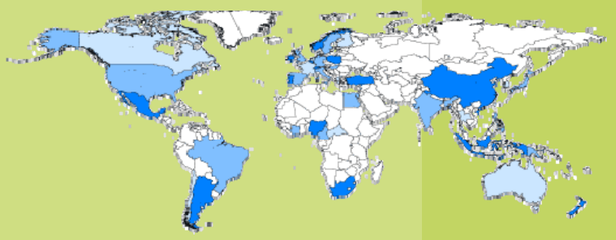
URGENT!

There is an urgent need to involve transport as a major sector in the climate change negotiation. WCTRS could help UNFCCC and the IPCC to promote this process.

WCTRS (World Conference on Transport Research Society)

The WCTRS covers multi-modal, multi-disciplinary, and multi-sectoral fields. The members span almost all aspects of transportation research, planning, policy and management. The World Conferences held every 3 years mirror this breadth of interests. 67 countries are represented in the WCTRS, with more than 1,500 members.

President: Anthony May (University of Leeds, UK)
Chair of Scientific Committee: Yoshitsugu Hayashi (Nagoya University, Japan)



WCTRS SIG11 (Special Interest Group11) - Transport and the Environment

The SIG11 aims at seeking ways to establish effective mechanisms for mitigating environmental degradation due to transport in the international domain. The following topics are researched: a) Comparing the emission of greenhouse gas and air pollution between countries and cities, b) Diagnosing transport system and its resulting global and local environmental degradation and prescribing countermeasure policies, and developing an evaluation system of their performance, c) Providing scientific instruments for evaluation of international mechanism for environmentally sustainable transport and the methods to collect the necessary financial resources.

Sponsored by:

Global Environment Research Fund (S-6-5), Ministry of Environment, Japan

Supported by:

Graduate School of Environmental Studies & Global COE Program “From Earth Science to Basic and Clinical Environmental Studies”, Nagoya University, Japan
College of Architecture and Urban Planning, Tongji University, China

Contact:

Hayashi and Kato Laboratory, International Center for Sustainable Transport and Cities (SUSTRAC), Graduate School of Environmental Studies, Nagoya University, Japan
Address: 464-8603, C1-2, Nagoya, Japan
TEL: +81-52-789-2773
E-mail: tracc@genv.nagoya-u.ac.jp
Website: http://www.sustrac.env.nagoya-u.ac.jp/en/

PUTTING TRANSPORT INTO CLIMATE POLICY AGENDA

- Recommendations from WCTRS to COP16 -

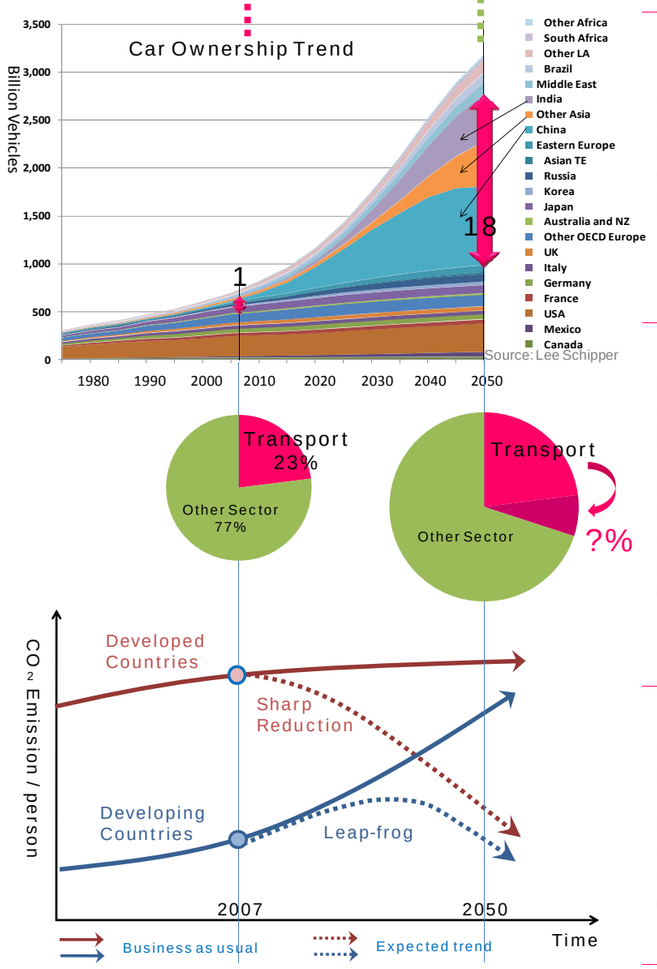
World Conference on Transport Research Society (WCTRS)
http://www.wctrs.org/

December 2010

Upgrading Transport to a Key Sector

Can Developing Countries Take Leap-frog Pathway?

