

## Finance for international transfer of mitigation technologies

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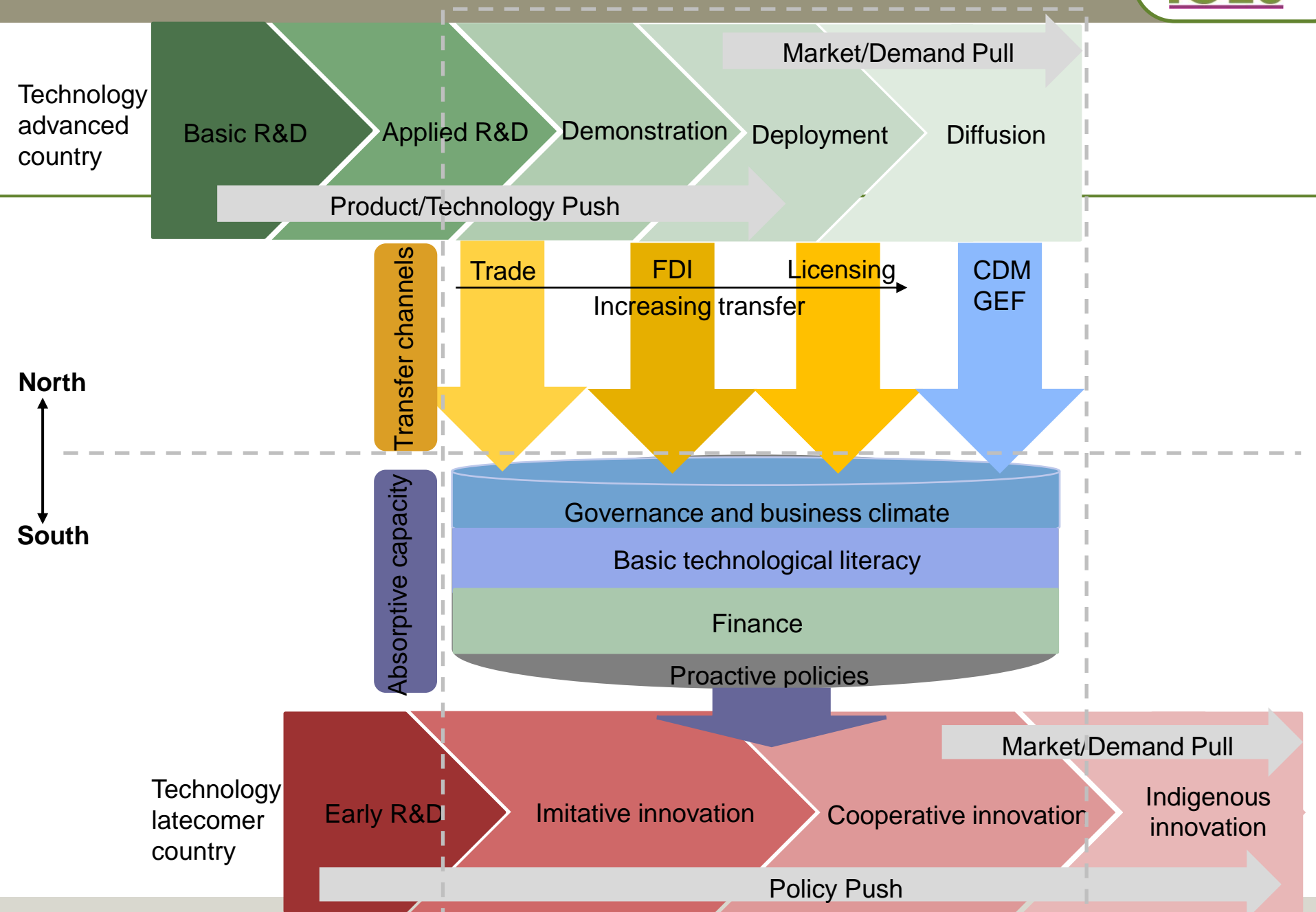
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# Outline

- Conceptual framework
- Current status of technology transfer
- Financing costs (debt, equity) in developing countries
- Conclusion

