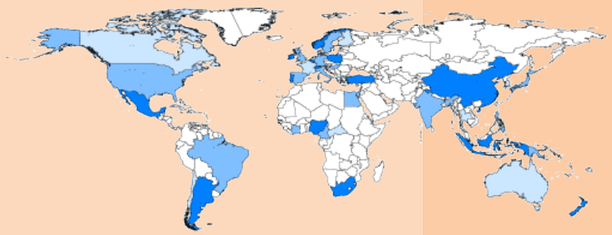
URGENT!

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.

Editors:
Yoshitsugu Hayashi, Kazuki Nakamura, Kei Ito, Aoto Mimuro,
Nagoya University, Japan

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Graduate School of Environmental Studies & Global COE Program “From Earth Science to Basic and Clinical Environmental Studies”, Nagoya University, Japan

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

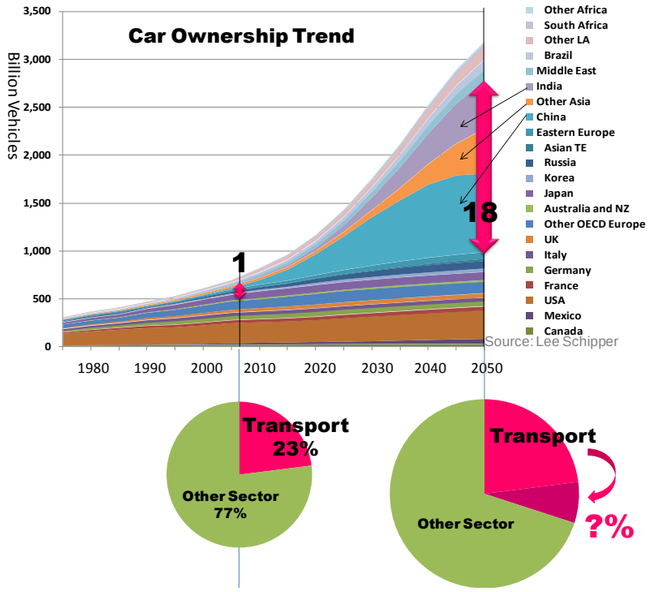
- Recommendations from WCTRS to COP18 -

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

November 2012

Upgrading Transport to a Key Sector

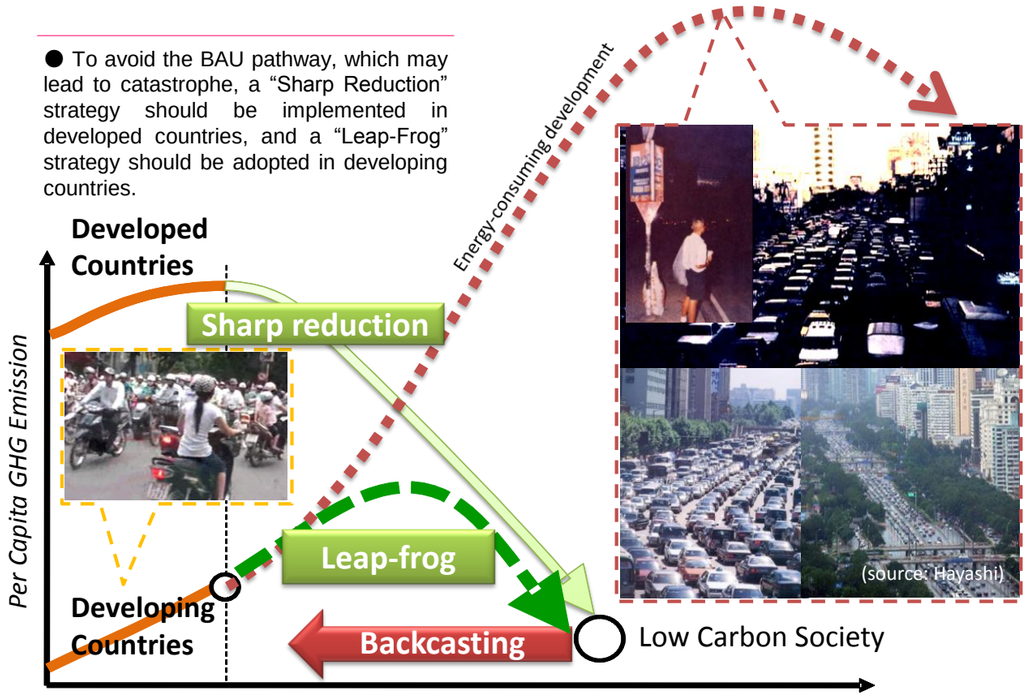
Can Developing Countries Take a Leap-Frog Pathway?