NOW FUTURE



● According to IEA's forecasts, China, India and other Asian developing countries are expected to have significant growth of car ownership, 18 times larger by 2050.

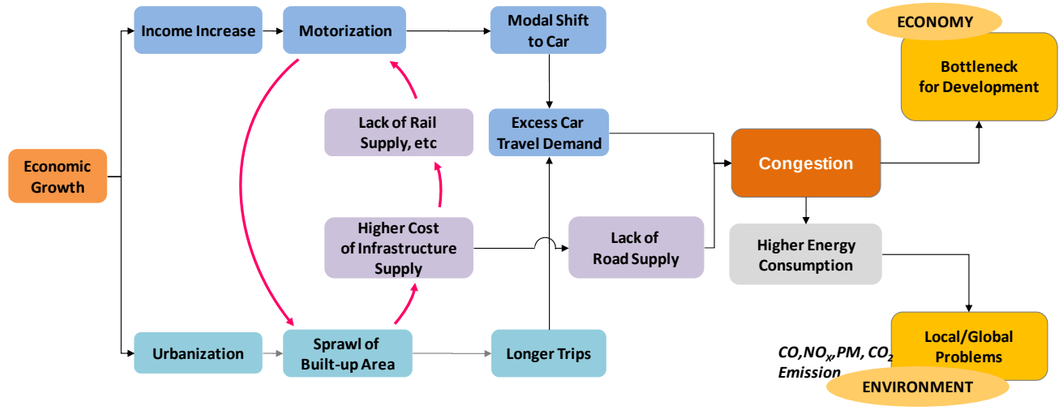
● Transport accounts for 23% of CO_2 emissions (2007), amounting to 6.6 Gt-CO_2, and it is the fastest growing sector for carbon emissions. Given the expected drastic growth in car ownership in developing countries, the influence of transport sector on climate change shall not be neglected.

● To avoid the BAU pathway, which may lead to a catastrophe, "Sharp Reduction" should be implemented in developed countries, and "Leap-Frog" should process in developing countries.

