 183 countries (see **Impact Case Study**).
- **King's Climate** has improved planning for climatic impacts, adaptation and recovery amongst a range of agencies (see especially **Impact Case Study**, **Pelling**). More widely, it seeks to enhance public understanding of the relationship between different forms of cultural knowledge about climate change (**Adamson**, **Berkhout**, **Hulme**, now Cambridge), encouraging dialogue around the many controversial aspects of climate change, with external speakers as diverse as NASA climate scientist Gavin Schmidt, former Republican senator John Kyl and broadcaster Helen Czerski. Hub members have close links with BEIS, DEFRA, GO-Science, NERC and a number of international NGOs. Inés Cámara Leret is artist-in-residence in the hub working with **Adamson** and **Edwards** to explore how the experience of climate change can be communicated through art, while **Edwards** is a member of one of 30 creative teams awarded £100,000 by Festival UK 2022 to bid for £4-12m to create a project reaching a public of millions, with a specific focus on under-represented voices in climate change.
- **King's Water** works in partnership with other training institutes (e.g. IHE-Delft, River Restoration Centre) with government agencies (DEFRA, EA), NGOs (WWF, Conservation International, Practical Action, Water Aid), intergovernmental organisations (UNEP-WCMC) and independent trusts (The Wandle Trust, Thames 21). Notably, **Mirumachi** collaborated with design experts on the Wonderwater café, a pop-up event staged in Beijing, Helsinki, London, and Milan, involving 'water footprint' menu showing exhibition visitors how much water it took to grow the food they were consuming. **Mirumachi**, hub leader, is also a founding member of the London Water Research Group, which includes over 100 researchers, practitioners and activists. **Mulligan** has pioneered a web-based policy tool, WaterWorld, used for spatial analysis of water resources by a wide range of organisations globally (see **Impact Case Study**).

These examples demonstrate how King's research is serving society and generating impact. This impact is curated through traditional news media, as well as social media, as follows:

- **TV appearances:** e.g. **Adams** on sea level rise on the Solomon Islands on Sky News; **Adamson** on BBC World News 'Deadly Disasters'; **Bracking** on Anews (Turkey) on Biden's climate policy, **Brooks** on second-hand clothes in Senegal, Al Jazeera news; **Edwards** on Royal Institute Christmas Lecture 2021, BBC World, BBC News Channel, BBC1 News at Ten, BBC2 Newsnight and News at One, ITV News at Seven and Ten, Sky News (all on climate science); **Green** on BBC's 'Who Do you Think You Are?'; **Hubbard** on high-street decline and housing issues, BBC South East Today; **Mulligan** on flood management, BBC Look East; **Reades** on Channel 4 Dispatches 'The Great British Property Divide'; **Wooster** on climate change and wildfires, ITV News.
- **Radio broadcasts:** e.g. BBC Radio 3 'Free Thinking' (**Akhter**); BBC Radio 4 'Costing the Earth' (**Dawson, Edwards, Mulligan**), '39 Ways to Save the Planet', 'Inside Science' 'Today' and 'World at One' (**Edwards**), 'From Rags to Riches' (**Brooks**), 'Thinking Allowed' (**Hubbard**), and 'You and Yours' (**Brooks, Hubbard**); BBC Radio 5 Live 'Up All Night' (**Edwards**); BBC World Service 'My Perfect Country' (**Boesten**), 'Weekend' (**Hubbard**), 'Newshour' (**Edwards**) and 'Science in Action' (**Edwards, Wooster**).
- **Online news coverage:** including *Himalayan Times* (**Boesten**); *New York Times*, *Washington Post*, *USA Today*, *National Geographic*, *Scientific American*, *BBC News*, *The Independent*, (**Edwards**); *BBC News*, *FT.com*, *World Economic Forum* (**Hubbard**); *Al Jazeera* (**Mcllwaine**); *Bloomberg*, *Forbes*, *CNN* (**Meehan**); *DevEx*, *Huffington Post*, *Slate* (**Sumner**); *Economic Times* (India) (**Susewind**); *BBC News* (**Tebbs**).
- **Print coverage:** including *The Spectator* (**Brooks**), *Le Monde* (**Brooks, Edwards**), *New York Times* (**Brooks, Mirumachi**), *New Scientist* (**Meehan, Edwards**), *The Times* (**Edwards, Hubbard**), *The Daily Times* (Pakistan) (**Mustafa**); *Evening Standard* (**Adams**); *The Sunday Times*; *Observer* (**Hubbard**), *The Economist* (**Edwards**), *Sydney Morning Herald* (**Sumner**), *The Guardian* (**Edwards, Hubbard, Meehan, Sumner**).

