

Trade and Technology Transfer in Climate Change Context

Muthukumara Mani
World Bank

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Importance of Technology Transfer in the Climate Context

- ▶ Continuing climate change at current rates will pose increasingly severe challenges to development (WDR 2010).
- ▶ Historical responsibility for emissions is with developed countries.
- ▶ But future growth in emissions driven by developing countries.
- ▶ Mitigation measures more cost-effective in developing country context. Potential for low-carbon growth and co-benefits.
- ▶ Enables technological leap-frogging.



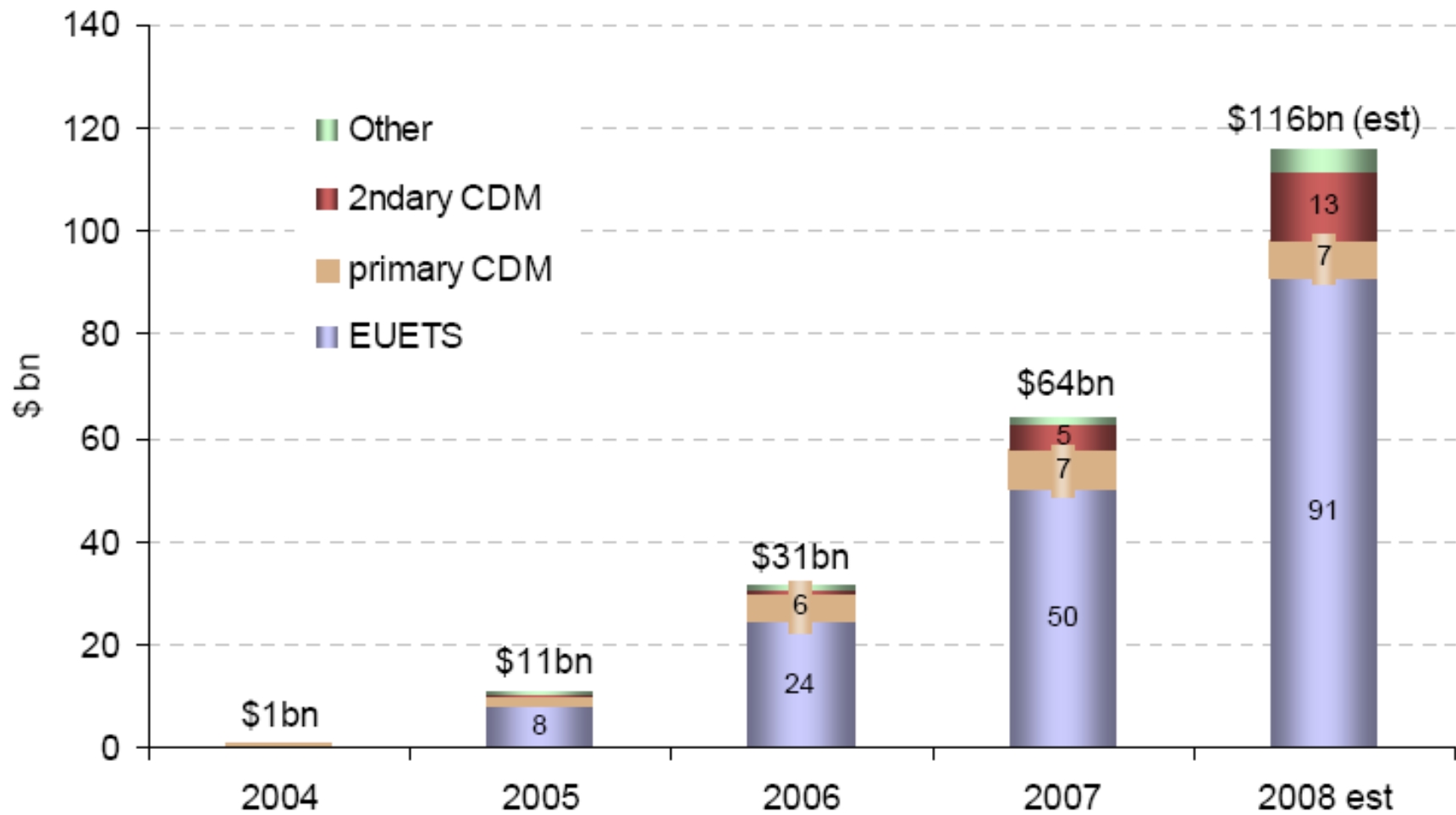
Current Mechanisms for Climate Technology Transfer