Mechanism of CO_2 Increase in Urban Transport

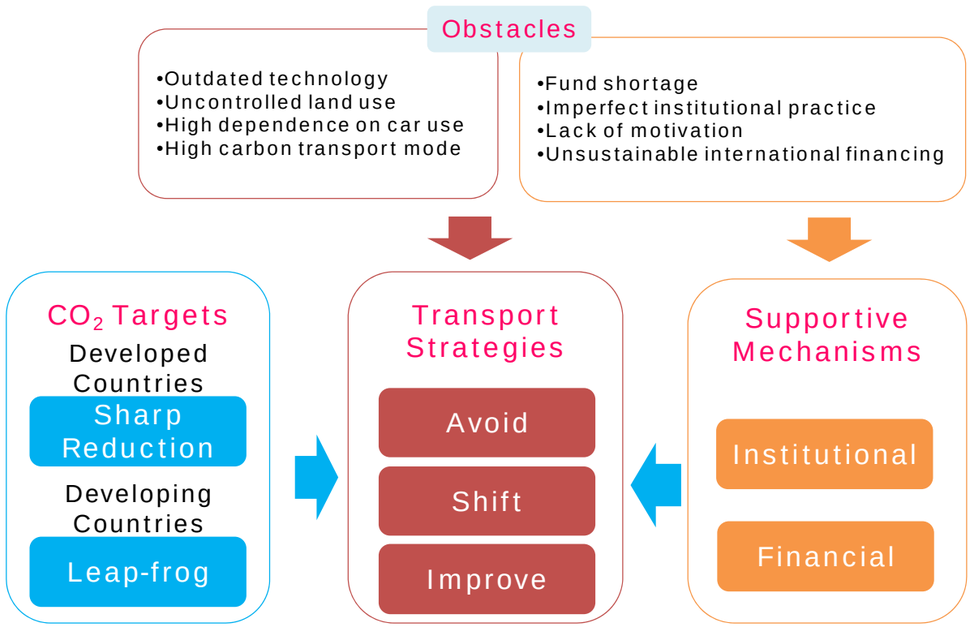
The Vicious Circle in Urban Transport

● Economic growth raises household's income to promote motorization. Motorization attracts people to locate their houses in a sprawl manner. This makes public transport systems, suffer from low patronage and also from higher cost of construction of their infrastructure due to increasing land values. In this way, urban land use-transport systems will fall into a vicious circle to produce more and more congestions and emissions, and even economic bottlenecks.



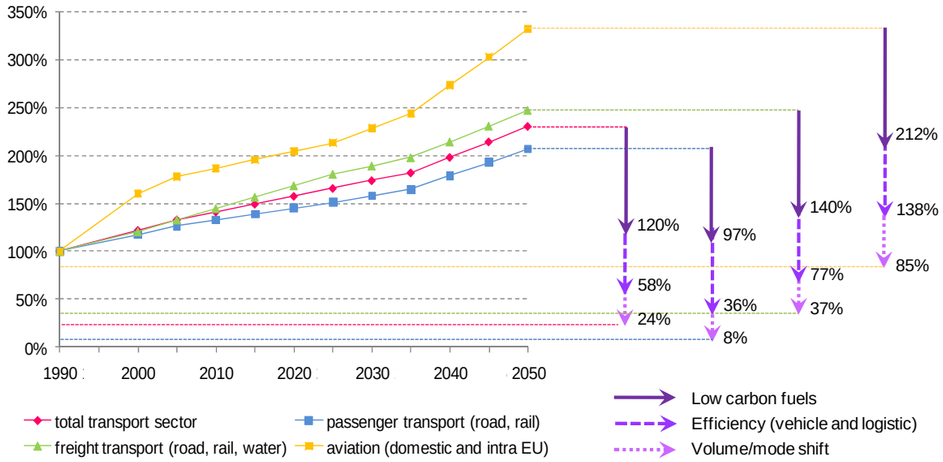
Overcoming Obstacles

Leap-frog in Developing Countries is Required



Sharp Reduction in Developed Countries:
Innovative Technologies

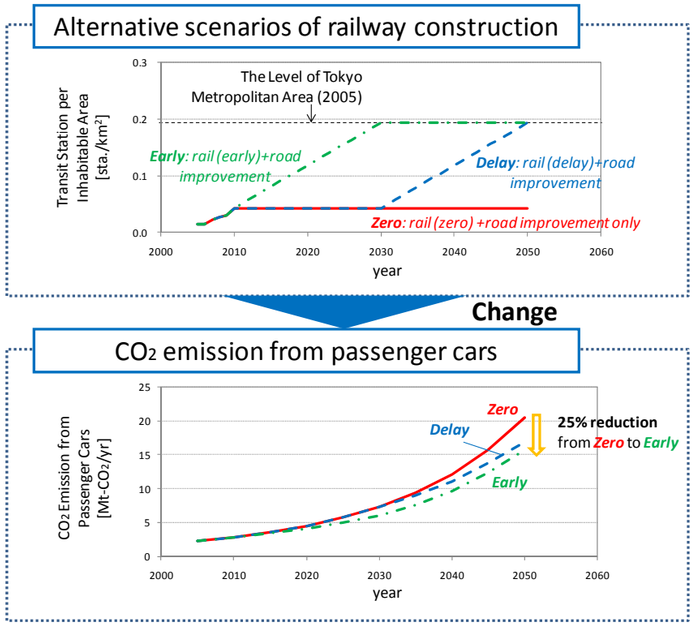
Innovative Technologies Contributes to CO_2 Reduction in EU



(Source: Karst Geurs, Getting into the Right Lane for 2050, Netherlands Environmental Assessment Agency, 2009)

Leap-frog in Developing Countries:
Green Transport Systems

Early Improvement Reduces More CO_2



● For a megacity which is lack of railway infrastructures, the scenario of "early improvement on rail" is highly recommended. Earlier construction could make it citizens to grow up their habits to use railways and bring on less CO_2 emission from transport sector in future.