On the basis of media work, some are taking on the mantle of 'public intellectuals'. Notably, **Akhter** was announced as one of ten AHRC/BBC Radio 3 'New Generation Thinkers' in 2019, and **Sumner** was one of the *Huffington Post*'s Top 100 'Most Influential Voices'. **Evans'** podcast interviewing academics about their research, 'Rocking Our Priors', has had over 50,000 downloads. **Edwards** is one of the highest-profile climate scientists in the media, acts as scientific consultant for the BBC, and co-presents the BBC Radio 4 series made in collaboration with the RGS-IBG '39 Ways to Save the Planet': she has over 20,000 Twitter followers.

New audiences for research are also established through co-production and innovative projective methods. For example, **Green's** £75,000 Wellcome Trust Public Engagement award developed an online-mapping interface allowing exploration of data relating to the health of postal workers in nineteenth-century London, with a crowdsourced transcription project involving over 1,500 volunteers recording details from thousands of nineteenth-century pension documents. **Mcllwaine's** collaboration with actor, playwright and director, Gaël Le Cornec, explored the experiences of Brazilian migrant women fleeing gendered violence through a verbatim theatre play (*Efemera*), a voice installation (*Believe*), and short film (*Ana*). The ESRC-project 'Sex work in the context of mega-events' (Co-I: **Hubbard**) examined the impacts of the 2016 Rio Olympics on sex working women through auto-photographic methods, resulting in an exhibit at the Hélio Oiticica Arts Centre in Rio and at the King's 'Sports/Spectacle' conference. The founding of the Visual and Embodied Methodologies network (by **Boesten** and **Mcllwaine**) underscores a commitment to creative research dissemination, as does **Dickens'** BA-funded 'Fun Palace and the Future City' collaboration with the BFI, which pieces together fragments of archival film to reconstruct Joan Littlewood's 1964 utopian urban visions.

Contributions to the discipline:

Researchers in this UoA make significant contributions to geography and cognate academic disciplines through service to professional societies, stewardship of journals, peer-reviewing, conference organisation and keynote addresses, as well as collaborations with other institutions. These contributions are inter- and cross-disciplinary:

- **Research networks:** Staff are active in major international research collaborations. For example, the Wellcome-funded Pathways project on transitions to sustainability (Co-I **Berkhout**) involves eleven partners (including UBC and McGill, Harvard, University of Ghana, Bangladesh BRAC University and Tsinghua), while the Horizon2020 PROTECT project involves 26 partners (e.g. CNRS, University of Zurich, Potsdam Institute, University of Utrecht) in a €10million effort to predict sea level rise (Co-I: **Edwards**); the Belmont Forum and the FACCE-JPI initiative awarded £1m to the 'Delivering Food Security on Limited Land' (DEVIL) project, an international collaboration involving partners from eight countries (Co-I: **Dawson**); the NERC Global Partnership Seed Fund grant 'Investigating Turbulence-Driven Sediment Transport with Field Applications of Particle Image Velocimetry' is conducted in partnership with US Naval Research Laboratory (PI: **Baas**). Members of this UoA are also highly-active in formal, funded research networks e.g. COST Action ProsPol: Comparing European Prostitution Policies (**Hubbard**) and COST Action CONVERGES: Knowledge conversion for enhancing management of European Riparian Ecosystems and Services (**Francis**). Finally, the Department has MoU with a large number of international academic partners supporting educational exchange and research collaboration, most notably, the PLuS Alliance between King's, Arizona State University and the University of New South Wales. This has spawned the development of interdisciplinary fieldwork relating to Global River Basins led by **Mirumachi**, **Chadwick** and **Mustafa**, collaboration between **Meehan** and ASU's Global Ethno-hydrology group, and work on informed urbanisation with UNSW's City Futures Group (**Hubbard**, **Reades**). More widely, staff in this UoA have written on, or worked with researchers in, over 95 nations in the REF period (see *Figure Five*).

