

***Comments on:
Mitigation by a Global Trade System***

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**Low Stabilisation Scenarios –
Strategies, Technologies and Costs
Joint Workshop of PIK and FEEM
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Areas of Agreement

- **Importance of timing of emission reductions**
 - Future technology will make emission reductions less costly
 - Scenarios reveal benefits and feasibility of R&D-based approach
- **What developing countries require to participate**
 - Assurance emission reductions will not limit growth
- **Attractive opportunities for low cost emission reductions in developing countries**
 - But what policies will achieve them?



Different Emphasis

- **Much less likely emission trading will achieve global action or emission reductions in developing countries**
- **Much larger opportunities for low cost emission reductions in developing countries in near term**
- **Much larger potential savings from allowing time for R&D**

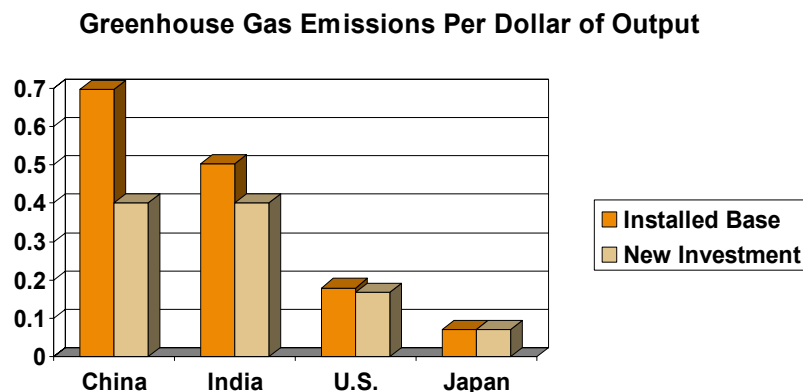


Problems with Global Emissions Trading

- **Sovereignty – impossibility of enforcing membership or compliance**
 - Kyoto Protocol is particularly weak but the problem is generic
- **Global public good**
 - What is worthwhile for each country depends on what all others do
 - Highly likely some members will encounter unexpected difficulties and abrogate agreement
 - *Expectation* of future noncompliance unzips the agreement
- **Rational expectation of private actors**
 - Long term investments will not be based on unreliable international price of carbon



Emission Trading and Developing Countries



- **Large gap in emissions/GDP ratio between developing countries and U.S., EU and Japan**
 - Even new investment in China and India has emissions/\$GDP twice that of the US
 - Use of economic technologies in new investment and to replace existing capital could cut projected emissions 50 – 75% by 2020
- **Technology gap is due to fundamental institutional failures that emission trading will not repair**
 - Distorted pricing through controls and subsidies
 - Poor investment climate, lack of legal protections for investors, etc

Policy Focus Should Be On Fundamental Institutional Reform

- **A market-based investment climate is required to attract foreign direct investment and technology transfer**
 - Prerequisite to other policies such as emission trading having an effect
 - Likely sufficient by itself to achieve large emission reductions over 20 years by closing the technology gap
- **Only route to combine emission reductions with greater growth for poor countries**
 - Continued institutional reform is critical to growth in China and India
 - Co-operative efforts can identify and give higher priority to reforms that also cure inefficient energy use and high emissions



Near Term Action In Developing Countries Has Large Benefits

- **Developing countries are not likely to embrace any agreement that threatens their rapid industrialization and poverty reduction**
 - International comparison of carbon intensities suggests that even new investment in developing countries lags in technology
 - Large and cost-effective emission reductions are possible by replacing the existing capital stock and bring technology embodied in new investment up to levels now chosen in advanced economies
- **Technology transfer now and in the future requires a drastically improved investment climate in virtually all developing countries**
 - Near term strategy for developing countries should focus on promoting market reforms that are required for technology transfer and also conducive to economic growth
 - R&D is also required to provide new technologies that will allow developing countries to afford their role in a low stabilisation world



