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Dear Mr Bennett

Thank you for your letter enquiring about UCL's research and dissemination activity in the context of the Paris Climate Agreement and ongoing COP discussions. I agree that universities have an important role in providing the evidence base to underpin action on climate change.

The achievement in Paris is hugely significant and provides an unprecedented opportunity to stabilise the global climate; but that opportunity is not to be taken lightly nor the outcome assured. There is a tremendous challenge now posed: to translate the political will within the Paris Agreement into action on the ground. Chris Rapley, Professor of Climate Science in UCL Earth Sciences, says that responding to this challenge will require 'the greatest collective action in history'.

UCL is fully committed to playing a leading role in meeting this challenge. We recognise that a successful outcome will rely not just on scientific and technical capabilities, but also on our ability as researchers to engage, inform and empower the public in terms of political decision-making, behaviour change and technological uptake.

You will know that UCL is one of the world's leading universities, employing more than 5000 research staff and academics across a breadth of disciplines. An essential part of UCL's ethos is to use our expertise to address the pressing global challenges that humanity faces today and will face in the future. Our institutional strategy, *UCL: 2034*, sets out our commitment both to developing cross-disciplinary solutions to global problems through UCL Grand Challenges – the mechanisms by which expertise from UCL and beyond is brought together to address the world's key problems – and to initiating collaborative and transformative research through UCL Research Domains.

I would mention that research funders also have an important role – whilst UCL researchers can undertake small scale studies from internal resources, the larger, more substantial studies required to provide evidence for action rely upon grants from those funders. We are encouraged by recent initiatives by funders such as NERC, the Research Councils Energy Programme, and Wellcome, as well as the creation of the Global Challenges fund. We hope to work with Friends of the Earth to ensure that climate and other sustainability issues are deeply reflected in the priorities and practices of our key funders.

UCL has a considerable body of research addressing environmental and climate change issues and has actively participated in both IPCC (contributing research and providing a number of lead authors) and COP activities in recent years. Most recently, UCL had a strong presence at COP21 in Paris; our academics were active in many of the side events, prepared advance material to inform the discussions, provided extensive public commentary and in some cases were directly involved in negotiations with national delegations<sup>1</sup>.

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<sup>1</sup> See: <http://www.ucl.ac.uk/research/domains/environment/cop21>

The UCL Environment Domain has been the primary consolidator of university-wide efforts to respond to the Paris Agreement. Co-Chairs Professor Dan Osborn and Professor Nick Tyler have both been involved in the COP process; Professor Osborn is one of the lead authors of the recently submitted UK Climate Change Risk Assessment chapter 5. The Environment Domain plays a coordinating and facilitating role in drawing out and bringing together cross-disciplinary expertise on the environment and climate change at UCL, including coordinating multi-million pound cross-Faculty bids to funders including NERC and the Wellcome Trust. The Environment Domain is currently coordinating the production of an edited volume providing insights from a range of UCL academics into the Paris Agreement, its implications, challenges and potential for success.

In particular, the following departments are active in the Environment Domain and in the delivery of research relevant to climate change:

- The **UCL Energy Institute** delivers world-leading learning, research and policy support on the challenges of climate change and energy security. The Institute's core research focuses on four main areas: buildings, energy systems, transport, and Energy Space Time. (More information about current projects is available at: [http://www.bartlett.ucl.ac.uk/energy/research/renamed\\_project-directory](http://www.bartlett.ucl.ac.uk/energy/research/renamed_project-directory))
- The **UCL Institute for Sustainable Resources** generates knowledge in the globally sustainable use of natural resources and trains the future leaders of this field, focusing on five research themes: abiotic resources, biotic resources, resource efficiency, definitions and indicators of sustainable resource use, and green economy. (More information about current projects is available at: [http://www.bartlett.ucl.ac.uk/sustainable/research/project\\_directory](http://www.bartlett.ucl.ac.uk/sustainable/research/project_directory))
- **UCL Geography** research includes clusters on past climates; recent environmental change and biodiversity; and environmental modelling and observation. (More information about research in the Geography Department is available at: <http://www.geog.ucl.ac.uk/research>).
- **UCL Science, Technology, Engineering and Public Policy** researches the ways in which science and engineering knowledge shapes decision-making in the wake of today's major global challenges, including those of climate change. Current research includes the Liveable Cities programme of research to develop a method of designing and engineering low carbon, resource secure UK cities, in which the UCL team is specifically responsible for research on policy and governance for liveable cities. (More information on this programme is available at: <http://www.liveablecities.org.uk>)