● According to IEA's forecasts, China, India and other Asian developing countries are expected to have significant growth in car ownership, an 18-fold increase from 2007 to 2050.

● The transport sector 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 dramatic growth in car ownership in developing countries, the influence of the transport sector on climate change must not be neglected.

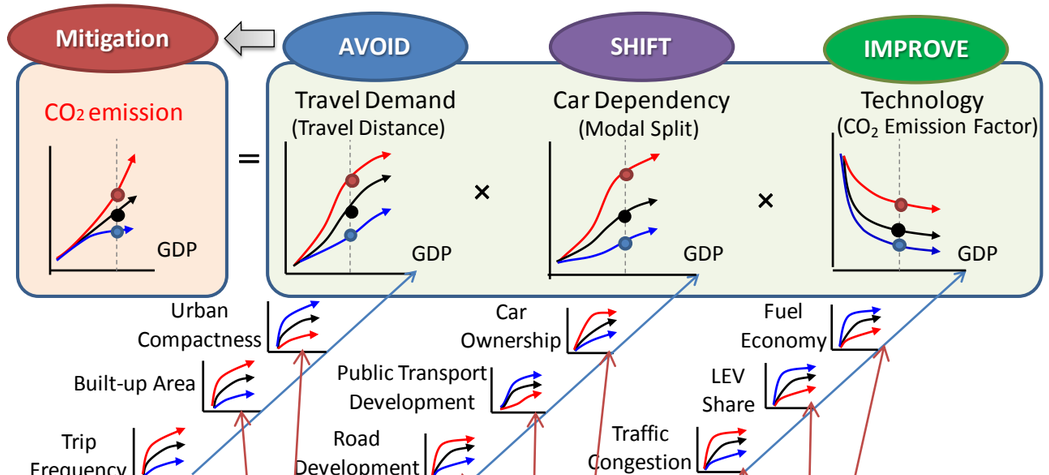
● To avoid the BAU pathway, which may lead to catastrophe, a "Sharp Reduction" strategy should be implemented in developed countries, and a "Leap-Frog" strategy should be adopted in developing countries.



Mitigation Options: the CUTE Matrix

● The mechanism of CO_2 emissions from transport can be decomposed into various elements of land-use transport systems and technologies. While economic growth is likely to change these elements in a way that causes more emissions, mitigation options need to be introduced to control the change in each element and hence to achieve a low-carbon transport system.

● In the pioneering work of the WCTRS project "Comparative study on Urban Transport and the Environment (CUTE)", a matrix of mitigation options was developed (the CUTE Matrix). The strategies for low-carbon transport have 3 components: **AVOID** (reduce unnecessary transport demand), **SHIFT** (reduce emissions per unit transported), **IMPROVE** (reduce emissions per kilometer). Each strategy should involve measures that include technological, regulatory, informational and economic instruments - as seen in the matrix below.



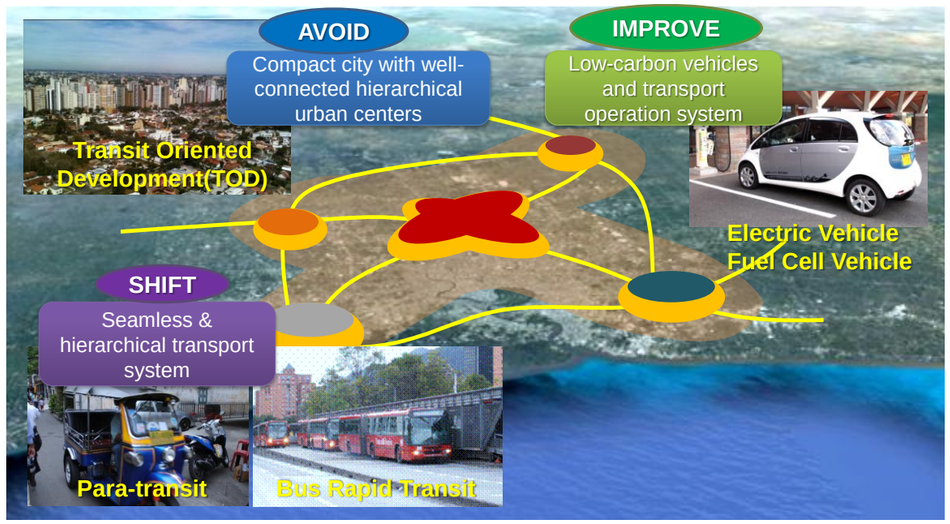
CUTE Matrix	Strategies		
	Avoid Reduce transport demand	**Shift** Reduce emission per unit transported	**Improve** Reduce emissions per kilometer
Instruments			
Technological	■**Transit Oriented Development (TOD)**	■Integrated Public Transport System ■**Highly Competitive Mass Transit System** ■Intermodal Freight Transport	■**Low Emission Vehicle (LEV)** ■Alternative Energy ■Advanced Infrastructure Technology ■Logistic Efficiency
Regulatory	■**Compact City** ■Mixed Land Use	■Bus/Tram Priorities ■Parking Regulation ■**Traffic Access Control**	■**Emission Standard** ■Top-Runner Program
Informational	■Tele-Work ■Smart Choice on Workplace and School	■Awareness Campaign for Public Transport Use	■Eco-Drive ■**Intelligent Transportation System** ■Labeling of Vehicle Performance
Economic	■**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.

