Cambridge Zero and Hughes Hall Centre for Climate Engagement Research Symposium 1

Economic & Societal Change

Friday 28th Oct, Pavilion Room, Hughes Hall

1.00pm **Lunch**

1.50pm **Introduction from Emily Farnworth, Director, Hughes Hall Centre for Climate Engagement**

1.55pm **Keynote - Financing forests: a credible approach to halting tropical deforestation**
Anil Madhavapeddy, Professor of Planetary Computing, Computer Laboratory
Director, Cambridge Centre for Carbon Credits

The rate of tropical deforestation is continuing to increase, and with it comes an enormous loss of biodiversity and natural resources. Ideally, we need a massive number of new conservation projects that will provide alternatives to deforestation in the regions worst affected in the tropical equatorial belt. I will report on how we are using satellite remote sensing to construct a global view of tropical rainforests, and to measure the effectiveness of conservation interventions from a viewpoint of additionality, leakage and permanence. We can use these measurements to build up a quantitative model of the project, and then combine with qualitative metrics such as biodiversity, local livelihood and justice to build up a complete project assessment that can be used as the basis for trustworthy, verifiable carbon credits.

2.10pm **Impacts of climate change in fragile contexts: mapping the cascading effects in Venezuela and the Gaza Strip**
Emma Houiellebecq, PhD Candidate, Department of Engineering

The effects of climate change and environmental degradation tend to exacerbate fragile contexts, where their capacity to adapt and cope is already severely limited due to other geopolitical and economic factors. This presentation offers a systems-level analysis of how specific climate hazards tend to have cascading and compounding effects on the delivery of essential urban services in fragile contexts. Examples are presented from recent fieldwork in Venezuela and the Gaza Strip - two very diverse cases of fragile states; yet both facing cascading effects from climate change.

2.20pm **What is so hard about the hard-to-decarbonise sector? - the case of residential buildings in UK**
Ronita Bardhan, Associate Professor of Sustainability in Built Environment, Department of Architecture

Domestic buildings form a significant part of the Hard-to-decarbonise sector. While technological solutions are needed to release decarbonisation targets, stakeholders

are critical to the transition. This talk will share results from an expert consultation event and a research project. First, the results of an expert consultation held at the Climate Change Forum 2022, organised by the Royal Meteorological Society, are presented, and elaborated. It will then discuss the preliminary result of a collaborative research project on using space-based technology for energy efficiency in the residential sector funded by the UK Space Agency. Next, possible pathways for identifying the mass retrofit needs in the residential sector will be explored. Then, as a possible solution, the talk will explain how mass retrofit needs can be identified, clustered, and optimally implemented using a mix of urban planning and space-based technology. Finally, the discussion will conclude with the urban planning and building policies that can aid in easing the transition.

2.30pm **Q&A**

2.55pm **Break**

3.00pm **Keynote - The wealth economy: measuring social and natural capital**
Dimitri Zenghelis, Special Advisor to the Wealth Economy project, Bennett Institute for Public Policy

The Wealth Economy project seeks to augment GDP with a small dashboard recording access to key assets. In particular, natural capital - the resources and services provided by nature and Social and institutional capital - the personal, social, civic relationships that enable economic and social interaction.

3.15pm **Governmental energy innovation funding and institutions in China**
Tong Xu; Fellow; Cambridge Centre for Environment, Energy and Natural Resource Governance (C-EENRG); Department of Land Economy

As one of the most important energy production and consumption countries, China became the second biggest country to innovate energy technology research, development, and demonstration (RD&D). China announced at the UN General Assembly in 2020 that it will target carbon neutrality by 2060. The systematic evaluation of the energy RD&D programs has important implications for the policy design for carbon neutrality. We used bottom-up and top-down methods to collect data and used the International Energy Agency classification, including energy efficiency, nuclear fission and fusion, fossil fuels, hydrogen and fuel cells, other power and storage technologies, other cross-cutting technologies, and research.

3.25pm **Plastic food packaging: balancing the evils**
Claire Barlow, Emeritus Faculty, Institute for Manufacturing

There is huge pressure to reduce or eliminate the use of plastics for food packaging, mainly as a consequence of the devastating effects that plastic waste has on our natural environment. But this is only part of a much more complex picture. A more balanced systems-based assessment of the impact of plastics in food production, storage and use shows that carbon footprints are increased by moving away from petrochemical-based plastics. The whole issue of food packaging is highly emotive,

and the knee-jerk responses can be problematic. This talk will summarise the main factors involved and discuss what the future may hold.

3.40pm **Q&A**

4.05pm **Break**

4.10pm **Keynote – Climate action: lessons from history**
David Reiner Associate Professor in Technology Policy, Judge Business School

Most countries and many companies are now committed to net-zero emissions. Understanding how we wound up in the current situation requires a deep dive into the history of the international climate negotiations. The seeds for the solutions agreed in Kyoto, Paris and Glasgow lie in the Earth Summit at Rio in 1992 and the commitments undertaken in UN Framework Convention but also in the form of other international environmental agreements. In particular, the Montreal Protocol on ozone depleting substances, which served as an imperfect template for the climate regime. Finally, we consider lessons for the future evolution of the climate regime.

4.25pm **Computers and the internet: climate hazard or opportunity?**
Markus Hellenbrand, Postdoctoral Researcher, Department of Materials Science and Metallurgy

The combined power consumption of data centres around the world is equivalent to 20 nuclear power plants and it is estimated that by 2030, up to 50 % of global electricity consumption will be caused by Information and Computing Technologies. In addition, all our computers and smartphones require rare minerals to function. None of this is not sustainable. From a physicist's/materials scientist's/electrical engineer's perspective, I will argue that the betterment of our climate crisis is not held back by limitations in technological advancement, but by policy making and societal behaviour.

4.35pm **Upskill to upscale: capital-centric opportunities for skill training of micro-entrepreneurs in emerging markets**
Soniya Gupta-Rawal, PhD Student, Judge Business School

Despite the efforts of microentrepreneurs in emerging markets to break the shackles of limited business skills, they are unable to operate their businesses sustainably. In order to intensify entrepreneurial activities, a pertinent obstacle is to identify the specialized skills required in order to allocate suitable mentors to microentrepreneurs. This empirical study aims to bridge the gap by examining the impact of specialized skill training on micro-entrepreneurs' performance in EMs, with the given capital-centric factors. The study employs the triangulation approach involving literature, interviews, and empirical analysis of data from survey and picture-based coding for 2500+ microentrepreneurs in India.

4.45pm **Q&A**

5.05pm **Drinks Reception**

6.00pm **End**