Case of A Megacity in Developing Country

Source: Hayashi & Kato Lab, Nagoya University, 2010

Mitigation Options: CUTE Matrix

● According to the WCTRS project "Comparative study on Urban Transport and the Environment (CUTE) (2001-2004)", a matrix of mitigation and adaptation options was developed (CUTE Matrix).

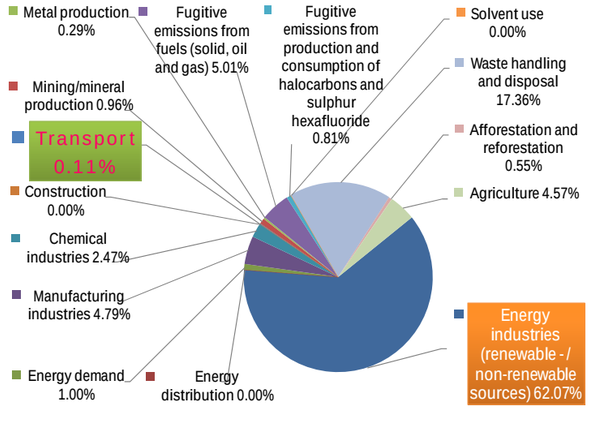
● The strategies for low-carbon transport have 3 components: Avoid (reduce transport demand), Shift (reduce emissions per unit transported), Improve (reduce emissions per kilometer). Each strategy would have one or more instruments that could be used to enhance low carbon transport - these include technological, regulatory, informational and economic instruments - as seen in the matrix below.

CUTE Matrix		Strategies		
		Avoid	Shift	Improve
		Reduce transport demand	Reduce emission per unit transported	Reduce emissions per kilometer
Instruments	Technological	Transit Oriented Development Pedestrian Oriented Development Bicycle Oriented Development	Integrated Public Transport System Highly Competitive Railway Intermodal Freight Transport	Low Emission Vehicle Alternative Energy Advanced Infrastructure Technology Logistic Efficiency
	Regulatory	Compact City Mix Land Use Parking Regulation Traffic Restriction / Bans	Bus/Tram Priorities Non-Motorized Transport	Emission Standard Top Runner Program
	Informational	Information and Communication Technologies Telework Smart Choice on Workplace and School	Awareness Campaign	Eco-Drive Intelligent transport system Labeling of Vehicle Performance
	Economic	Car Purchasing Tax Fuel Tax Road Pricing Relocation Subsidy	Car Registration Tax Fuel Tax Road Pricing	LEV Preferential Tax Fuel Tax

Reference : WCTRS and Institute for Transport Policy Studies (2004) Urban Transport and the Environment: An International Perspective. Elsevier Ltd.

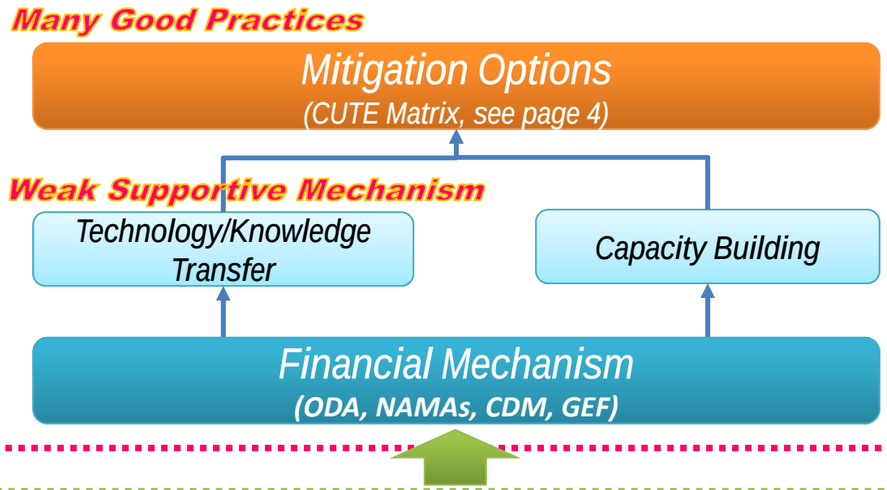
Weak Supportive Financial Mechanism

Only 3 Projects for Transport in 2270 CDM Projects



Sectoral Scope	Registered Projects
Energy industries	1684
Energy distribution	0
Energy demand	27
Manufacturing industries	130
Chemical industries	67
Construction	0
Transport	3
Mining/mineral production	26
Metal production	8
Fugitive emissions from fuels (solid, oil and gas)	136
Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	22
Solvent use	0
Waste handling and disposal	471
Afforestation and reforestation	15
Agriculture	124

