

**Symposium on
Asia LCS Scenarios and Actions: How to Achieve Sustainable Low
Carbon Society
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Integrating LCS Research Outcomes into Development Planning for a Sustainable Low Carbon Society in Asia

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LCS Measures and Sustainable Development

- Low carbon measures/options (e.g., RES, EETs, 3R) - mostly a subset of the sustainable development strategies
- Movement towards low carbon society => moving in a sustainable development path

Movement towards LCS requires Fundamental Changes

- **Behavioral** (“demand side changes”)
(consumption patterns, 3Rs, modal shift etc.)
- **Technology-mix** (Increasing role of RET, EET, and CCS)
- **Resource-mix** (Renewables/biofuels vs. Fossil fuels)
- **Planning outlook**
(short & medium vs. long term)

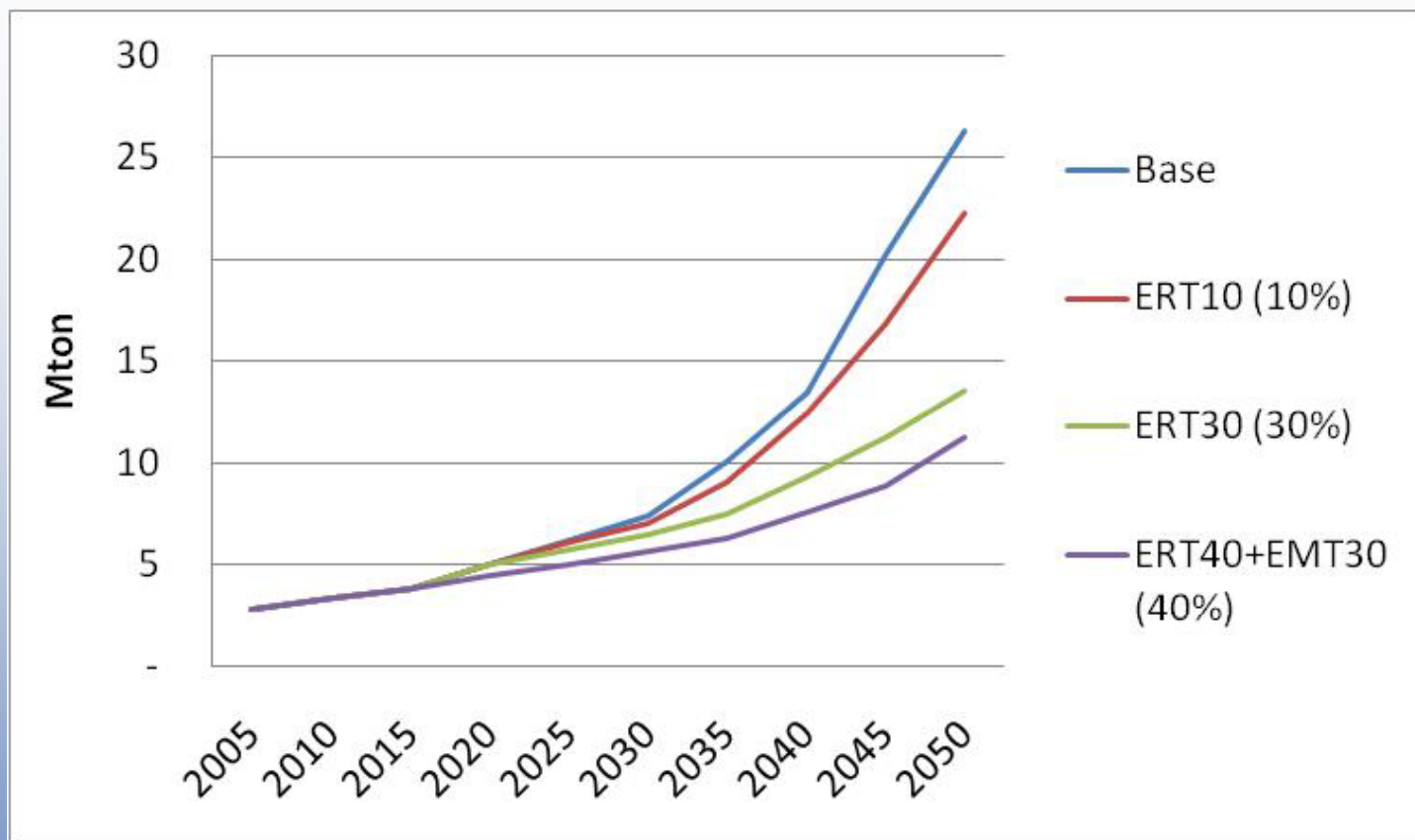
How could LCS Research help Sustainable Low Carbon Development Planning?

