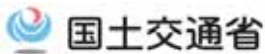




Integrated approach ***“ Pass for the sustainable future of transport”***

Akihiko HOSHI

Deputy Director
Environment Division
Road Transport Bureau
Ministry of Land, Infrastructure, Transport and Tourism (MLIT)
Japan



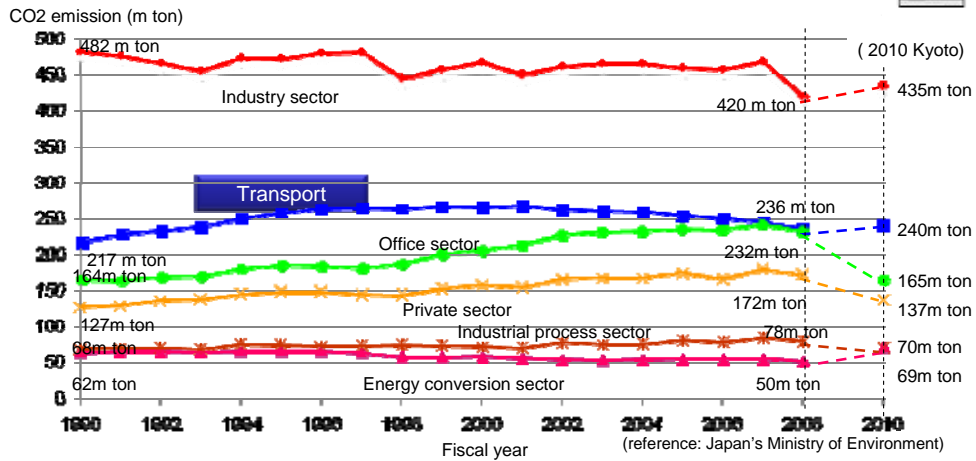
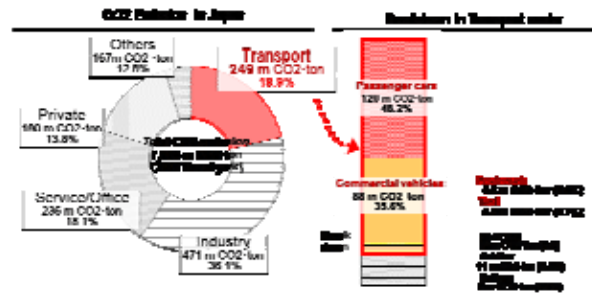
Ministry of Land, Infrastructure, Transport and Tourism

.....

Today, taking this opportunity, I would like to outline our policy framework for sustainable mobility, from a perspective of CO2 reduction.

CO2 Emission from each sectors in Japan

Transport sector:
19% of total CO2 emission in Japan.
Road transport:
87% of transport, "peaked out" in 2001.



2

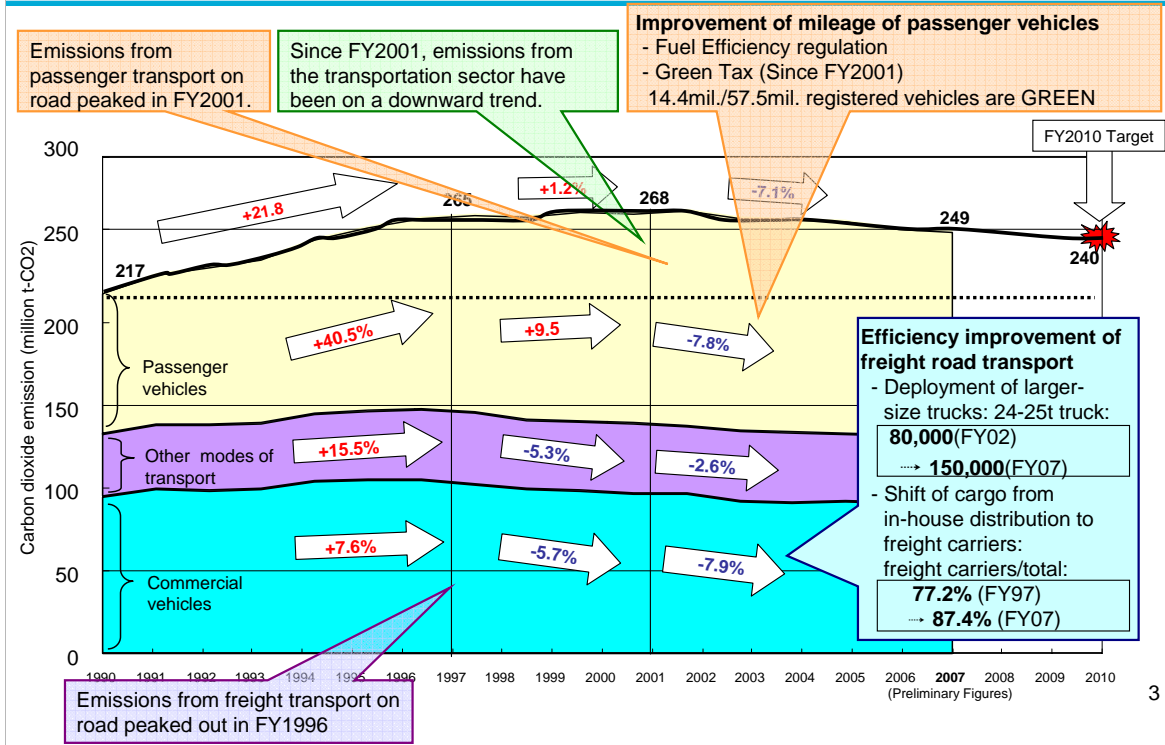
Transport sector is 19% of total CO2 emission in Japan. It is a bit smaller portion compared to the other OECD countries.