Vision in Urban Transport

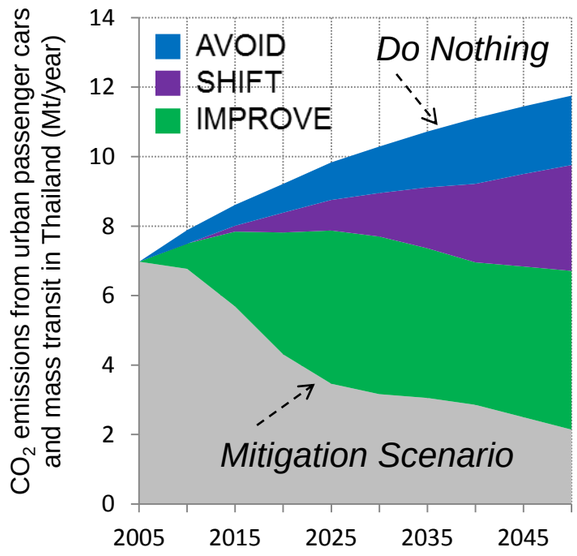
A Hierarchically Connected Compact City

● Low-carbon urban transport systems can be designed with a policy package among measures for land-use transport planning (**AVOID** & **SHIFT**) and advancement of transport technologies (**IMPROVE**). It is important to develop hierarchical land-use transport systems to meet long-term changes in daily travel demand, particularly the increasing local travel demand resulting from an ageing society.



A Necessary Policy Package

Early Implementation of Extensive Measures is Needed



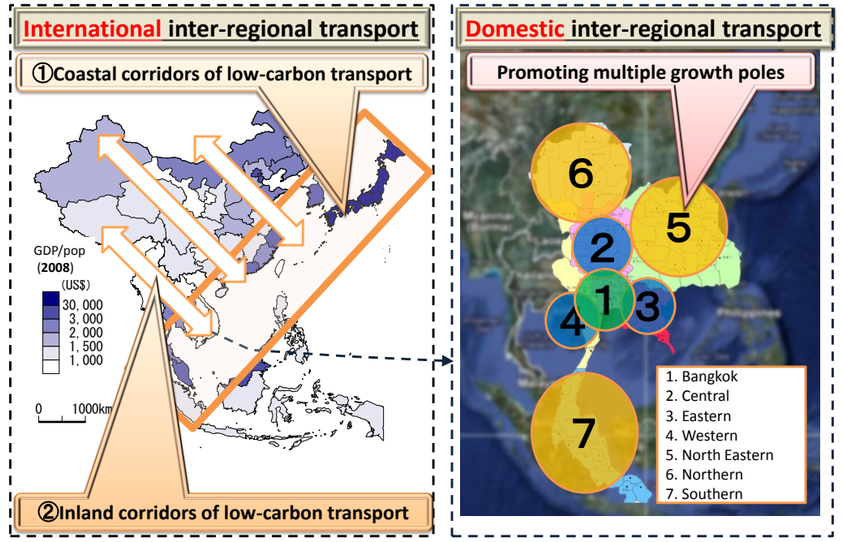
● The level of implementation of each strategy (**AVOID**, **SHIFT**, **IMPROVE**) to achieve a 70% reduction in CO_2 emissions from urban transport by 2050, as compared to the 2005 level, was examined for all urban areas in Thailand. The result showed that, even if all passenger vehicles are electrified (**IMPROVE**) and the urban expansion rate is reduced by 10 % from a Do-Nothing scenario (**AVOID**), large-scale development of trunk public transport would be needed, which amounts to 4,420 km of railways, 220 km of LRT (Light Rail Transit) and 1,260 km of BRT (Bus Rapid Transit) (**SHIFT**).

