

Low Carbon Technology Transfer: Lessons from India and China

Jim Watson
Director, Sussex Energy Group

w.j.watson@sussex.ac.uk

SEG/ECN Side Event, Cancun, 3rd Dec 2010

Sussex Energy Group
SPRU - Science and Technology Policy Research

Tyndall°Centre
for Climate Change Research

- **Why technology transfer?**
- **Key issues and case study examples**
- **What kind of Climate Technology Centre(s)?**

Our evidence base



- **UK-India research with TERI (2005-2009)**

- Phase I identified barriers and policies to overcome them
- Phase II focused on intellectual property rights (IPR) and joint innovation between developed and developing countries



- **UK-China research with Tsinghua University (2010-2011)**

- **A ‘bottom up’ approach: detailed technology case studies to inform policy**

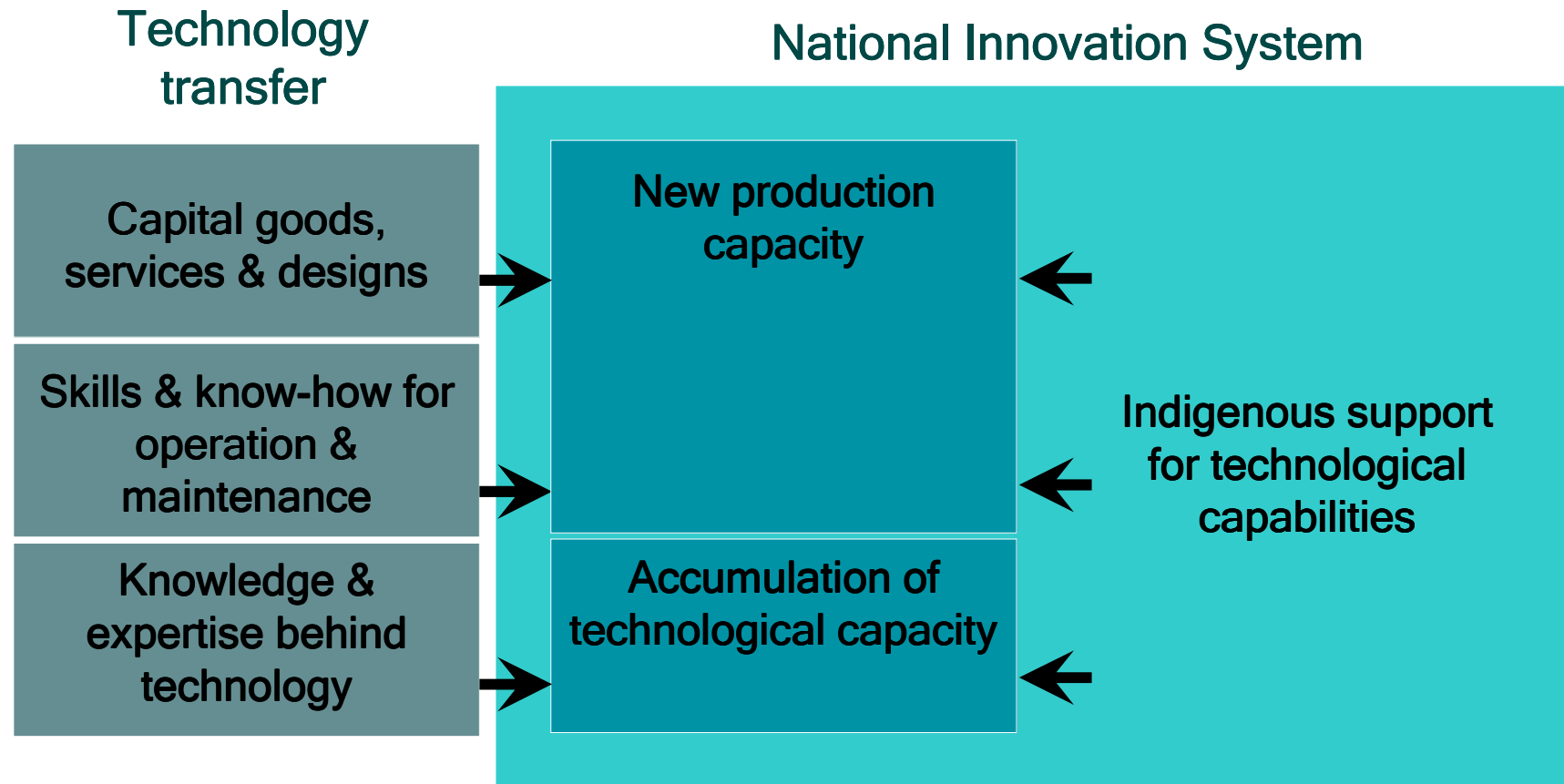


Sussex Energy Group
SPRU - Science and Technology Policy Research

Tyndall°Centre
for Climate Change Research

Why technology transfer?

A key source of low carbon innovation



Why technology transfer?

Three rationales for our broad approach:

- **Strengthens the capacity of developing country firms and organisations to ‘learn by doing’**
- **Many low carbon technologies need to be adapted to local circumstances**
- **Contributes to ‘catching up’ strategies within developing country firms and industries**

Why technology transfer?

Not enough progress made



‘Regrettably, we haven’t seen substantive progress in the sharing of these [low carbon] technologies. ... There is a need to develop institutions and finance ... to transfer technologies on concessional terms whilst safeguarding intellectual property rights’

Zeng Peiyan, former Chinese Vice-Premier, May 2010

Key issues

Building indigenous capabilities

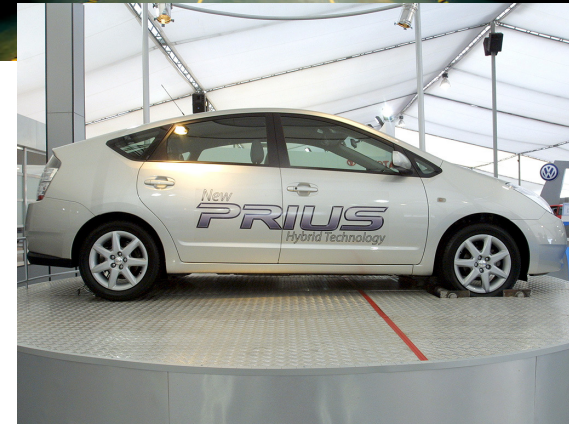
- National research support for wind power firms in China has helped them absorb foreign technology
- IPR barriers vary by technology, but are rarely decisive
- They can slow access to cutting edge (e.g. solar PV in India)
- Some technologies need to be adapted to local needs (coal gasification in India)