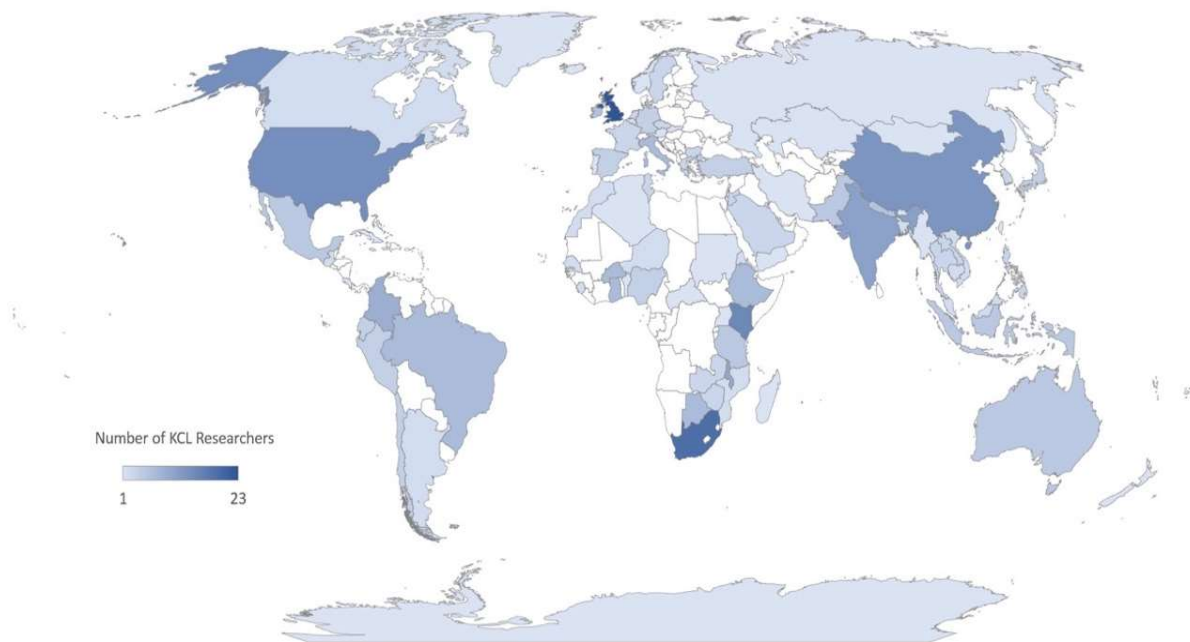


Figure Five: Research collaborations and fieldwork locations 2014-20, Department of Geography, King's College London.