You may also be interested in some of the significant cross-disciplinary projects UCL has coordinated in the past few years, including the 2009 and 2015 UCL-Lancet Commissions on climate change and global health<sup>2</sup> which have reviewed the impact of climate change on human health and made policy proposals to address this; the UCL-Lancet Commission on healthy cities<sup>3</sup> which looked at sustainability in cities; *Thinking Beyond Sectors for Sustainable Development*<sup>4</sup> which looked at intersections between development goals; the UCL Green Economy Policy Commission<sup>5</sup>; and the UCL Policy Commission on the Communication of Climate Science<sup>6</sup>.

To give you a greater sense of relevant UCL activity, I attach an annex which summarises some of the most relevant initiatives and research that have been undertaken in recent years by a subset of our academics working in a range of disciplines, as well as some of our ongoing and future work in a number of different spheres.

In terms of longer term developments, we are currently developing the academic programme for UCL East, our new campus in the Queen Elizabeth Olympic Park. We plan that sustainability and climate concerns, particularly around cities and transportation, are large elements of that programme, and that new experimental facilities will considerably add to our capabilities in those fields.

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<sup>2</sup> see: <http://www.ucl.ac.uk/igh/research/a-z/lancet-commission-climate-change> and <https://www.ucl.ac.uk/igh/research/a-z/lancet-commission-2015>

<sup>3</sup> see: <http://www.ucl.ac.uk/silva/healthy-cities>

<sup>4</sup> see: <http://www.ubiquitypress.com/site/books/read/14/236/thinking-beyond-sectors-for-sustainable-development/>

<sup>5</sup> see: [https://www.ucl.ac.uk/public-policy/policy\\_commissions/GEPC](https://www.ucl.ac.uk/public-policy/policy_commissions/GEPC)

<sup>6</sup> see: [https://www.ucl.ac.uk/public-policy/policy\\_commissions/Communication-climate-science](https://www.ucl.ac.uk/public-policy/policy_commissions/Communication-climate-science)

I would also like to draw attention to the significant steps that UCL has made to reduce our own environmental impact. Our Sustainability Strategy is implemented through the development, delivery and continuous improvement of the EcoCampus Environmental Sustainability Management System (ESMS), which will lead to UCL's ESMS certification under ISO14001. The 'Sustainability at UCL' team are responsible amongst other things for monitoring and reducing carbon dioxide and other greenhouse gas emissions. In 2015 UCL was awarded a 'First Class' award from People & Planet (independent ranking of UK universities on their environmental and ethical performance), scoring maximum points for sustainability strategy, staffing levels and engaging the university community. We constantly strive to engage staff and students in our sustainability efforts, and incorporate cutting edge research into sustainable management and development of the university estate.

I hope that this information is helpful to you. Please do not hesitate to contact my office if you would like any further detail. We would also be very pleased to discuss opportunities for future collaboration with Friends of the Earth in this important area. (Incidentally, I was delighted to see that both you and your predecessor were educated at UCL in the Geography Department – another UCL contribution to supporting efforts to tackle climate change!)

Yours sincerely

A handwritten signature in black ink, appearing to read 'M. Arthur', with a stylized flourish at the end.