The point for Japan is that the emission from transport sector peaked out in 2001 and it has turned into decrease in a continuous way, though Total emission has increased by 13.3% compared to 1990 level.

This is quite a unique and successful case in the world.

The question is why and how it can be achieved.

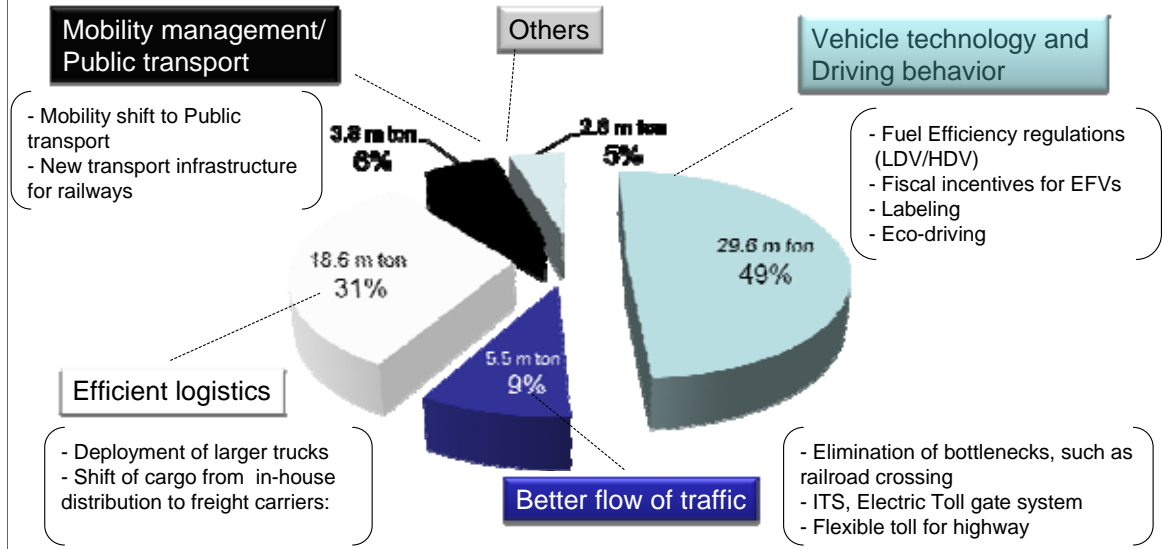
CO2 emission in Transport sector



To see the history in more details, it can be seen that Emission from passenger transport on road peaked in 2001 and Emissions from freight transport peaked out earlier, in 1996.

The key for success in decoupling growth of transport demand and CO2 emission is an approach to integrate all the relevant measures in coordinated way.

Breakdown of reduction potential In transport sector
(National action plan for achievement of Kyoto protocol)

