Institution: University of Sussex

Unit of Assessment: UoA 17 Geography

Title of case study: Enhancing international climate-change policy on low-carbon technology transfer to developing countries

1. Summary of the impact

Sussex Energy Group (SEG) research on low-carbon technology transfer to developing countries impacted on the policies, negotiating positions and funding strategies of a range of national and international governmental organisations, including DFID, DECC, the United Nations Framework Convention on Climate Change (UNFCCC), the OECD Environment Directorate, the Asian Development Bank, the African Development Bank and the Government of Chile. In particular, this led to a shift in emphasis towards building technological capacities in developing countries as a more effective long-term strategy for facilitating technology transfer, and resulted in the adoption, by several of these organisations, of Climate Innovation Centres and collaborative research and development as specific policy mechanisms.

2. Underpinning research

These impacts are underpinned by four linked research projects:

- Following the G8 Gleneagles summit (2005), the UK and Indian governments commissioned the SEG to lead an internationally collaborative research project (2006–08) on facilitating low-carbon technology transfer to developing countries – a central goal of international climate policy. Based on empirical analysis in India, and using insights from the Innovation Studies literature to deal with the unique characteristics of low-carbon technologies in the context of global environmental policy, the research demonstrated that policy approaches which facilitate knowledge flows and technological capacity-building in developing countries are more likely to deliver low-carbon technology transfer than the isolated, project-based investments which characterise conventional policy.

- Following public endorsement of the initial study by the then-UK Environment Secretary, David Milliband, and his Indian counterpart, a more-detailed Phase II collaborative UK–India research project (2008–09) was commissioned to explore the issue in more depth via case studies in India. This demonstrated that collaborative research and development (R&D) could form a specific policy mechanism for delivering low-carbon technological capacity-building in developing countries. It also examined the significance of Intellectual Property Rights (IPRs) and found them to be less significant a barrier than international policy negotiations assume.

- This led the then-UK Prime Minister, Gordon Brown, during a visit to China, to announce the UK government's intention to commission a similar UK–China collaborative research project which the SEG was again commissioned to lead (2009–10). This also focused on collaborative R&D and IPRs and came to similar conclusions as the UK–India study.

- The SEG also used its core ESRC grant from 2009–10 to fund capacity within the SEG to deepen the analysis from the DECC-commissioned research and publish the results in articles in peer-reviewed journals and an edited book (published by Routledge and endorsed by Lord Nicholas Stern). This research was continued by David Ockwell via Sussex-funded research time until 2012 (when further external funding was secured). In particular, this SEG-/Sussex-funded research emphasised the potential of Climate Innovation Centres (CICs) in developing countries as an additional policy mechanism via which low-carbon technological capacity-building could be achieved. The CIC's approach drew on emerging ideas at Sussex and on proposals by researchers at the Indian Institute of Technology (IIT), the Energy Research

Centre of the Netherlands (ECN) and the Carbon Trust – with all of whom Sussex collaborated on various pieces of linked policy consultancy.

Note: the research is a team effort by the SEG. The SEG is mainly based in SPRU, in the School of Business, Management and Economics. However, one of the core members of the research team, David Ockwell, moved to Geography in the School of Global Studies in January 2009, where he continued the research, remaining a member of the SEG. Ockwell was lead researcher on the first project listed above, CI on the second and third (having negotiated the funding and drafted the proposals for both) and sole Sussex researcher on the work for the UNFCCC and the Government of Chile, as detailed below. Ockwell also led the consultancy work for the OECD and several commissioned policy reports, including one for the African Development Bank (see below). He is PI on Sussex's new DFID-/CDKN-funded research in this field.

3. References to the research

R1 Ockwell, D.G., Watson, J., MacKerron, G., Pal, P. and Yamin, F. (2008) 'Key policy considerations for facilitating low-carbon technology transfer to developing countries', *Energy Policy*, 36(11): 4104–15.

R2 Ockwell, D.G., Haum, R., Mallett, A. and Watson, J. (2010) 'Intellectual property rights and low-carbon technology transfer: conflicting discourses of diffusion and development', *Global Environmental Change*, 20(4): 729–38.

R3 Ockwell, D.G. and Mallett, A. (eds) (2012) *Low Carbon Technology Transfer: From Rhetoric to Reality.* Abingdon and New York: Routledge.

R4 Ockwell, D.G., Watson, J., Verbeken, A., Mallett, A. and MacKerron, G. (2009) *A Blueprint for Post-2012 Technology Transfer to Developing countries*. Brighton: University of Sussex, Sussex Energy Group Policy Briefing Note. Available at: www.sussex.ac.uk/webteam/gateway/file.php?name=techo-briefingweb1.pdf&site=264.

R5 Ockwell, D., Watson, J., Mallett, A., Haum, R., MacKerron, G. and Verbeken, A. (2010) *Enhancing Developing Country Access to Eco-Innovation. The Case of Technology Transfer and Climate Change in a Post-2012 Policy Framework*. Paris: OECD Publishing, Working Paper No. 12. Available at: http://www.oecd-ilibrary.org/environment/enhancing-developing-country-access-to-eco-innovation_5kmfplm8xxf5-en.

R6 Sagar, A., Ockwell, D.G. and de Coninck, H. (2010) *Options to Facilitate Collaborative Technology Research and Development*. Brussels: United Nations Policy Document FCCC/SBSTA/2010/INF.11. Available at: http://unfccc.int/resource/docs/2010/sbsta/eng/inf11.pdf.

Outputs can be supplied by the University on request.

4. Details of the impact

Note: *Numbers in parentheses refer to numbered sources of corroboration.*

Climate Innovation Centres (CICs) and collaborative R&D have been adopted as policy mechanisms under the UNFCCC's new Technology Mechanism – the key policy vehicle for delivering technology transfer – as well as by several other policy organisations.