- ▶ CDM/JI
- ▶ EGTT

- ▶ ODA-bilateral/regional/multilateral
- ▶ FDI including joint ventures
- ▶ Licensing
- ▶ Trade



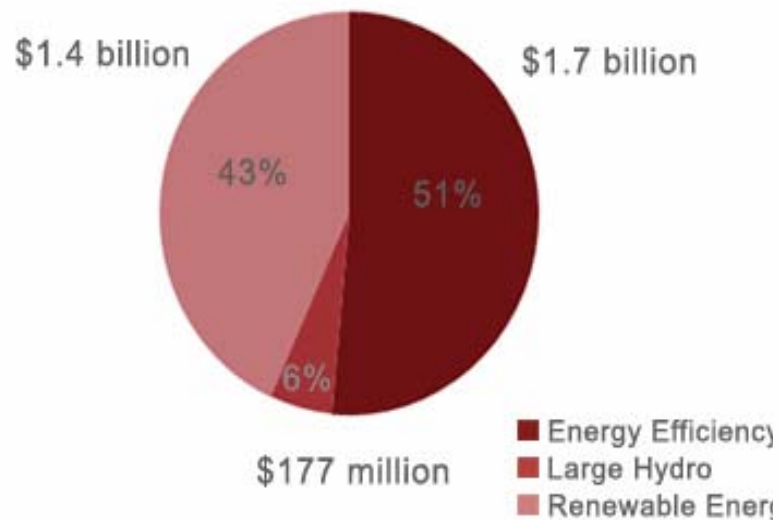
Carbon market 2005 – 2008 (Estimate)



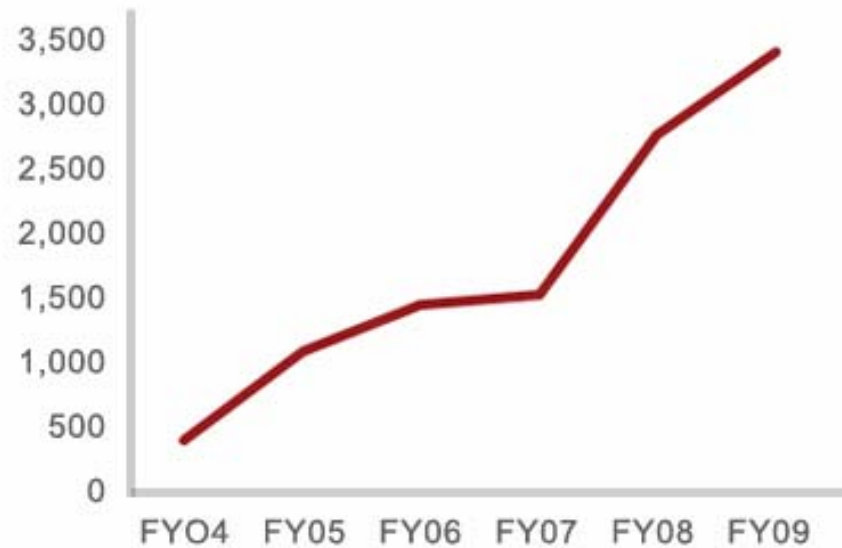
Source: *New Carbon Finance*

World Bank Clean Energy Investment

World Bank Group Low-carbon Energy Commitment in FY09



World Bank Group Renewable Energy & Energy Efficiency Financing FY2004-09



World Bank Clean Energy Investment

- ▶ Renewable energy and energy efficiency projects and programs in developing countries rose 24% in the last fiscal year to reach \$3.3 billion, the highest ever.
- ▶ Total renewable energy and energy efficiency commitments for the year accounted for more than 40% of total Bank Group energy lending
- ▶ **Projects**
 - ▶ Off-grid solar electrification
 - ▶ Small-hydro
 - ▶ Biomass
 - ▶ Biogas digesters
 - ▶ Wind farms
 - ▶ Energy efficient chillers
- ▶ Climate Investment Funds (\$10 billion)



Drawbacks of Existing Mechanisms

- ▶ CDM-low volume, cumbersome approval process, carbon markets in nascent stage, disproportionate flow to select DCs.
- ▶ FDI-Dependent on Investment Climate (market-size, scale economies, infrastructure, governance, IPRs.)
- ▶ ODA-Limited volume, influenced by political economy considerations.
- ▶ Licensing- Investment and IPR climate, asymmetry in bargaining power, lack of capacities to manufacture and operate technology by domestic firms.
- ▶ Trade- High tariffs and non-tariff barriers, lack of complementary policies for market creation (govt. regulation, feed-in tariffs, finance, standards).