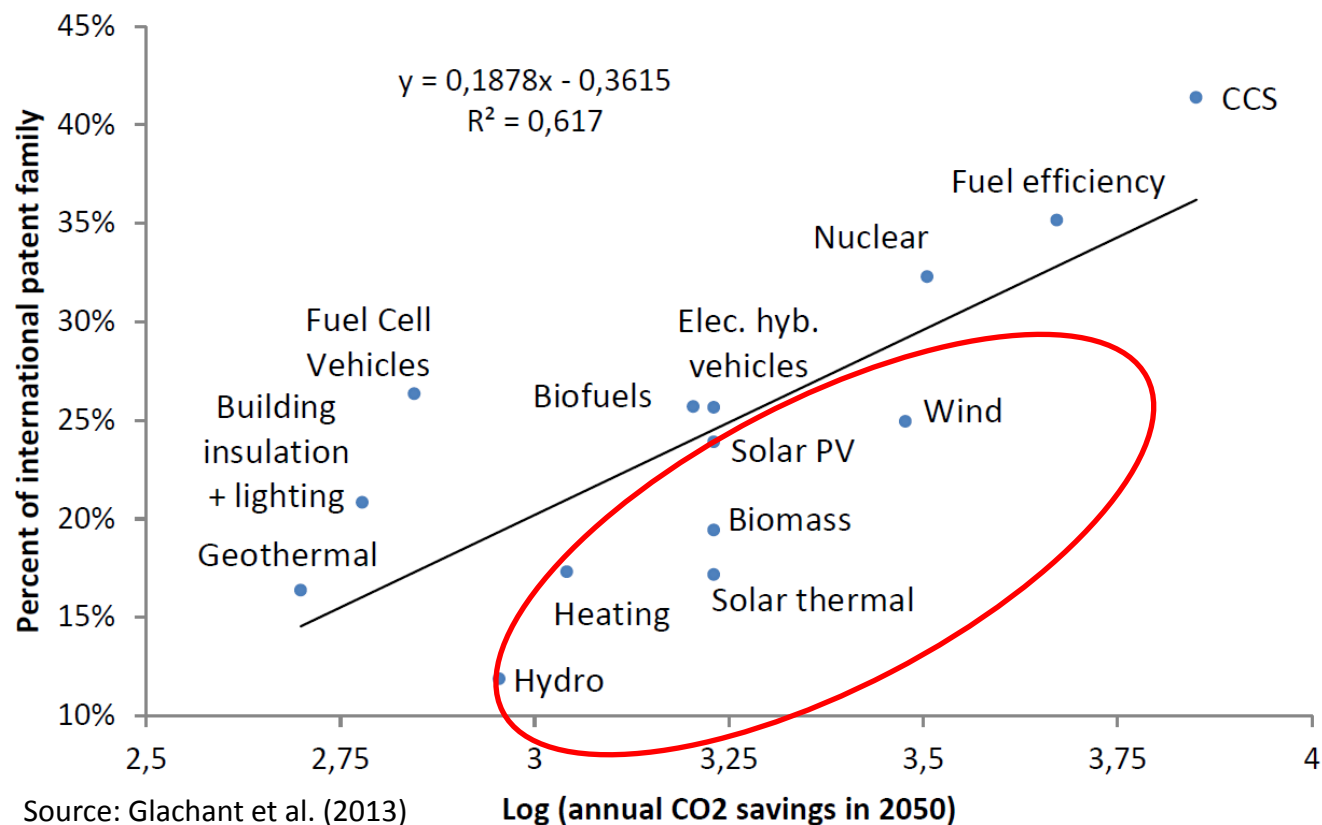


# Conceptual framework

- TT is a complex, challenging and unspontaneous process. Access to finance is one important element.
- The private sector plays a crucial role. What role the public sector should play to incentivize the private sector is a fundamental question for TT.
- The impact of financing costs and credit constraints on the receptivity of TT is an area with significant knowledge gap (IPCC, 2014).