- Identification of **cost effective LCS options/measures** (including “no-regret” options) and assessment of their carbon abatement potential at a specific country or city level in Asia
 - The role of country or city specific studies
- **Co-benefits**: Types and their magnitudes
- **Timing**: When should a particular LC option be adopted?
- **Financing Implications**: How big are the total cost and financing implications of a LC option?
- **Barriers**: Kinds? Why are some no-regret options not implemented?
 - Understanding of non-cost barriers and formulation of policies and measures to overcome them

Case of Electric Mass Transport (EMT) as a LCS Option in Nepal

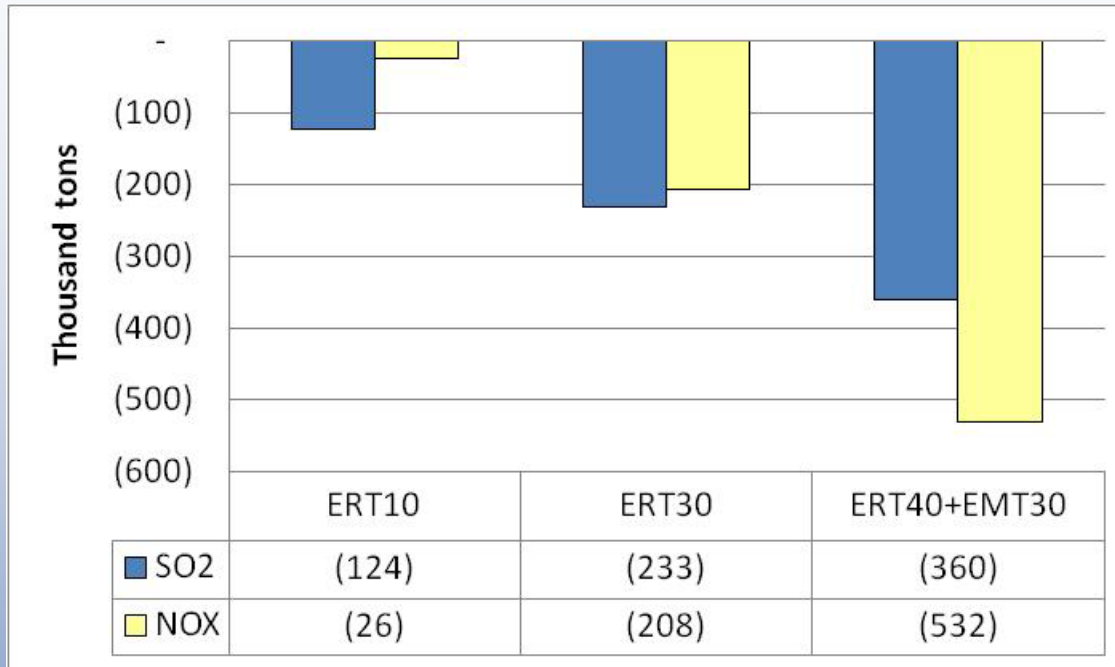
CO₂ emission under Base and Emission Reduction Cases

EMT enlarging the potential for a low carbon development:



- Cumulative emission of CO₂ in base case during 2005-2050: 421 Mtons.
 - Maximum cost effective emission reduction potential without the electric mass transport (EMT) option: 34%.
 - The potential would increase significantly to 43% if 30% of transport service demand was met by EMT during 2020-2050.

