

Low-carbon technology transfer: enhancing international policy on climate change



A major impact of the work of the Sussex Energy Group has been to identify policies that could significantly strengthen low-carbon technological capabilities in developing countries and, therefore, underpin more sustained transfer and uptake of low-carbon technologies.

Climate change is arguably one of the most pressing international issues of the modern age and tackling this seemingly immense problem requires radical innovation in energy consumption and a global switch from high- to low-carbon economies. Research by the Sussex Energy Group (SEG) is helping to facilitate the transfer of low-carbon technology to developing countries by informing new policy approaches, including international collaborative research and development and the establishment of Climate Innovation Centres (CICs).

Overview

Following the G8 Gleneagles Summit in 2005, the UK and Indian governments commissioned SEG to lead a programme of research on the obstacles to, and ways of facilitating, low-carbon technology

transfer to developing countries. This body of research demonstrated that policy approaches that facilitate knowledge flows and technological capacity-building in developing countries are more likely to deliver low-carbon technology than the isolated technological hardware-based investments that characterise conventional policy. This initial work led to the commissioning of three projects conducted between 2006 and 2011: the first two focused on technology transfer to India, the third to China. All three projects centred on broader efforts to support low-carbon innovation in those countries and developed policy recommendations on the basis of empirical case studies. These projects were led by Dr David Ockwell (Department of Geography) and Professor Jim Watson (SPRU – Science Policy Research Unit), and included inputs from Professor Gordon Mackerron, Dr Alexandra Mallett, Dr Rob Byrne, Dr Michele Stua and

Dr Rudi Haum at SPRU. The work was carried out in collaboration with The Energy and Resources Institute (TERI), India and Tsinghua University, China.

By examining barriers to technology transfer and innovation and the significance of Intellectual Property Rights (IPRs) in the Indian case studies, it was demonstrated that lack of technological capabilities in Indian firms constitutes a fundamental barrier to low-carbon technology transfer, whereas IPRs were found to be a less significant barrier than international policy negotiations have previously assumed. Their work showed that collaborative research and development (R&D) could form a specific policy mechanism for delivering low-carbon technological capacity-building in developing countries. The China case studies also focused on collaborative R&D and IPRs and reached similar conclusions.



Academic and policy outputs generated as a result of this work were presented at meetings of the United Nations Framework Convention on Climate Change (UNFCCC), among others, and contributed to material proposals for new policy approaches. Emerging ideas from Sussex, together with proposals by researchers at the Indian Institute of Technology (IIT), the Energy Research Centre of the Netherlands (ECN) and the Carbon Trust – with whom Sussex collaborated on various pieces of linked policy consultancy – all served to emphasise the potential of CICs in developing countries as a policy mechanism through which low-carbon technological capacity-building could be achieved.

Achieving impact

At the time of commissioning this work, there was widespread discontent among developing nations represented at the UNFCCC due to a failure on the part of developed countries to deliver on commitments to low-carbon technology transfer. Access to low-carbon technology was, therefore, seen as a major incentive to engage developing nations in international climate change dialogue and agreements. A major impact of the work of SEG was to identify policies that could significantly strengthen low-carbon technological capabilities in developing countries and, therefore, underpin more sustained transfer and uptake of low-carbon technologies. The advocacy of CICs and collaborative R&D have led to both being adopted as policy mechanisms under the UNFCCC's new Technology Mechanism – the key policy vehicle for delivering technology transfer – and CICs are also being implemented via a bilateral initiative by the UK Department for International Development (DFID), the World Bank and Danida (the Danish International Development Agency within the Danish Ministry of Foreign Affairs).

A policy briefing, commissioned by Lord Nicholas Stern in 2009 for critical UNFCCC negotiations in Copenhagen, promoted CICs and collaborative R&D based on SEG research. This work, informally known as the Sussex Proposal, was endorsed by Stern and used at the discussions in Copenhagen by negotiators for the Department of Energy & Climate Change (DECC) to inform UK and

EU negotiating positions, and helped DECC reorient UK guidelines on international climate finance. Subsequently, the UNFCCC secretariat commissioned Ockwell and colleagues from ECN and IIT to report on policy applications of collaborative R&D; a report that was adopted as an official UNFCCC policy document and was influential in shaping views, critical driving factors and policy options. The UNFCCC subsequently commissioned a consortium of consultants to implement the CIC approach as part of their new Technology Mechanism (via the Climate Technology Centre and Network).

In addition, SEG's research has had significant policy impact at DFID, the World Bank, the Asian Development Bank, the African Development Bank, and the Organisation for Economic Co-operation and Development. Through such influence and collaborations, the CIC approach is being adopted and implemented in Africa, Asia and Latin America.

The impact of this research has been recognised in various ways. It has been showcased by ESRC as one of the five high-impact research case studies that support the technology component of its 2009–2014 Strategic Plan, and the research was awarded the 2009 Green Gown Award for Best University-Based Environmental Research. In addition, David Ockwell was invited to brief high-level African Development Bank executives on technology transfer for delivering green growth in Africa, and contribute to the Bank's 2012 Africa Development Report. SEG has also been invited to give numerous presentations at international policy fora, including the European Parliament, the UK Houses of Parliament, the UNFCCC Conference of the Parties and Technology Executive meetings, the World Sustainable Development Forum, meetings with the governments of Chile, Peru, Colombia and India, and the Delhi Sustainable Development Summit.

Future impact

SEG's initial work led into a new research project, 'Pro-poor, low-carbon development: Improving low-carbon energy access and development benefits in Least Developed Countries'; a partnership between the African Technology Policy Studies Network in Kenya and the University of Sussex

(including the ESRC STEPS Centre – a collaboration between Sussex and the Institute of Development Studies – SEG and the Tyndall Centre for Climate Change Research). The project aimed to inform the development of CICs in various developing countries by analysing the history of, and players involved in, the adoption of off-grid solar photovoltaics in Kenya, with a view to improving the ability of policy to facilitate the transfer and uptake of low-carbon technologies in low-income developing countries. This piece of work responded directly to demand from the Kenyan government and produced a range of outputs including publications, policy briefing notes and media coverage. Key players at the World Bank, who are leading their CIC initiative, have cited the project's findings as informing the design and implementation of CICs in future. This project ended with launch events in Nairobi and the UK in March 2014, and a number of initiatives are underway to engage directly with policy-makers in Kenya and globally to achieve further impact through this research.

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Working with us

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