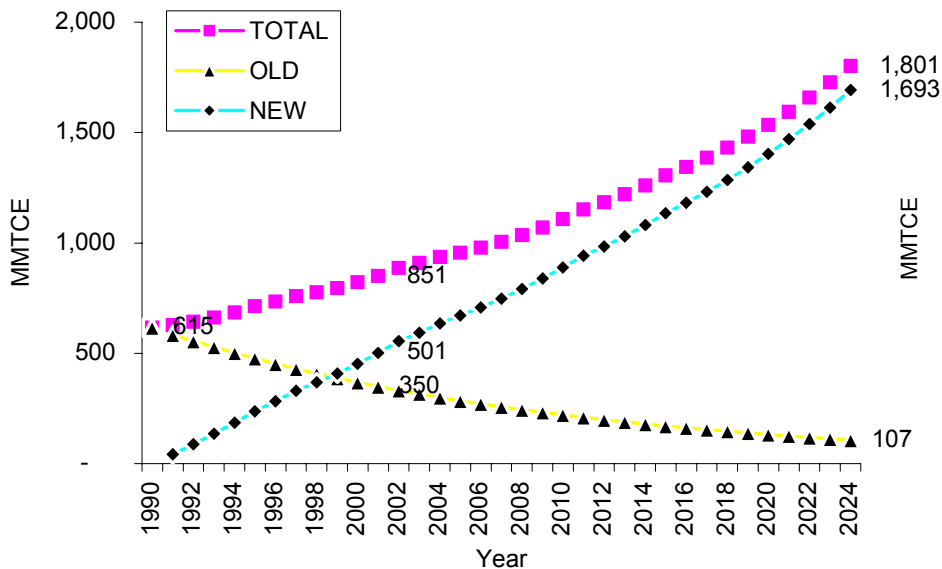
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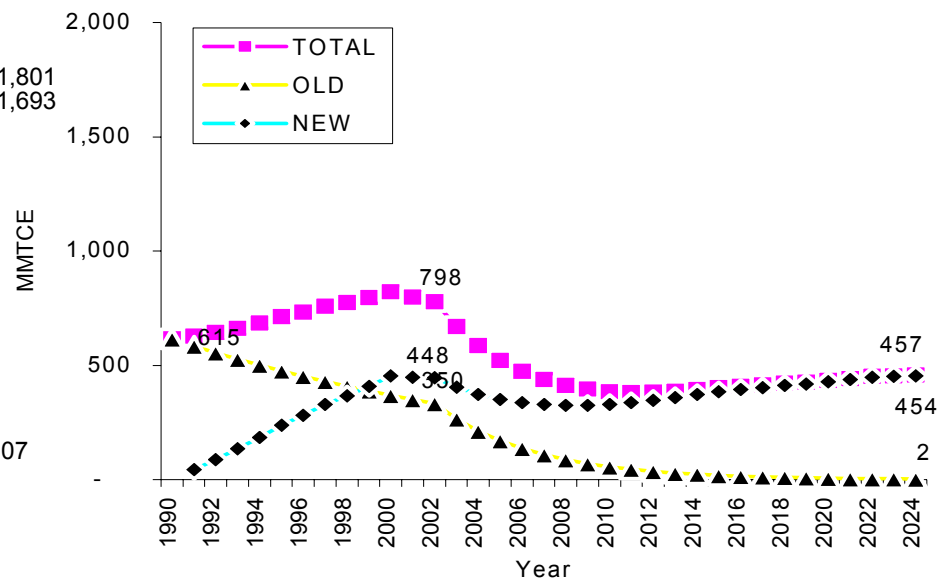
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Technology Transfer and Increased Investment Can Combine to Increase Growth Rates and Reduce Emissions

China: Emissions
(Basecase: Normal Replacement, China Technology)



China: Emissions
(Accelerated Replacement, Exponential Technology)



Cumulative Emission Reductions In Developing Countries Could Exceed Potential of Kyoto Protocol

	To 2012 (MMTCE)	To 2017 (MMTCE)
Adopt US technology for new investment in China and India	2600	5200
Adopt US technology with accelerated replacement in China and India	4200	7700
Adopt continuously improving technology with accelerated replacement in China and India	5000	9800
EU under Kyoto Protocol (without hot air)	600	1400
All Annex B countries under Kyoto Protocol (including US and hot air)	2800	7300



Solving the Growth Problem Can Solve the Climate Problem

- **New technology is embodied in new capital equipment**
- **Higher rates of investment will accelerate replacement of old capital with the new technology**
 - Higher rates of economic growth will push emissions up
 - Lower emissions per dollar of output will push emissions down
- **Greater protection of property rights and contracts and freedom of capital flows will stimulate new investment with world class technology**
- **Removal of subsidies and protection (explicit or through state-owned enterprises) will accelerate replacement of existing capital**



Framework for Implementing A New Approach – A Policy Toolkit

- **Different developing countries have different types of market imperfections so that one approach cannot fit all**
- **Activities for developing countries**
 - Legal and judicial reforms
 - Market reforms
 - Governance reforms
 - Opening of capital markets
 - Human resource and basic infrastructure development
- **Activities for developed countries**
 - Incentives or risk sharing for private direct investment and tech transfer
 - Continued dialogue and technical assistance to induce needed reforms
 - Incentives for appropriate R&D to sustain long term emission reductions