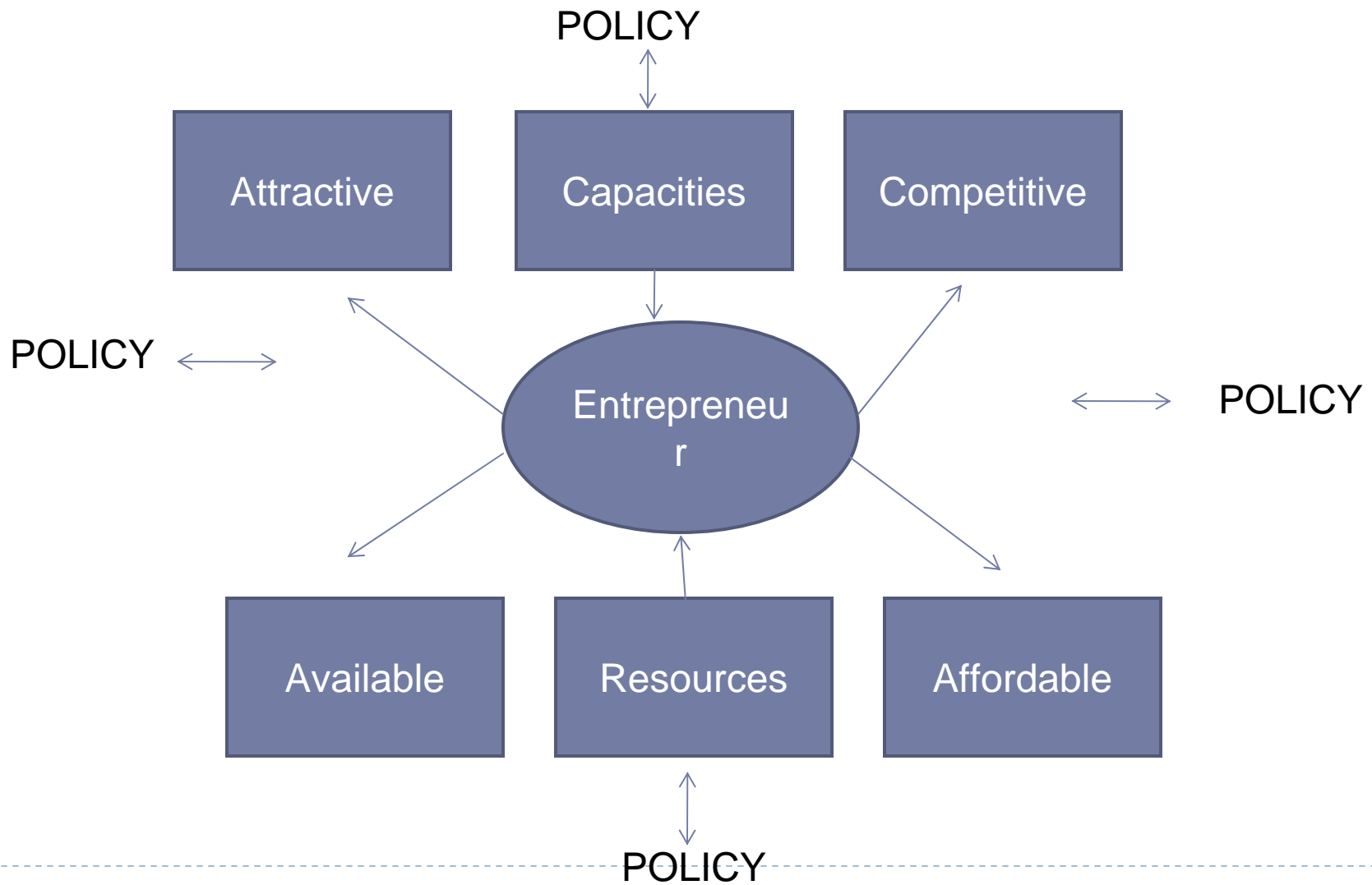


Importance of Private Sector Financing

- ▶ Public financing for clean energy is important but expected to contribute only a small share of total investment needed for low-carbon transition in DCs [of total need of USD 22 trillion for energy investment as projected by IEA]. Private Sector will need to contribute lion's share.
- ▶ Hence important to understand drivers of private sector investment and the main elements of an enabling environment.