- Weaknesses remain in national innovation systems



Key issues

Developing country policies

- Incentives for wind power deployment in India and China crucial for domestic firms
- Complemented by R&D support and trade / investment policies
- Technologies for cement industry in China are now largely domestic: government support needed to accelerate their uptake
- Lack of 'demand pull' incentives in India for hybrid vehicles; in China, incentives are stronger



Key issues

International finance and policy

- Lots of international collaboration: often outside official climate mechanisms and funds
- Much criticism of the CDM, but it has played a significant role in Chinese cement and wind sectors
- Collaborative programmes for R&D increasing (e.g. EVs with China), but impacts on firms unclear
- Lesson learning from GEF and World Bank funds essential: do they build industrial capacity?



Climate Technology Centres

General implications



- **CTCs need to be context specific (by technology, country, region etc). ‘One size fits all’ won’t work.**
- **Build on existing institutions, networks and strategies (including within developing countries)**
- **Our cases provide mixed lessons on impact of existing UNFCCC mechanisms and funds**
- **An ambitious vision for CTCs: policy advice and information sharing welcome but not enough**
- **Engagement with firms essential, support innovation capabilities without micro-management**

Climate Technology Centres

Implications for ECN/NREL options



- Evidence supports a hybrid approach, including support for R,D&D and market development
- Clearly important to link these activities to existing developing country policies and programmes
- Decentralised architectures may be better placed to tailor CTC to needs of sector, country, region etc
- Public and private sector roles both crucial: and not just in collaborations with each other
- Learning from existing initiatives: are there limits to lessons from other sectors (e.g. agriculture)?

Thanks

<http://www.sussex.ac.uk/sussexenergygroup>

Sussex Energy Group
SPRU - Science and Technology Policy Research

Tyndall°Centre
for Climate Change Research