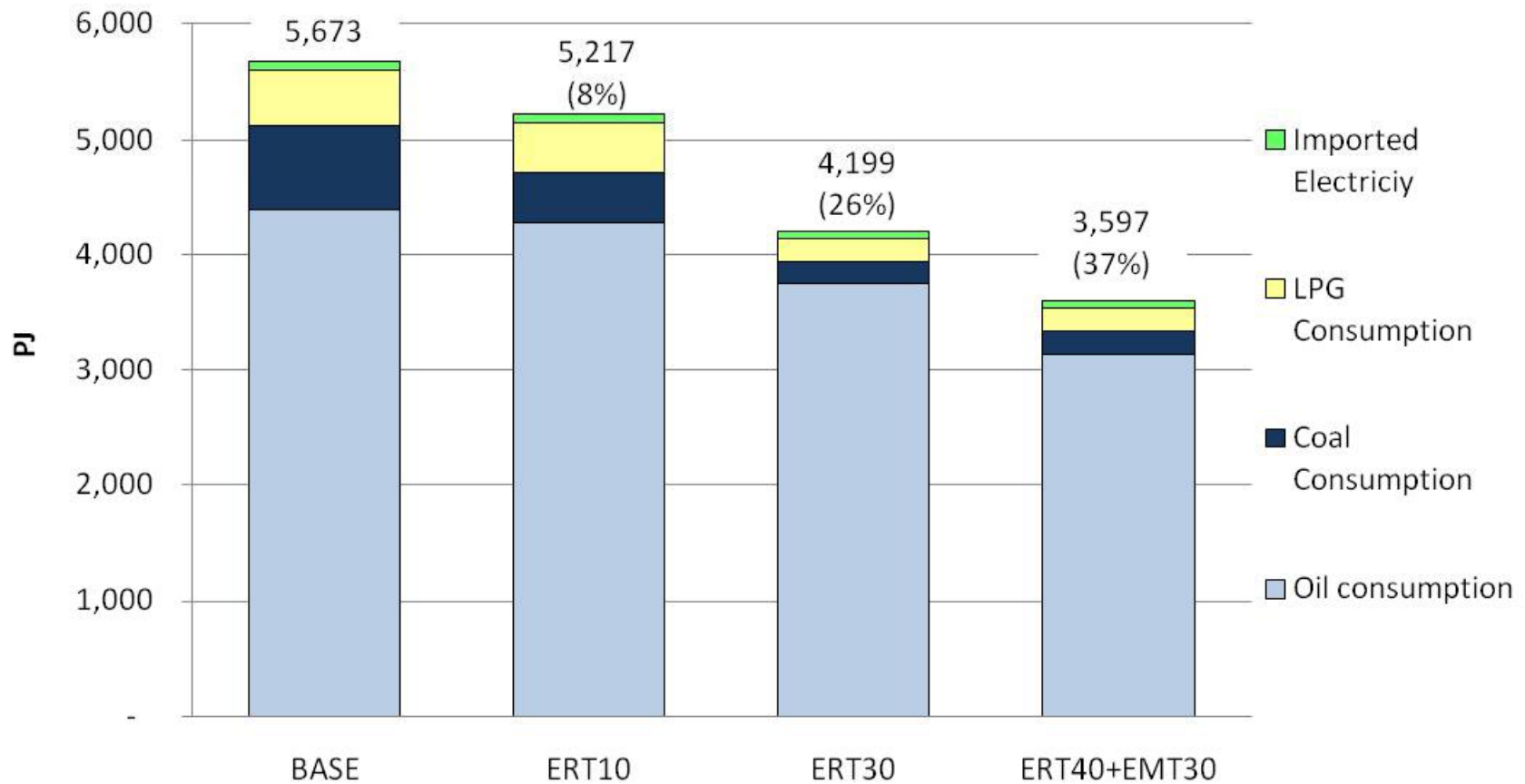
Co-benefits - Environmental: Cumulative reduction in local pollutant emissions



Case	SO ₂	NO _x
ERT10	-4.7%	-0.8%
ERT30	-8.9%	-6.8%
ERT40+EMT30	-13.8%	-17.9%

- 9% reduction in SO₂ emission and 7% reduction in NO_x emission under ERT30 without EMT.
- EMT reduces SO₂ by about 14% and NO_x by about 18%.
- Improvement of local environment quality and health.

Co-benefit - Energy Security : Reduction in Energy Import Requirements



- Decrease in energy imports during 2005-2050 by 37% in ERT40+EMT30.
- Improvement in energy supply security and over all trade balance.

Electric Mass Transport and Financing Implications

- Total cost would be slightly lower with CO₂ emission reduction target of 40% (when 30% EMT is considered) during 2020-2050 than the total cost with a lower emission target of 30% (when no EMT is considered).

=> EMT a no-regret option!

In the case of ERT40+EMT30:

- 40% more hydropower investment; i.e., 3.2% of GDP
- 36% more hydroelectricity generation requirement during 2020-2050.
- Investment in electric mass transport z 1% of GDP.
- Financing - a major challenge!

Role of International Carbon Finance/CDM in Transport Sector

As of 1 February 2011:

- Total No. of CDM projects in pipeline: 2,863
- Transport sector projects in CDM pipeline: 33
 - No. of transport projects registered: 5
 - No. of transport projects under validation: 27
- Total estimated CER of all projects in the pipeline: 789,019 kCER/year
- Total estimated CER of 33 transport projects: 3,539 kCER/year

(Source: <http://www.cd4cdm.org>)

- Unique features of transport CDM projects?

Some Issues

- Institutional and management challenges in sustainable mass transport system development and operation
 - Role of PPP ?
- Inter-sectoral coordination for integrated development energy and other infrastructures
- Need for a fundamental shift in infrastructure planning & development; matching infrastructure development with demographic characteristics and resource endowments
- Issue of non-cost barriers and financing

Thank You