## Research activity relevant to climate change at UCL

### Participation in international initiatives

- **Involvement in IPCC reports:**
  - Neil Strachan (Professor of Energy Economics and Modelling) and Yacob Mulgetta (Professor of Energy and Development Policy) were lead authors of Chapter 7 on **Energy Systems** in the IPCC's fifth assessment report.
  - Yacob Mulgetta was also a member of the Core Writing Team of the IPCC Synthesis Report.
  - Research led by UCL Geography's Professor Richard Taylor and Dr Julian Thompson on **assessing the impact of climate change on freshwater resources** featured prominently in the fifth assessment report (Chapter 3).
  - Arthur Pedersen (Professor of Science, Technology & Public Policy) and Jason Blackstock (Senior Lecturer in Science and Global Affairs) were also involved in the production of the Fifth Assessment Report cycle.
  - Jim Penman (honorary Professor in the UCL Environment Domain) chaired the activity by IPCC that in 2000 and 2003 introduced Good Practice Guidance for greenhouse gas inventory reporting to the UNFCCC. He is one of the group of scientists recognised by IPCC as having contributed to the award of the Nobel Peace Prize to IPCC in 2007.
- Michael Grubb (Professor of International Energy and Climate Change Policy) represents Climate Strategies (CS) at the World Bank-convened **Carbon Pricing Leadership coalition (CPLC)**, which was formally launched at COP21. Climate Strategies is the only academically-based Strategic Partner to the CPLC; Professor Grubb is convening a CS Members Working Group on carbon pricing and continues research in this area.
- Chris Rapley is a member of the '**Vital Signs Consortium**', an international consortium based on the insights of the Global Climate Observing System (GCOS) to provide governments with new insight into how post COP actions are working.
- Paul Ekins (Director of UCL's Institute for Sustainable Resources) is Vice-Chairman of the **EU Environment Commissioner's High-Level Economists Expert Group on Resource Efficiency** and a member of the European Commission's high-level **European Resource Efficiency Platform**. He is also a member of **UNEP's International Resource Panel**.

### Public policy engagement

- Professor Henrietta Moore (Director of the Institute of Sustainable Prosperity) is a member of the **Department for Environment, Food and Rural Affairs Scientific Advisory Committee**.
- Professor Tadj Oreszczyn (Professor of Energy and Environment) is a member of the **Department of Energy and Climate Change's Scientific Advisory Committee**.
- Yacob Mulgetta was previously based at the UN Economic Commission for Africa and helped to set up the **African Climate Policy Centre**, initiating a variety of policy-relevant initiatives on the opportunities for and constraints of pursuing low carbon pathways for development in Africa.
- Arthur Pedersen has more than 13 years' experience as **scientific adviser on environment and infrastructure policy within the Dutch Government**, including most recently as Chief Scientist of the PBL Netherlands Environmental Assessment Agency (2011–2014).
- Chris Rapley chairs the **London Climate Change Partnership**.
- Paul Ekins is a member of **Ofgem's high-level Sustainable Development Advisory Group**.

### Public discourse and engagement

- Chris Rapley is chairing a multi-institutional and multi-sectoral team working on a proposal to **enhance the public discourse on climate change**, in response to interest from the Department for Energy and Climate Change, Department for Food and Rural Affairs, the Natural Environment Research Council, the British Academy, the Royal Society, the Wellcome Trust and others, and building on the UCL Policy Commission on the Communication of Climate Science<sup>7</sup>.
- Chris Rapley's text *2071*, co-written with Duncan Macmillan and performed by Chris as a **play in the Royal Court Theatre**, has been extremely well received and influential – for example, copies were provided to each national delegation to the European Space Agency's Earth Observation Directorate ahead of their Council meeting and COP21 and the play is shortly to be reprised at the Edinburgh Science Festival.