Realizing Mitigation in Transport Sector



Proposers

(Task Force on Climate Change in WCTRS-SIG11)

- David Banister, *University of Oxford*
- Pierpaolo Cazzola, *IEA*
- Yves Croze, Hector G. Lopez-Ruiz, *LET, University of Lyon II, France*
- Atsushi Fukuda, *Nihon University, Japan*
- Karst Geurs, *University of Twente, Netherlands Environmental Assessment Agency, Netherlands*
- Jiro Hanyu, Yuki Tanaka, *Institution for Transport Policy Studies*
- Yoshitsugu Hayashi, *Nagoya University, Japan (SIG11 Co-chair)*
- Ian Hodgson, *EU Commission*
- Ali Huzayyin, *Cairo University, Egypt*
- Reiner Koblo, *German Development Bank, Germany*
- Jamie Leather, *Asian Development Bank*
- Tony May, *University of Leeds, UK*
- Hisayoshi Morisugi, *Nihon University, Japan*
- Fumihiko Nakamura, *Yokohama National University, Japan*
- Tae Oum, *University of British Columbia, Canada*
- Haixiao Pan, *Tongji University, China*
- Marco Ponti, *Milan Polytechnic University, Italy*
- Werner Rothengatter, Patrick Jochem, *Karlsruhe Institute of Technology, Germany*
- Ko Sakamoto, *Transport Research Laboratory*
- Wolfgang Schade, *Fraunhofer Institute for Systems and Innovation Research, Germany (SIG11 Co-chair)*
- Lee Schipper, *University of California Berkeley, Stanford University, USA*
- Sanjivi Sundar, *The Energy Research Institute, TERI University, India*
- Louis S. Thompson, *Galeson and Associates, USA*
- Michael Wegener, *Spiekermann & Wegener Urban and Regional Research, Germany*

NAMAs & MRV

Earlier Actions for AVOID:
Progress of motorization and urbanization is irreversible. Construction of low carbon transport network and land-use pattern requires a long period. Developing countries can not waste of time any more.

Methodology of MRV(Measurement/Report/Verification):
Rich technologies and knowledge should be integrated as practical methodologies and be transferred to developing countries.

Co-benefit:
Low carbon transport systems bring various positive effects to developing countries, convenient & comfortable trips, economic growth without bottleneck brought by traffic congestion, mitigation of local pollutions, and compact & smart landscape.

Market Mechanism:
Self-sustaining finance systems for NAMAs should be established. Value capture is one of the most promising methods to be realized by means of combination of taxation, subsidization, carbon charge, and etc.

From Project CDM to Programmatic CDM

The Programmatic CDM is not an option but a new scheme to realize a project which consists of a bundle of similar projects. Compared with traditional Project CDM, Programmatic CDM can absorb the risks of each individual CDM project due to uncertainty in reaching the emission targets proposed for the transport sector.

Green ODA

Long-term impact:
The volume of transport projects by ODA is huge among internationally transferred budget. Road construction is dominant compared to railways. And further automobile use and induce additional road improvement which brings more CO_2 emission in long term. AVOID of carbon-dependent transport requires the SHIFT of ODA to green modes.

Designing the market for the future CO_2 reduction:
CO_2 reduction effect of green transport takes a long time. However, the current carbon market treats only short term emissions and, therefore, does not adapt such long term effects as generated by transport projects. The expectation of future CO_2 reduction is considered to be financial products, e.g. carbon stock option and carbon futures.

CDM Compensation Fund

The CDM Compensation Fund avoids the risk for investors (firms in developed countries) to miss the emission credit due to uncertainty of achieving the expected CO_2 reductions. It should be established to reserve a certain percent (x%) of emission rights from each CDM project.