Drivers of Technology Diffusion



What are some drivers of private sector investment in climate-friendly technologies?

- ▶ General climate for doing business (infrastructure, political and macro-economic stability, market-size, skilled and educated labor force, rule of law, financing and credit).
- ▶ Possible Climate-specific drivers: Domestic energy policy and regulation (standards, pricing and subsidies), voluntary and binding commitments towards GHG reduction, access to information and transparency on climate investment opportunities, availability of climate finance including on concessionary terms (venture capital, commercial credit for climate investment), domestic carbon markets, IPR regimes, voluntary market-based incentives (labelling).



Why Climate Change Technology Investment Index (CCTII)?

- ▶ Provide information to help guide and target donor assistance and developing country reforms to address key barriers that will improve the enabling environment for private sector investments in clean technologies;
- ▶ Provide valuable information to help guide and target private sector investment in 'climate mitigation' technologies which would also include clean energy as well as energy efficient technologies in developing countries;
- ▶ Help focus the catalytic public resources towards helping developing countries develop, establish and enhance enabling environments that are essential for enabling and catalyzing the needed private sector resources;
- ▶ Providing an independent, third party source of information on nationally appropriate actions by developing country Parties in the context of sustainable development, that contribute to establishing and enhancing the necessary enabling environments to promote long-term, sustainable investment in climate technology for

Technology Coverage-Illustrative

- ▶ *Renewables*
- ▶ Solar
- ▶ Wind
- ▶ Small-hydro
- ▶ Energy storage
- ▶ *Energy-efficiency*
- ▶ Insulation
- ▶ HVAC
- ▶ Lighting
- ▶ Appliances
- ▶ *Clean Coal and CCS*



Constructing the Country Specific CCTII

Identifying Variables, Data Collection and Ranking (Scale of 0-10)

- ▶ Questionnaires/Surveys
- ▶ Review of public regulations
- ▶ Review of overall investment indices
- ▶ Review of climate-specific drivers
- ▶ Interviews with policy makers, private-sector representatives, industry associations.



Constructing the Country Specific CCTII

Building the Index

- ▶ Ranking across categories (Scale of 0-10)
- ▶ Simple Average
- ▶ Weighted Average

Cross-country Comparison of Indices

- ▶ Pilot exercise for South Asian countries



Illustration of Index Variables

I. **Policy and Regulation**

- ▶ Building codes
- ▶ Standards and labelling
- ▶ Utility demand-side management programmes
- ▶ Investment subsidies, financial incentives and other fiscal measures
- ▶ Public sector leadership programmes and public procurement policies
- ▶ Promotion of energy service companies (ESCOs) and energy performance (EPC)
- ▶ Energy-efficiency obligations and tradable energy efficiency certificates
- ▶ Technology research, development, demonstration and deployment (RD&D)
- ▶ Voluntary Commitments to Reducing GHGs



Illustration of Index Variables

Policy and Regulation (...Contd)

- ▶ Internationally binding commitments to reducing GHGs
- ▶ Existence and enforcement of IPR regime
- ▶ Tariffs and Non-tariff barriers
- ▶ Internal Taxes (Carbon tax, taxes on energy-intensive products)



Illustration of Index Variables

II. **Availability of Information on Climate Investment Opportunities**

- ▶ Government websites
- ▶ Mass-media
- ▶ Trade fairs on climate technologies

III. **Availability of Financing**

- ▶ Commercial Credit
- ▶ Venture Capital Funds
- ▶ Concessionary Loans



Illustration of Index Variables

IV. Market-based Mechanisms

- ▶ Carbon Markets (Eg: Existence of cap and trade schemes)
- ▶ Existence of CDM Opportunities
- ▶ Voluntary Market Incentives



Benefits of CCTII

- ▶ Transparent: factual information about what laws and regulations say and how they are implemented.
- ▶ Easily replicable.
- ▶ Tool to stimulate clean investments in the country (e.g. Rwanda Doing Business Rank:150-143-67).
- ▶ Clearly identify areas where a country need to improve.
- ▶ Independent verification of nationally appropriate actions (NAMAs).



Thank you