<sup>7</sup> [https://www.ucl.ac.uk/public-policy/policy\\_commissions/Communication-climate-science](https://www.ucl.ac.uk/public-policy/policy_commissions/Communication-climate-science)

- Mark Maslin (Professor of Climatology) and Arthur Pedersen were among **scientists interviewed by the World Service ahead of the COP 21 meeting** in November 2015.
- Simon Lewis (Professor of Global Change Science) has provided insightful and **accessible contributions to understanding of the Paris agreement**, such as in his blog article for The Conversation on 'Five things you need to know about the Paris climate deal'.
- Michael Grubb presented on 'carbon clubs' at the Cambridge post COP21 conference on 'the Road from Paris' (22nd Jan 2016)

### Climate change adaptation and mitigation

- Georgina Mace (Director of the Centre for Biodiversity and Environment Research) is working with the UK Natural Capital Committee and the cross-over to the Climate Change Committee looking at **options for carbon mitigation and adaptation as required to meet the Paris Agreement**.
- Jim Penman is engaged in developing methods for **estimating emissions and removals associated with deforestation, forest degradation and associated activities in developing countries** (termed by UNFCCC as REDD+) as part of the Group on Earth Observations Global Forest Observations Initiative. This is supported by NERC and DEFRA.
- Mark Maslin and colleagues published in *Nature Climate Change* in February 2016 '**Adaptation responses to climate change differ between global megacities**'.
- Ilan Kelman (Reader in Risk, Resilience and Global Health at the Institute for Risk and Disaster Reduction) has undertaken **policy analysis to integrate environmental topics with climate change**, as evidenced by his 2015 co-edited special issue in the *International Journal of Disaster Risk Science* entitled "Analyzing the Sendai Framework for Disaster Risk Reduction". In addition, his 2016 article on "Learning from the history of disaster vulnerability and resilience research and practice for climate change" in the journal *Natural Hazards*, aims to provide practical applications to tackle climate change.

### Climate change and health

The 2015 Lancet Commission on Global Health and Climate Change was published in leading medical journal *The Lancet* last year in advance of COP21, with considerable media coverage, highlighted the importance of political action and considered policy responses to address climate change and protect human health. Several accompanying briefings<sup>8</sup> were produced aimed at key policy stakeholders, including one for UNFCCC negotiators. This followed the first groundbreaking 2009 UCL-Lancet Commission on **managing the health effects of climate change**, which identified climate change as the biggest global health threat of the 21<sup>st</sup> century and lead an urgent call to action. UCL is now a lead partner in the Lancet Countdown to 2030, initially funded by the Wellcome Trust, to provide expertise in implementing policies on climate change mitigation and public health, and to monitor progress over the next 15 years. It involves a number of universities, national government partners, and intergovernmental partners including the WHO, the World Bank and the UNFCCC.

### Climate change and law

- Research by Richard Macrory (Professor of Environmental Law), has led to the enactment of UK Government legislation on environmental regulations and influenced the creation of a new sanctions policy between the UK, as well as environmental sanctions policies in other jurisdictions.
- UCL's Centre for Law and the Environment gave insight to an event during COP21 on '**the potential role of national courts in climate change issues**', hosted by the UK Environmental Law Association, Planning & Environment Bar Association, and Constitutional & Administrative Law Bar Association. Academic members of the Centre research topics including international environmental law, laws of climate change, climate change mitigation, carbon capture and storage, environmental policy, natural capital accounting, environmental protection, energy and natural resources, and environmental justice.
- Joanne Scott (Professor of European Law) and Maria Lee (Professor of Law) have produced extensive work on **European environmental law** and collaborated with UCL academics on climate change and health, **emissions from shipping**, and **public participation and climate change infrastructure**.

<sup>8</sup> <http://www.ucl.ac.uk/public-policy/public-policy-briefings/LancetHealthClimate>

## Research in energy, resources and climate change

- Paul Ekins published '**The geographical distribution of fossil fuels unused when limiting global warming to two degrees**' in *Nature* in 2015 which received more media coverage than any other climate change paper published that year.
- Current Institute for Sustainable Resources research includes the EU-funded '**Policy Options for a Resource-Efficient Economy**' project and '**Global Food Security and Climate Change**' funded by the Grantham Foundation.
- UCL Energy Institute **energy system modellers** undertake climate change-related work for a wide variety of clients, including the Committee on Climate Change and DECC.
- Yacob Mulgetta leads EPSRC/DfID/DECC-funded research on **agro-industries as clean energy platforms in Africa**