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Government Role for Technology Transfer



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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. 1998, 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. Dumping : 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