The potential and prospects of the Technology Mechanism

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Climate, Technology and Development project

Translate academic insights for negotiators and policymakers

• ECN: Laura Wuertenberger, Lachlan Cameron
• IIT Delhi: Ambuj Sagar
• Radboud University: Heleen de Coninck
• University of Sussex: Rob Byrne, Jim Watson
• UNICEN: Gabriel Blanco
• Tufts University: Kelly Sims Gallagher

Planned activities

• Policy briefs
• Value chain case studies on cement in Africa, BRT, lighting, cook stoves and solar PV in China
• Various events and final conference
Innovation systems in developing countries

Nature and process of innovation
- Innovation should be understood in broad terms
- Context of innovation matters

Opportunities to build low-carbon development pathways
- Often less well-entrenched vested interests and weaker energy-provision infrastructures in poorer developing countries
- Opportunities to circumvent the high-carbon pathways industrialised countries have followed

Role of policy in building low-carbon innovation systems
- International policy initiatives need to interact with national policy frameworks
- Cultivating indigenous innovation capabilities is essential
- Building low-carbon innovation systems is inherently long-term, resource-intensive, uncertain and risky
“Technology cycle”

**Government**
- Policies to influence innovation activity
  - Funding
  - Incentives, standards, regulations, taxes, subsidies

**Research Performers:**
- Business, Government, Higher Education, Non-profit institutions

**Technology/Product Push**
- Market Pull
- Diffusion
- Commercially Mature

**Business**
- Policies to influence innovation activity
  - Funding
  - Funding and Investments; Knowledge and market spillovers

**Consumers:**
- Individuals, Firms, Governments, Other entities

Grubb (2008)
Technological innovation systems

1. Starting-point; defining the TIS in focus

2. Structural Components
   - Actors
   - Networks
   - Institutions

3a. Functions
   - Knowledge development
   - Resource mobilization
   - Market formation
   - Influence on the direction of search
   - Legitimation
   - Entrepreneurial experimentation
   - Development of external economies

3b. Achieved Functional Pattern

4. Assessing Functionality & setting process goals

5. Inducement & blocking mechanisms

6. Key policy issues

Bergek et al. (2008)
**Research institutes and universities**
- Basic and applied R&D
- Knowledge development and education
- Workforce development

**Companies and entrepreneurs**
- Experiment with and implement new technology
- Participate in applied R&D and demonstration

**Financial sector**
- Banks: provide loans
- Venture capitalists: invest in new inventions
- Development banks: reorient (soft) loans to low-carbon goals

**Users and consumers**
- Public movement for social innovation
- Testing and acceptance of low-carbon technologies and practices
- Legitimation further policy

**Government**
- Fund R&D and education
- Legislation
- Create conducive policies and markets
- Raise awareness

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**R&D**

**Demonstration**

**Diffusion**
The Technology Mechanism

Cancun Agreements

• Enhanced action on technology development and transfer is to support action on mitigation and adaptation in accordance with nationally determined needs

• Priorities: endogenous capacity, collaborative RD&D, deployment and diffusion, increase public and private investment, soft and hard technology, climate observation, national technology plans

TEC ("policy arm") and CTC&N (implementation)

General aim: Forming and strengthening national innovation systems for climate technologies

Specifically: Enabling different specific technologies in line with their stage of development where national needs emerge
Technology Executive Committee

20 expert members elected by the Conference of the Parties:

— 9 Annex I members
— 9 non-Annex I members
— 1 LDC representative
— 1 SIDS representative

Functions

– Provide overviews of technology needs
– Assess policy and technical issues related to technology development and transfer
– Share information on new and innovative technologies
– Facilitate and catalyse action on technology (roadmaps etc)
– Find ways to engage stakeholders to build the momentum on the Technology Mechanism
Structure of the CTCN

**CTC lead:** UNEP

**CTC consortium:**
- AIT (Thailand)
- Bariloche (Argentina)
- CATIE (Costa Rica)
- CSIR (South Africa)
- ECN (Netherlands)
- ENDA (Senegal)
- GIZ (Germany)
- ICRAF (Kenya)
- NREL (United States)
- TERI (India)
- UNIDO (Austria)
- URC (Denmark)
Delivery approach of the CTCN

Submission and Response Plan
- Submission of request by NDE
- Logging and initial screening (Core Centre Staff)
- Refining of request and preparation of response plan by NDE and CTC expert team
- Review and approval of request (Director)

Response
- Delivery of initial quick response assistance from expert team (where appropriate)
- Tendering of project to Network and selection of Network member for delivery of services
- Network implementation of agreed support

Reporting and Evaluation
- CTC progress reviews and oversight
- Summary report on results and impacts
- Analysis and sharing of experiences through peer forums and knowledge management
- Reporting outcomes publicly and to the Advisory Board
What should the TM do, and what is it doing?

• Language uses many of the right words
• TEC is meeting regularly, addressing some issues but still slightly deadlocked by developed vs. developing country positions
• Funding situation still unclear (Green Climate Fund?)
• Much depends on what the CTC&N is allowed (and budgeted) to do
• Technology Mechanism could go further; TEC could take initiatives:
  - Push: collaborative Research, Development & Demonstration
  - Pull: technology agreements on e.g. energy efficiency standards
• Clarify role of private sector
What could that mean in practice? Examples

R&D cooperation in water management
- Development of “climate-smart” practices and technologies in specific country
- Combining endogenous knowledge with international capacity
- Important co-benefit: local capabilities
- Handled by CTC&N (on request of a country)

Energy-efficient appliances: global technology standards
- TEC could set up a task group on appliances
- Engages with global manufacturers and standard organisations
- Supported by UNFCCC and independent technical expertise
- Set (voluntary and dynamic) standard, monitor progress
- If it works, repeat with in other products (cars, ACs, etc)
Remaining questions

• Linkages between the TEC and the CTC&N
  - They operate in one TM; how can they enhance and not hinder each other?

• UNFCCC’s financial mechanisms
  - TEC has a mandate to initiate cooperation with other UNFCCC bodies

• Developed and developing countries
  - Promote and stimulate participation of their technological, scientific and academic institutions in the Network; essential for inclusiveness, reach and success of CTC&N
  - Be aware of the possibilities and challenges in climate technology innovation systems

• Special attention: RD&D cooperation and demand-side technology standards
Thank you

Policy brief 1 “Innovation systems in developing countries”
http://www.climatestrategies.org/research/our-reports/category/78/361.html

Policy brief 2: “Technology Mechanism in the UNFCCC: Ways forward”
www.climatestrategies.org/research/our-reports/category/78/364.html

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