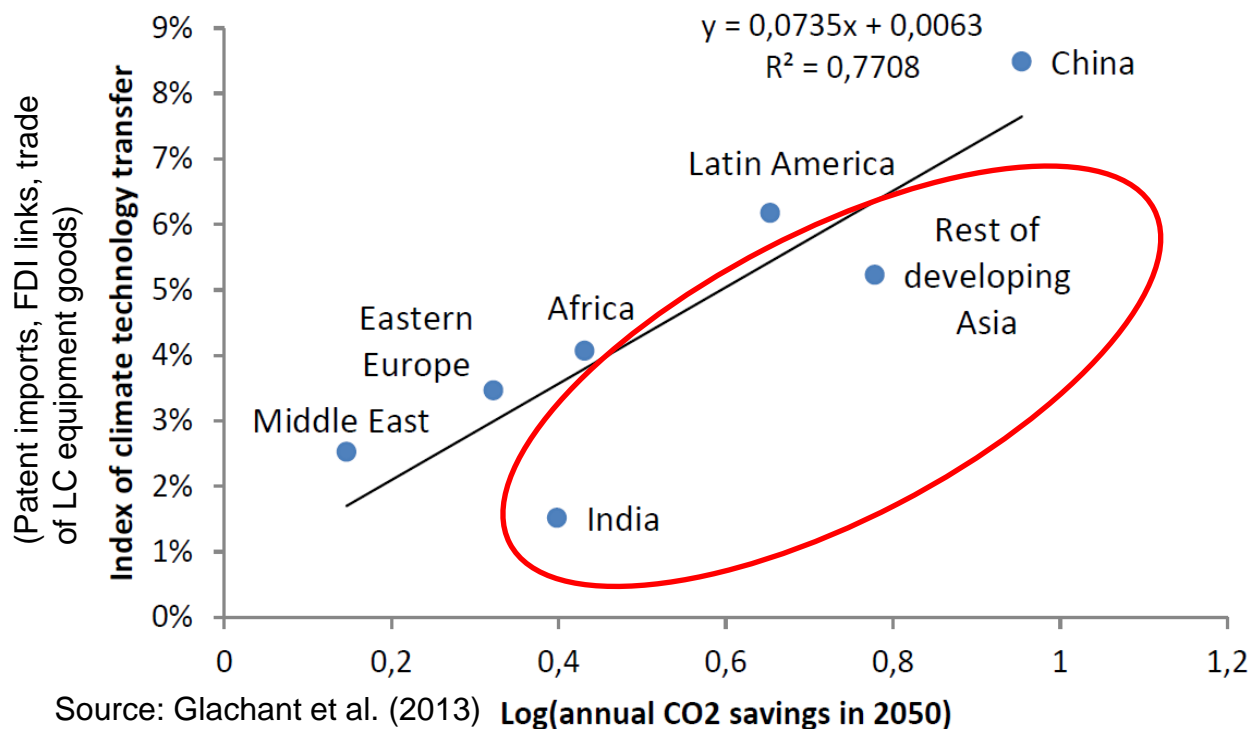
# The level of TT

- The technologies below the line are the ones with significant abatement potential but little transfer.



# The destination of TT

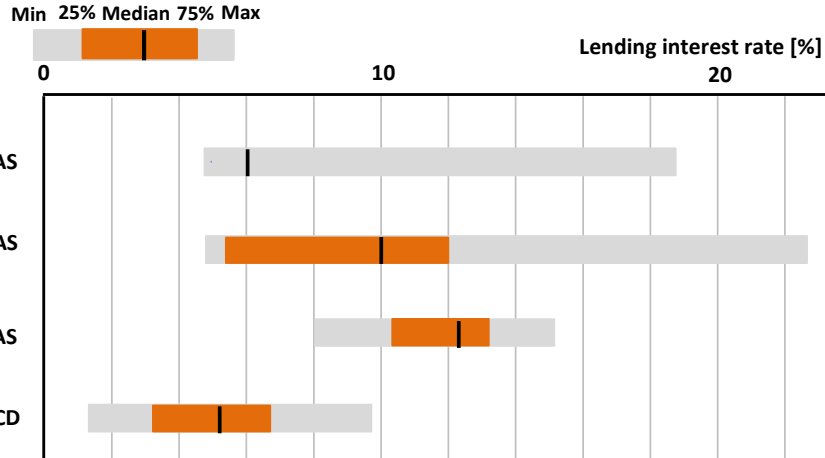
- India and the rest of developing Asia are regions where the level of TT does not match their abatement potential.



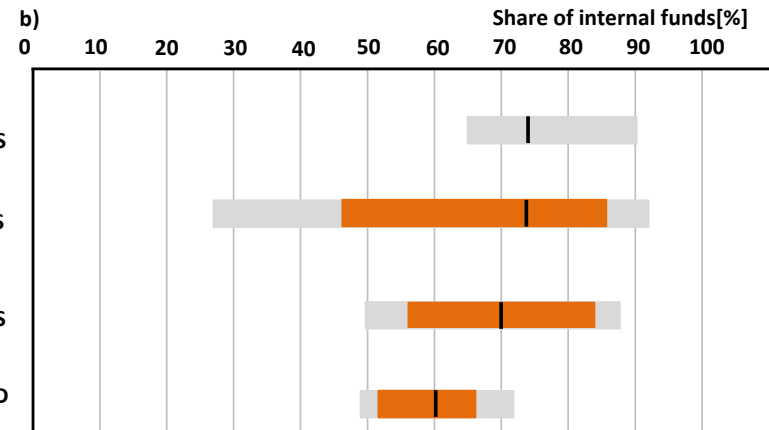
# Financing costs

- What are the additional financing costs resulting from differences in country contexts (i.e., investing a mitigation project in a developing country vs. making the same investment in a developed country)?
- What are the additional financing costs due to the characteristics of mitigation technologies (i.e., investment of mitigation technology vs. investment of general technology)?