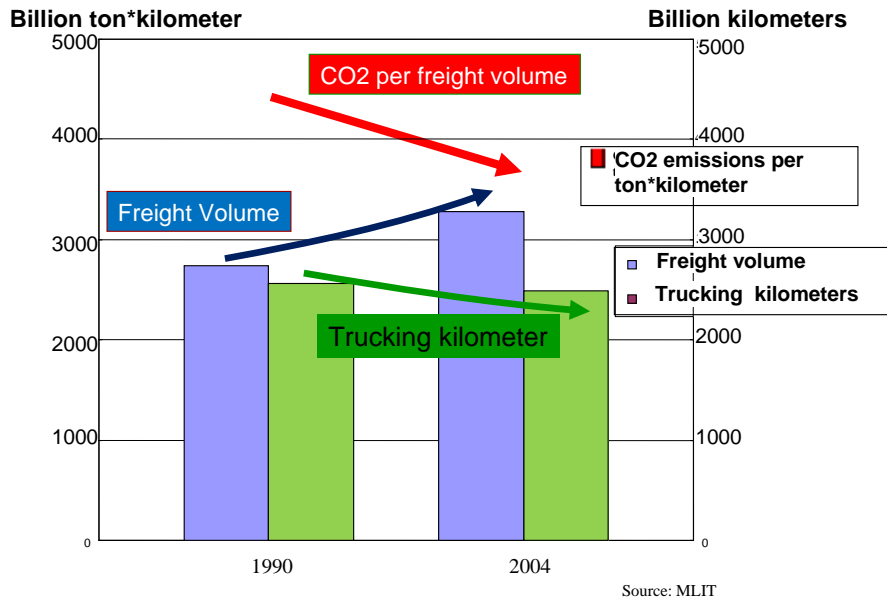


The key for success is an approach to integrate all the relevant measures in coordinated way to maximize the effects by all the relevant measures.

We have varieties of elements which affect performance of transport sector, not only vehicle technology, but driving behavior, traffic flow, efficient logistics, mobility management

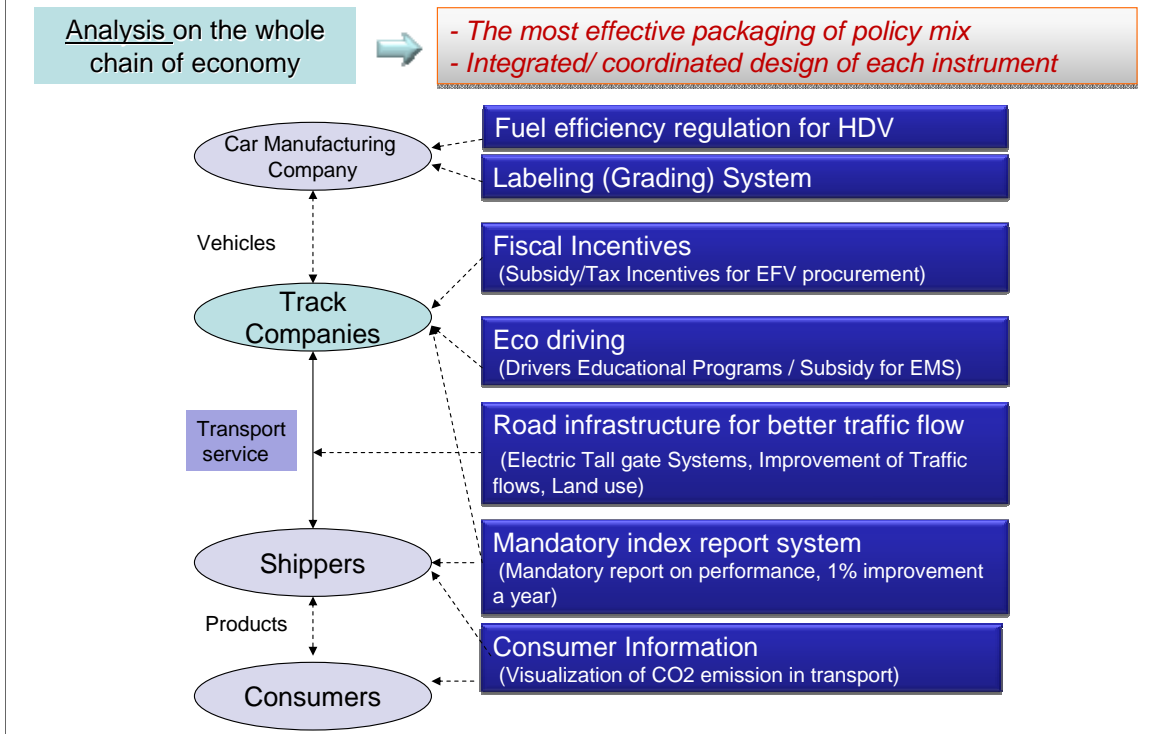
We need evolutions for all the elements for the better future of transport and all the measures must be incorporated in package in a coordinated manner.

This graph shows symbolic result of decoupling in freight transport sector. CO2 emission and trucking kilometers had been decreased, while freight volume increased.



This shows symbolic result of success in decoupling of CO2 reduction and economic growth.

