Government Role for Technology Transfer

Rae Kwon CHUNG

Climate Change Ambassador

Republic of Korea

Public Share of R&D

- GERD (Gross Domestic Expenditure on R&D)
- OECD Average: 43%(’85), 37%(’90),34%(’95)

US:	50%	43%	36%
EU:	44%	40%	33%
Japan:	21%	18%	22%
Korea:		17%	18%
India:	88%	87%	84%

Agenda 21

- Chapter 34: Transfer of Publicly-owned Tech
- CSD 5 Decision/Roi+5: Transfer of publicly-funded technology
- Feasibility Study: 1997 Korean Government & CSD/UNEP/UNCTAD
- Expert Meeting: Feb. Kyungju, Korea
- Recommends sector-specific pilot scheme
- still not realized ------

Public R&D

- focusing on improving domestic industrial competitiveness
- not yet reflect the need to integrate TT to DC
- No legal restriction except the US:

  Bay-Dole Act: only to firms manufacturing substantially in the US

Climate Change Crisis

- requires new technology cooperation regime.
- requires to integrate Climate Imperatives into current IPR regime
- Climate crisis requires change of current IPR regime ? Then How ?
- What is the role of Government ?

Distinction of Concepts

- Technology Diffusion
  - Enabling Business, Investment, Marketing
  - Tech. Diffuses Itself
- Technology Transfer : FCCC Art.4.5
  - What Governments can do? (for both North & South)

    vis-à-vis 1. private sector, market

    2. public sector, policies

Current State of Tech. Transfer

- Private Sector : FDI, Trade
- Public Sector :
  - ODA Programs : Tech. Coop.
  - Bi/Multilateral Institutional Schemes:
    AIJ, Exchange & Training programs
- **Public R&D → private sectors**
  → commercialization / marketing
  from Public to Private
  not from North to South

Role of Government

- Provide regulatory framework
  - Market and demand creation
- Major Player of Market: end user
  - Esp. for Energy and ESTs,
  - Ex. Residential Insulation of Apt. complex, Power Generation of State-owned Corp.

More So for Developing Countries

- For TT, Market is Primary Actor but Government is also major actor of Market
  - considerable role even TT through market

- EST R&D driver:
  - Initial commercial viability of EST : low
  - Public & Private Partnerships
- Initiate Public R&D programs for Climate Change → commercialize as part of Industrial Policy for domestic competitiveness
  - thus closed and restricted to access and transfer
- So far, EST generation function of Gov. (Public R&D) do not **fully** reflect Global Env. Policy objective (TT for CC)
  - Positive Example: 5th Framework for R&D, EU (INCO-DEV)

Status of EST Market in DC

- Unstable Market:
  - Newly Emerging ; now Demand & Supply
  - Dynamic & Fluid ; short life-span of EST yet to be (or hard to be) standardized,
  - Imperfect competition ; small market, imperfect information
  - SMEs ; vulnerable to deal with MNCs, lacking Tech. Assessment & Verification Capacity,
- Supply : dominated by foreign firms
- Demand : public sector dominant,

  SME demand weak

- Danger of Old Tech. Dumpling : short life-span
  - High-pressure sales & marketing
  - Buying old or inappropriate tech.
  - Ex. Incinerators purchased but not used (Korea)
    Import old air quality monitoring equipment
- Restrictive Conditions for Licensing : RBP or Refuse to license, Ex. HFC/Korea
- Additional Cost for Tech. Assessment Consulting : right choice even incur costs
- Need Survey & Monitoring for EST Market Functions : so far no analysis yet for this issue

RBP of IPR

- HFC to replace CFC (Freon Gas): refuse to license technology: 1989,
- Register patent to block technology development/ later offer to license/ no need to buy
- Global Environment: opportunity for Monopolistic Profit ???? → abusing IPR → compulsory licensing (agenda 21)

Expectations

- More than current market, ODA, institutional actions
  - not just enabling business environment
- Improving the access, conditions of market
  - easy financing, licensing, tech. assessment
- Promote indigenous R&D capacity

Sources for Frustration

- Lack of Own Capacity for indigenous R&D, Finance, Adaptation, Assessment, Verification,
- Tech.Coop.Prog.: More Hardware > Software
  - transfer of **Black Box** not **Know-how**
- Even for publicly-funded Tech.:
  - only being commercialized in the market
  - emphasis on “Enabling Business Environment”

Focus of Debate

- What Governments can do to
  - Improve market functions to create stable and sound EST market as major end-user of EST
  - Improve public R&D programs to catalyze Tech. Transfer & promote indigenous capacity for R&D

Key Issues for Public Policy

- <Private Sector>
  - How to harness Commercial Interests to contribute to Global Env. Goals?
- <public sector>
  - How to reflect Global Env. Goals into the Industrial & Economic policy?

For Market/Private Sector

- Reconcile/integrate commercial interests with public policy goals
- Make marketing strategy more environmentally sustainable: refrain Old Tech. Dumping & RBP (Restrictive Business Practice)
- Monopoly of IPR
  - Reduces market share

    (ex. HFC case in Korea)
- Easy transfer – increasing market share
- **Create Incentives for Sustainable Marketing**

How for Private Sector?

- **Incentives:**
  - Provide financial/fiscal support for demonstrations/adaptation, & for Tech. Assessment and Verification
- **Disincentives:**
  - Address RBP & high-pressure sales of old tech. Damage to Corporation Image, Bad Publicity
  - Compulsory Licensing

For Developed Governments

- Integrate global environmental goals (TT/CC) into public R&D programs : focus not only commercialization but also on TT to DCs
  - **remove legal or administrative restrictions which restrict transfer to foreign entity**
- **Explore possibility of Pooling, Sharing, Exchanging of publicly-funded ESTs for mutual and global benefit**
  - since even DCs do have Public R&C, this can be done not only North-South but also South-South or South-North

- Link R&D ST Community & ODA community
  - willing scientists lack marginal incremental cost for Tech. Coop. activities
  - earmark incremental cost for Tech. Coop. activities into public R&D budget at the time of initial budget allocation
- Enhance Accessibility of Public R&D programs
  - increase expert exchange programs
  - already exist; on ad-hoc & bilateral basis for basic & low level technology
  - needs to be adopted as a general policy & for high level technologies too

- Promote joint R&D activities with developing countries :
  - little joint R&D between Developed & Developing, Gap needs to be bridged (IEA/OECD)
  - Contribute to promote indigenous R&D capacity

- Mandate from UNGASS 1997

  → Feasibility Study on the transfer of publicly-funded EST in 97, Kyungju Expert Meeting in Korea Feb. 1998 (UNCTAD/UNEP/UNCSD)

  → decision adopted CSD in 1998, invite interested parties to take sector specific action

For DC Governments

- Strengthen Regulatory Framework :
  - Market & demand creation
- Create Enabling Environment for EST market and Business : as major end-user of EST, explore potential role for sound market development
- Improve indigenous capacity for localizing, assessing, verifying ESTs

Jointly for Both Governments

- Survey on how EST Market functions:
  - to address issues related with imperfect market conditions, RBP, Tech. Dumping
  - to promote sound EST market development
- Monitor Tech. Coop. Programs :
  - to evaluate & improve TT for mutual satisfaction/not much feed back from field
  - to develop indicators for Tech. Transfer
- **Build long-term partnership** for mutual and global benefit;
  - es. through publicly-funded R&D