The SEG's specific impacts include:

- Lord Nicholas Stern asked Sussex to prepare a policy briefing note for the critical 2009 UNFCCC negotiations in Copenhagen. The brief, promoting Climate Innovation Centres and collaborative R&D based on SEG research, informally became known as 'The Sussex Proposal'

and was endorsed in the press by Stern as making '...a valuable contribution to the debate ahead of the crucial discussions in Copenhagen' [see Section 5, C1, C8].

- DECC negotiators at Copenhagen used the SEG's work to inform the UK and EU negotiating position. Their lead negotiator on technology states: 'This work impacted on me as a negotiation lead in this area, and I used the insights provided to steer the EU position. I can't understate the helpfulness of this work...' [C2, C8].

- DECC reoriented UK guidelines on international climate finance. '[The SEG's] research had a strong impact on DECC's policy thinking and has fed into the Department's guidelines on how its international climate finance be disbursed. In particular, the research led to more of an emphasis on funding low-carbon technological capacity-building, including via collaborative research and development initiatives and the establishment of Climate Innovation Centres' [C3].

- The UNFCCC Secretariat commissioned Ockwell and colleagues from ECN and IIT to report on policy applications of collaborative R&D. The report was adopted as an official UNFCCC policy document (FCCC/SBSTA/2010/INF.11) and was '...influential in shaping the views of [the UNFCCC's Expert Group on Technology Transfer] on critical driving factors and policy options...' [C4, C5].

- DFID, with the World Bank, is also implementing CICs. 'Work led by SEG and others on the concept of Climate Innovation Centres has been particularly influential on shaping and driving policy on this agenda. Following SEG's earlier analysis on the concept in 2009, DFID invested in piloting the approach in a number of our partner countries. DFID has since championed this approach internationally, frequently drawing on findings from SEG's research. This has led to successful adoption of the concept under the UNFCCC, as well as financial support for the development of developing-country CICs from Norway, Denmark and Australia… The programme is anticipated to have significant impacts on poverty – supporting livelihoods, job creation, health, education and the environment' [C6, C9].

- DFID established a framework contract with the SEG to advise on applications to the Climate Technology Fund (CTF) – a key funding mechanism for technology transfer under the UNFCCC. 'Questions, advice and recommendations provided by SEG were strongly valued by DFID who used these in their preparations for CTF Trust Fund Committee meetings' [C6].

- 'SEG's work has been instrumental in shaping DFID's thinking on international, collaborative R&D…. The work of SEG in this area has been valuable in the design of a new DFID programme exploring the use of innovation prizes to address climate… problems...' [C6].

- The Asian Development Bank and UNEP are developing a CICs approach '... drawing on SEG reports on collaborative R&D and technology transfer' [C5].

- The Government of Chile asked the UK Foreign Office to fund Ockwell to input into their Technology Needs Assessment – a key policy document submitted to the UNFCCC.

- The African Development Bank asked Ockwell to prepare a chapter on technology transfer for their 2012 African Development Report, which provides the empirical basis for mainstreaming Green Growth in their new 10-Year Strategy (2013–22), and to advise AfDB on their plans to launch a CIC in North Africa: http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/African%20Development%20Report%202012.pdf.

- '…work done by the University of Sussex on the transfer of low carbon technologies has had a significant influence on OECD's work on related issues' [C7]. The OECD Environment Directorate commissioned a report by the SEG on technology transfer (published as an OECD Working Paper) to inform the OECD Global Forum on Environment in 2009, a key event used to

evaluate global eco-innovation policies and inform the OECD's Innovation Strategy.

The impact of the research has been recognised in various ways, including:

- being showcased by the ESRC as one of five high-impact research case studies to support the technology component of its 2009–14 Strategic Plan;
- being awarded the 2009 Green Gown Award for Best University-Based Environmental Research;
- Ockwell being invited to brief high-level AfDB executives on technology transfer for delivering green growth in Africa;
- Lord Nicholas Stern endorsing the SEG's edited book (Ockwell and Mallett 2012 – R3); and
- the SEG being invited to give presentations at numerous international policy fora, including, *inter alia*:
    - the European Parliament;
    - the UK Houses of Parliament;
    - the UNFCCC Conference of the Parties;
    - the UNFCCC Technology Executive meetings;
    - the World Sustainable Development Forum;
    - meetings with the governments of Chile, Peru, Colombia and India; and
    - the Delhi Sustainable Development Summit.

5. Sources to corroborate the impact

C1 Lord Nicholas Stern – statement in a press release accompanying the release of the SEG's Policy Briefing Note at the Copenhagen Negotiations in 2009

C2 Former DECC lead EU negotiator on technology for the UNFCCC and related dialogues; currently Manager of DECC's Evidence Team

C3 Senior Scientific Advisor, UK Department for Energy and Climate Change (DECC)

C4 Manager, Technology Sub-Programme, UN Framework Convention on Climate Change (UNFCCC) Secretariat

C5 Formerly (at time of impact) Consultant to Technology Sub-Programme, United Nations Framework Convention on Climate Change Secretariat, currently Long-Term Consultant to the Asian Development Bank–UNEP Climate Technology Network and Finance Centre project

C6 Innovation Manager (Energy and Climate), UK Department for International Development (DFID)

C7 Principal Administrator, the OECD Environment Directorate

C8 Senior Economist in DECC's International Climate Change Division and, at the time of the impact, DECC's lead author on technology policy and international technology cooperation for the Stern Review of the Economics of Climate Change

C9 Formerly (at time of impact) Technology Director and Director of Projects at the Carbon Trust; Director, The Carbon Trust. Currently Director, David Vincent and Associates Ltd (policy consultancy on carbon reduction policies)