We succeeded in reducing CO2 emission while accepting growth of transport demand, as we can see decrease of CO2 emission and trucking kilometers, while freight volume(ton-kilometer) increased in freight road transport sector.



The know-how of integration is also an important element for administrations to develop their actual policies.

This is a case for road freight transport sector in Japan.

For the integration, we have to start by analyzing the sector as a whole economy chain. In freight transport sector the emission comes from the transport service itself, but it is actually governed also by many other affecting players, like shippers, car manufacturing companies, consumers to buy products and authorities who govern traffic regulations, commercial transport regulations, road infrastructures, and so on.

Based on the result of analysis, we define the bottlenecks and the most effective policy instrument to make a breakthrough.

Then we package all the best policy, designing each policy instrument in a way to maximize their effect and co-benefit among measures.

In this way, we have developed and implemented a lot of varieties of policies, fuel efficiency regulations, labeling, fiscal incentives, eco-driving programs, improvement of road infrastructure, mandatory index report system on shippers and operators, consumer information scheme.

Eco-driving contributes to fuel efficiency and CO2 reduction by 10% in average. Campaigns, education, monitoring programs should play an important role, as well as in-car equipment to assist eco-driving.

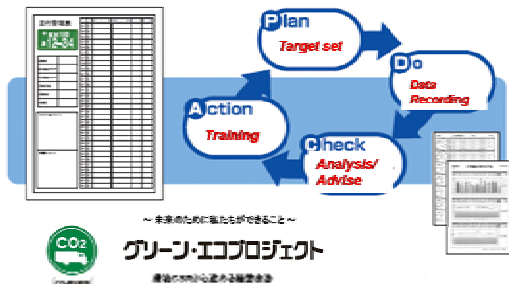
Eco-driving assist system/ Fuel consumption meter



National campaign "10 tips for Eco-Driving"



Education and monitoring program



Here I would like to touch upon several examples of actual measures.

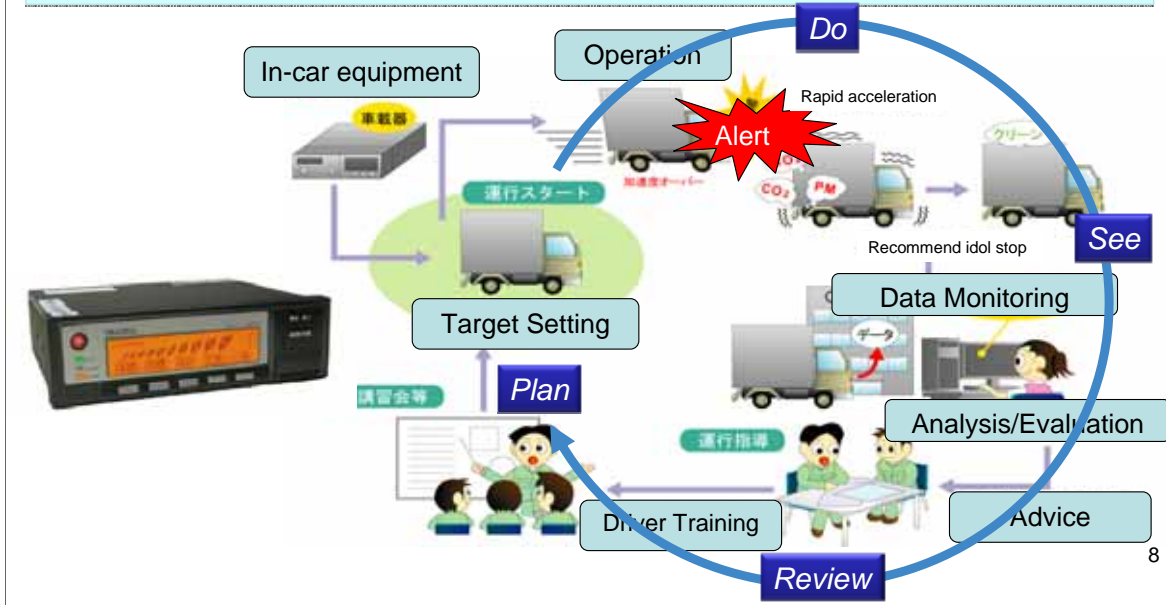
Now all know, Eco-driving is one of the most cost effective measures.

It significantly contributes to fuel efficiency and CO2 reduction, by 10% on average.

Campaigns and educational programs should be important elements, as well as in-car equipment to assist eco-driving.