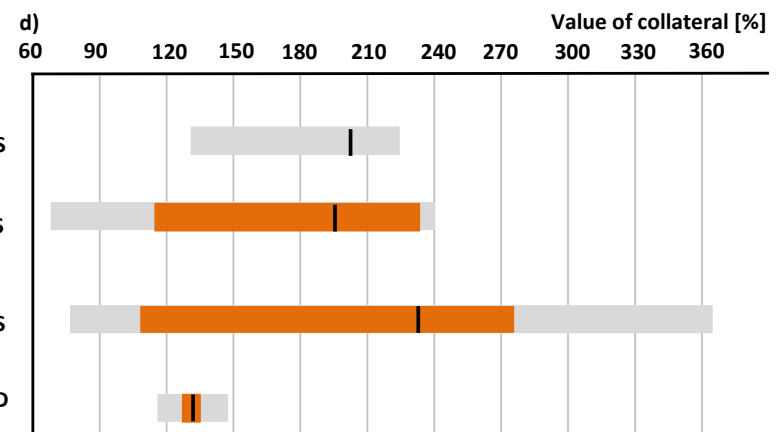
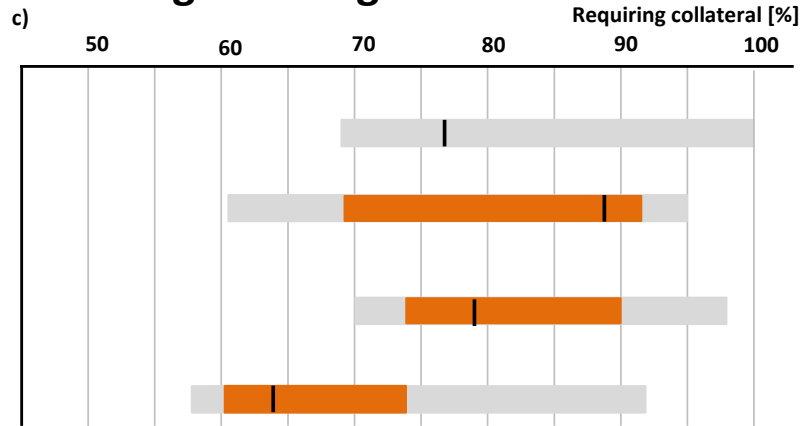
# Debt costs



## 1. High lending interest rates



## 2. Excessive reliance on internal funds



## 3. Heavy burden imposed by collateral requirements

Source: Enterprise Surveys (2014); World Bank Data (2014).  
 Statistics refer to the year 2013 or the most recent year available.



# Debt costs for mitigation projects

- Mitigation projects have low collateral value due to the characteristics of mitigation technologies.
- Mitigation projects must compete with mature technologies in the same sector (i.e., renewable energy vs. coal fired plants) for loans.
- Project loans are generally not popular in developing countries for mitigation projects.

# Equity costs

- Equity investors in developing countries are willing to take low initial internal rates on return (IRRs) for strategic considerations.

Equity investor	Investment area	IRR expectation
Venture capital	Early stage or growth stage companies, new technology prototypes	>50%
Private equity	Pre-IPO companies, mature technology, technology demonstrator, make returns in 3 to 5 years	35%
Infrastructure fund	Proven technology in infrastructure, a long term investment horizon	15%
Pension fund	Proven technology	15%

Source: UNDP (2011)

	Solar PV	Solar CSP	Biomass Power	Wind	Small hydro
IRR expectation	12-15%	14-20%	20-25%	15-18%	17-20%

Source: CPI (2012)

# Conclusion

- In the short term, high debt cost is the most pressing problem that restricts technology diffusion into developing countries.
- Equity finance is not a major problem in the short term, but equity costs are expected to increase in the future.
- Cost advantages such as cheap labour, resources and construction costs in developing countries are therefore easily eliminated due to high financing costs.



***Thank you very much for your attention***

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