● Accordingly, it is important that policies to apply new technologies and change the land-use transport system are implemented extensively and urgently as a package in order to develop a low-carbon urban transport system in Asian developing countries.

Vision in Inter-regional Transport

Mainstreaming Rail and Water

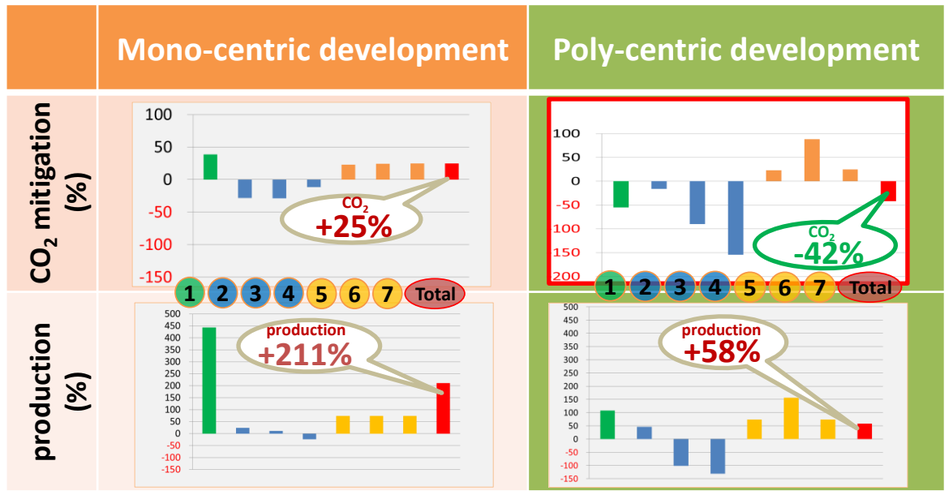
● Low-carbon inter-regional transport systems can be designed based on rail/water oriented inter-modal transport corridors (**SHIFT**), supported by strategic domestic development patterns (**AVOID**) and low-carbon vessel/vehicle technologies (**IMPROVE**).



Desirable Domestic Development Patterns

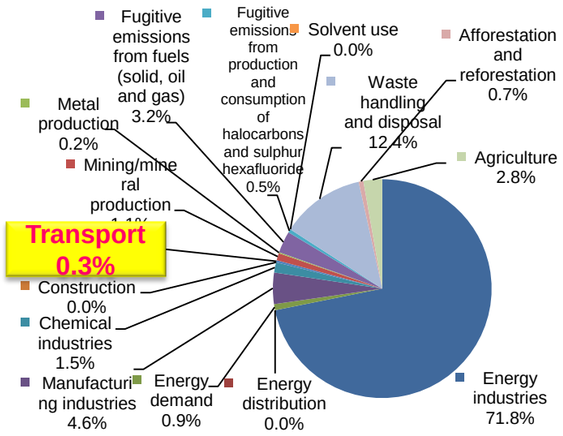
De-centralization Reduces More CO_2

● The impacts of spatial development patterns on the economy and CO_2 emissions from inter-regional transport in Thailand were examined. The result showed that, while the anticipated mono-centric development, concentrating development more in Bangkok, would generate further CO_2 emissions through inter-regional trading, a change to poly-centric development would achieve CO_2 mitigation.



Weak Supportive Financial Mechanism

Only 18 Projects for Transport in 5,716 CDM Projects (2012)

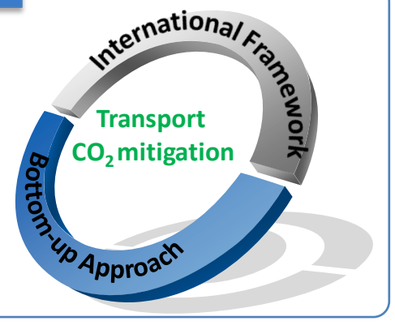


Sectoral Scope	Registered Projects
Energy industries	4106
Energy distribution	0
Energy demand	51
Manufacturing industries	265
Chemical industries	86
Construction	0
Transport	18
Mining/mineral production	61
Metal production	9
Fugitive emissions from fuels (solid, oil and gas)	183
Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	29
Solvent use	0
Waste handling and disposal	710
Afforestation and reforestation	40
Agriculture	158

Difficulty in Assessment for Transport Projects

Lack of Consideration of Long-term CO_2 mitigation from Transport Projects:

CO_2 mitigation effect from green transport takes a long time. However, the current carbon market treats only short term emissions and, therefore, does not support the long term effects as generated by transport projects. To deal with the issue, conventional international frameworks should be reformed. In addition, more bottom-up approaches are also needed to improve the feasibility of transport projects.



