

KEY FINDINGS OF “ANALYSIS OF TECHNOLOGY TRANSFER IN CDM - UPDATE 2008” STUDY

Background information:

- This study is an update of the study in Technology Transfer in CDM conducted in 2007, which was based on 2,293 PDD of CDM projects in the pipeline as of end of September 2007
- Key source for this study: PDD of 3,296 projects in the CDM pipeline (registered and proposed) as of June 2008, located in 67 host countries
- Scope of study: - Tech Transfer types used in CDM PDD¹
 - TT by project type (26 project types)
 - TT by host country
 - Technology supplier vs buyer participants
 - Origin of technology
 - Capital investment (*new feature in this study*)
 - Trend analysis/comparison from previous study (*new feature in this study*)
- Project participant general interpretation of TT in the PDDs: means to use of equipment and/or knowledge not previously available in the host country by the CDM project

Key findings:

- TT by project type (Ref: Table 1):
 - **36% projects** claims TT, and TT is more common for larger projects (representing **59% estimated emission reductions**), a slight decrease from last study figures: 39% projects, representing 64% estimated emission reductions, claim TT
 - Wide range: 10 ktCO₂e per year for Energy efficiency service - 4,305 ktCO₂e per year for HFC reduction projects (average 144 ktCO₂e)
 - Unilateral and small-scale projects involve less technology transfer, possibly due to their smaller size: Unilateral project constitutes 39% of all projects (accounting for 21% of estimated emission reductions); only 30% claims TT - comparatively similar to last study
 - Small-scale projects accounts for 45% of all projects (accounting for only 8% of estimated emission reductions); only 30% claims TT
- TT by host country characteristic:
 - TT is not systematically related to the host country population or per capita GDP
 - Frequency of TT claims is high for “Least Developed Countries” (65%) although the number of projects (23) is relatively small
 - China, India, Brazil, Mexico, and Malaysia – dominate the totals by sharing 80% of the total number of projects (representing 80% of the annual emission

¹ Tech transfer not defined in CDM Glossary of Terms, however the PDD form Section A.4.3 requested the project participant to “include a description of how environmentally safe and sound technology and know-how to be used is transferred to the host Party(ies).”

reductions). Mexico and Malaysia replaced South Korea as one of the major countries hosting CDM projects. However, only in Mexico where the TT claim of the projects is significantly high (91%)

- Host country can influence the extent of technology transfer involved in its CDM projects: The DNA approval criteria of these countries include provision for technology transfer or technology development
- Regression analysis with project type and host country:
 - Probability of technology transfer increases with project size and the GDP and declines for host countries with larger populations
 - Probability of TT increase if the project includes foreign participants.
 - Technology transfer is *more* likely for agriculture, HFC, N₂O, landfill gas, and wind projects and less likely for Biomass energy, Cement, Fugitive, and Hydro.
 - TT is less likely in Brazil, China, India, but more likely for projects in Bolivia, Ecuador, Guatemala, Honduras, Indonesia, Kenya, Malaysia, Mexico.
- Technology supplier vs. credits purchases
 - Significant share of credit purchases by Japan (67%), UK (66%), and Germany (42%) come from projects to which they supply technology.
- Nature and origin of technology transfer:
 - 53% of the projects that involve technology transfer (accounting for 47% estimated emission reductions) claim both equipment and knowledge transfers - comparatively similar to 2007 study
 - 32% of the projects (accounting for 38% of estimated emission reductions) claims transfer of equipment only - comparatively similar to 2007
 - 15% claims transfer of knowledge only - increased from 11% in 2007
- Origin of technology transfer (source: PDD and PP survey)
 - Japan, Germany, the USA, France, and Great Britain are the main origin of transfer of equipment and knowledge (70%) - same was observed in 2007
 - Japan is still the dominant supplier of technology for geothermal, EE own generation, HFC and Transport projects. Germany is the dominant supplier for EE households, N₂O projects, and EE supply-side
 - Brazil, China, India, South Korea and Chinese Taipei are the source of 94% of equipment transfers and 70% of knowledge transfers from Non-Annex 1 sources.
- Capital Investment
 - Estimated investment varies from US\$10/kt CO₂e for PFCs to \$5,349/kt CO₂e for solar (average \$325/kt CO₂e)
 - **Total investment for all 3296 projects in the pipeline is estimated at \$ 95 billion**, the investment in registered projects is less than \$ 5 billion
 - China accounts for more than half of total investment (\$50.4 billion), and India accounts for 20% (\$18.9 billion)
 - 40% of total investment represents capital invested in unilateral projects

- Trend analysis
 - Initial emission reduction profiles are dominated by a small number of large HFC, N₂O, and landfill gas projects. Over the last year, fossil fuel switch, hydro, EE own generation, and wind play greater role in contributing more emission reductions - the last two involve high rates of technology transfer
 - Analysis shows that as more projects of a given type are implemented in a country, the rate of TT declines for that particular technology
 - In general, China and Brazil show a downward trend in the share of projects and CERs that claim TT from the first 854 projects to the last 1000 projects (China: a decrease from 77% to 30%, Brazil: a decrease from 73% to 18%).