- **Journal editorship and preparation:** Staff have acted as lead editors of the following journals in the REF period: *Annals of Association of American Geographers* (**Meehan**), *Antipode* (**Loftus**), *Urban Studies* (**Hubbard**), *Journal of Southern African Studies* (**Brooks**), *Journal of Risk Research* (**Löfstedt**), *Journal of Arid Environments* (**Drake**), *Environment and Planning (A)* (**Demeritt**), *Earth Surface Dynamics* (**Baas**), *Plant Ecology* (**Millington**), *WIREs Water and Water International* (**Mirumachi**), *Anthropocene Review* (**Schillereff**), *Global Policy* (**Sumner**), *Journal of Ecology and Conservation Letters* (**Catford**). **Green** is Chair of the Board of Trustees for the *London Journal* (with **Dickens** its exhibition review editor). Additionally, **Craggs** is editor of the prestigious Wiley RGS-IBG book series.
- **Peer reviewing and support to Research Councils:** Staff are heavily-involved in the refereeing of grants (e.g. **Bracking** on ESRC panel C; **Reades** on awarding panel for ESRC Transformative Research 2018; **Demeritt**, **Hubbard** and **Herrick** are members of the ESRC Virtual College; **Baas** and **Demeritt** members of NERC Virtual College; **Mcllwaine**, GCRF Off-Grid Cities panel member 2019-20; **Wooster** member of NERC Capital Round Award Panel 2019-2020; **Mirumachi** member of ESRC GCRF Virtual College; **Schreckenberg** panel member on GCRF Cultures of Agriculture, Food and Nutrition programme) and also oversee major RCUK/UKRI research programmes (e.g. **Pelling** on ESRC-DFID Peer Review College, GCRF Equitable Resilience, panel member, 2019 and GCRF Multi-hazard and Systemic Risk, panel member 2019). Beyond the UK, members of the Department have reviewed grants for ARC (Australia), ERC (EU), Research Council Norway, Formas (Sweden), SSHRC (Canada), NSF (US), Swiss National Fund and many others.
- **Workshop organisation and research-based CPD:** Staff have organised workshops for, and on behalf of, professional and learned societies. For example, the annual London International Boundary Conference is co-convened by **Schofield** with the international law firm, Volterra Fietta, an event the FCDO has supported: this develops multidisciplinary approaches to managing complex boundary disputes; **Malamud** has run workshops for the EGU at Mzuzu University (Malawi) on natural hazards; **Mulligan** has hosted and run multiple RGS-IBG courses for ECRs on building low-cost sensors.
- **Provision of open source data, code and applications:** Staff provide a range of open access resources to the academic community, including **smartphone-hosted apps** (e.g. the Landslide Tracker app designed in collaboration with the BGS, Met Office and Practical Action Consulting, Nepal), **open source low-cost sensor hardware** (e.g. FreeStation.org), **code repositories** (e.g. <https://github.com/kingsgeocomp>) and **datasets** (e.g. **Mulligan's** <https://www.kcl.ac.uk/research/geodata-portal> which provides access to dynamically-updated geodata, and the <https://commonwealthoralhistories.org> site which includes access to **Craggs'** interview transcripts and supporting materials from her project on diplomatic careers and mobility).
- **Leadership within professional associations or learned societies:** In the REF period, staff have served on professional and academic organisations: e.g. **Mulligan** Honorary Secretary of the RGS Expeditions and Fieldwork Committee and Council member; **Hubbard** RGS-IBG research group committee member for SSQRG; **Craggs** member of HGRG committee, **Wooster** co-leads the Fire Team of the Global Observation of Forest Cover – Global Observation of Landcover Dynamics (GOFC-GOLD) international initiative; **Berkhout** chairs the UK Future Earth committee (which includes representatives from the Royal Society, BA and AMS as well as DEFRA and the Department of Energy and Climate Change).

These contributions have been acknowledged via numerous awards. For example, PhD student Briony Turner was ESRC Impact Champion 2016 for her work on the 'Intrepid Explorers' initiative; **Berkhout** and **Demeritt** have been awarded Fellowship of the Academy of Social Sciences; **Boesten** won the Latin American Studies Association-Peru Flora Tristan Best Book

2014 Award; **Catford** won Australian Freshwater Sciences Society Early Career Excellence Award, 2014; **Edwards** won the 2016 British Science Association Charles Lyell Award Lecture for 'cutting-edge research' in the Environmental Sciences and was nominated for the 2020 Royal Meteorological Society Climate Science Communication Award; **Löfstedt** won the Distinguished Educator award at the 2018 Society for Risk Analysis Conference, New Orleans and is President Elect of the Society for Risk Analysis; **Meehan** won the Virginie Mamadouh Outstanding Research Award from the Political Geography Specialty Group, American Association of Geographers, 2016; **Mcllwaine** won the Guia Londres Brasil Women Awards for contributions to Latin American communities in London, 2019; **Natarajan** was researcher on the Blood Bricks project (at Royal Holloway) which was awarded the *Times Higher Arts, Humanities & Social Sciences* project of the year 2020; **Wooster** received the 2019 Remote Sensing and Photogrammetry Society (RSPSoc) Award for his service to Remote Sensing and Earth Observation Science.

Summary:

This evidence shows the Department of Geography at King's to be a **large** and **vibrant interdisciplinary** centre of environmental and social research whose researchers, collectively and individually, have made significant contributions to key academic and policy debates in the REF period. Equality, diversity and inclusion have been central to these achievements, and in coming years, it is anticipated that King's Geography will consolidate its reputation as a leading centre for interdisciplinary research into the major global challenges of our time by further developing its **collaborative, societally-engaged**, and **diverse** research culture.