Proposers

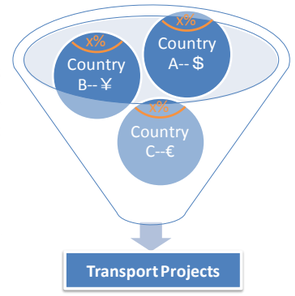
- **David Banister**, *University of Oxford, UK*
- **Pierpaolo Cazzola**, *International Energy Agency (IEA)*
- **Yves Crozet, Hector G. Lopez-Ruiz**, *LET, University of Lyon II, France*
- **Atsushi Fukuda**, **Hisayoshi Morisugi** *Nihon University, Japan*
- **Karst Geurs**, *University of Twente, Netherlands Environmental Assessment Agency, Netherlands*
- **Jiro Hanyu, Yuki Tanaka**, *(Formerly) Institution for Transport Policy Studies, Japan*
- **Shinya Hanaoka**, *Tokyo Institute of Technology, Japan*
- **Yoshitsugu Hayashi**, **Hirokazu Kato**, **Kazuki Nakamura**, *Nagoya University, Japan*
- **Ali Huzayyin**, *Cairo University, Egypt*
- **Reiner Koblo**, *KfW Development Bank, Germany*
- **Jamie Leather**, *Asian Development Bank (ADB)*
- **Anthony May**, *University of Leeds, UK*
- **Fumihiko Nakamura**, *Yokohama National University, Japan*
- ***Takaaki Okuda***, *Chubu Region Institute for Social and Economic Research, 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*
- **Wolfgang Schade**, *Fraunhofer Institute for Systems and Innovation Research, Germany*
- **Sanjivi Sundar**, *The Energy Research Institute (TERI), India*
- **Louis S. Thompson**, *Galeson and Associates, USA*
- **Michael Wegener**, *Spiekermann & Wegener Urban and Regional Research, Germany*

- **The late Lee Schipper**

1. Improvement of International Frameworks

a) CDM Compensation Fund:

The Clean Development Mechanism (CDM) helps developing countries to adopt less carbon intensive strategies. However, among the roundly 5,716 CDM projects authorized by 2012, only 18 have been transport projects. A major barrier is the requirement for a precise forecast of CO_2 reduction. A CDM Program Compensation Fund should be introduced to allow a fluctuation by a given percentage in emission rights from individual CDM project, while still achieving targeted reductions for the CDM program as a whole.



b) Green ODA:

The Official Development Assistance (ODA) program, an inter-governmental grant from developed countries to developing countries, is the largest financing resource for carbon reduction in developing countries. However, ODA projects are based on proposals from the recipient developing countries and the majority of transport proposals focus on the improvement of roads, which are likely to increase emissions of CO_2 and local pollutants. WCTRS proposes instead the concept of a 'Green ODA', which requires proof that the requested project is the best in reducing CO_2.

Such a bilateral mechanism can provide a framework to facilitate low-carbon transport projects. As rules of assessments for transport projects are individually set in each mechanism, the effect of transport projects can be taken into account more flexibly, depending on the capability of assessment.

2. Development of Bottom-up Approaches

a) Transport projects in NAMAs (Nationally Appropriate Mitigation Actions):

Developing countries show their interests in transport development in NAMAs mainly through public transport improvement (**SHIFT**) and technological advancement (**IMPROVE**). These interests should be exploited to specify necessary transport projects in each country, while encouraging their integration with land-use planning (**AVOID**).

b) Development of MRV(Measurement/Report/Verification) for Transport Projects:

It is important to develop methods to assess transport projects with the limited data available in developing countries. While the methods may vary technically depending on the contexts of countries, efforts should be made to make evaluation requirements simpler so that they are generally applicable to developing countries.

c) Assessment for Co-benefits:

Limited priority is currently given to low-carbon transport in many developing countries. They need to be encouraged to assess low-carbon transport systems in terms also of co-benefits for each country. These may include convenient & comfortable trips, economic growth with less traffic congestion, mitigation of local pollution, and compact & smart land use.

d) Self-financing Mechanisms:

Self-sustaining finance systems for NAMAs should be established. Value capture is one of the most promising methods to take advantage of economic growth in developing countries, in combination with taxation, subsidization, carbon charge, and etc.