EMS: Eco-driving Management System

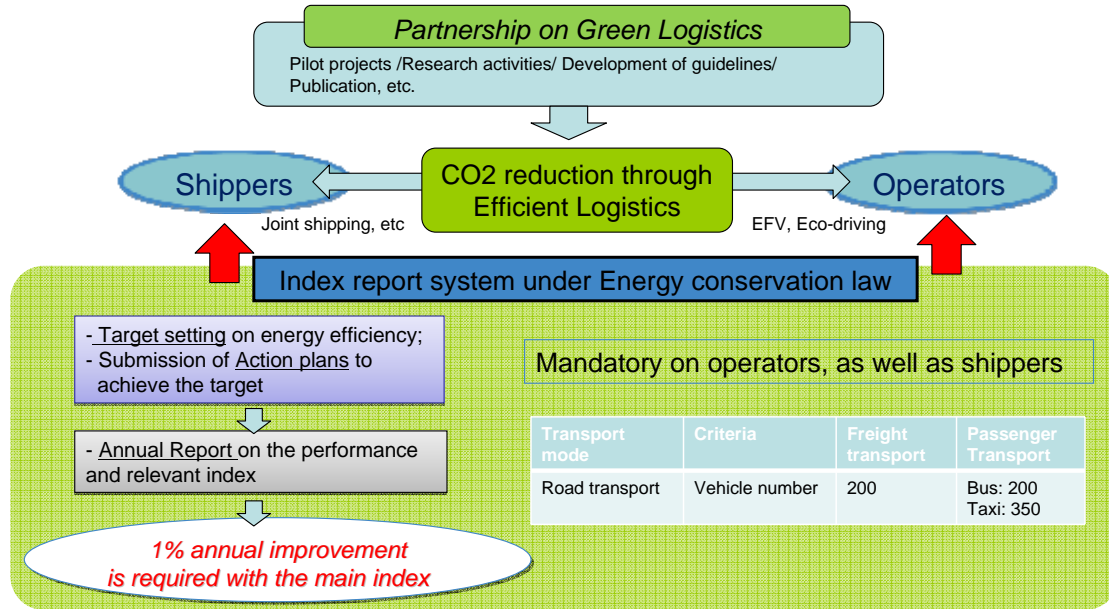
For freight operator, we also have subsidy program on EMS(Eco-driving Management System) . It assures long term effect of Eco-driving through continuous monitoring and control in operation.



We have subsidy program on EMS(Eco-driving Management System).

We can say it is one of effective ways to assure long term effect of Eco-driving, as well as eco-driving monitoring programs I said in the last page, as methodologies to ensure continuous monitoring and control in operation.

To enhance efficiency of operation, cooperative Initiative among shippers and operators is significantly essential. Legal instruments, like index report system, also plays an important role to facilitate their actions.



9

To enhance efficiency of operation, we have a G/I initiative, named “Partnership on Green Logistics” as a basic platform on cooperative initiative among shippers and operators.

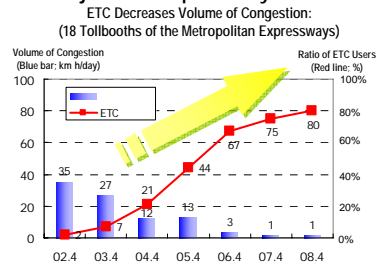
At the same time, operators as well as shippers are legally obliged to make annual reports on efficiency performance and they have to improve it by 1% annually.

Combination of these sorts of policies to involve both of shippers and operators is one of the most effective one to facilitate them to take actions.

ETC
Electronic Toll Collection System

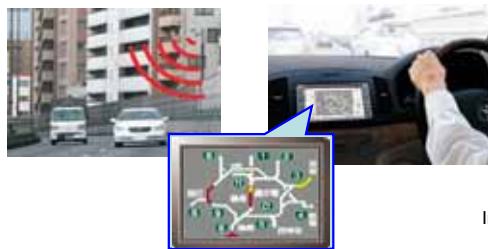


■ **ETC:** Enables non-stop, cashless toll collection at expressway tollbooths, whose capacity shortage causes about a third of traffic jams on expressways:

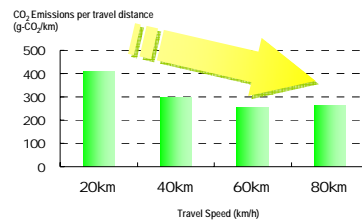


In 2010
Reducing 0.2Mt-CO₂

VICS
Vehicle Information and Communication System



■ **VICS:** Provides road traffic information in real time, realizing smooth traffic & higher travel speed, resulting in the improvement of actual fuel efficiency:



In 2010
Reducing 2.4Mt-CO₂

Improvement ratio per unit × number of units × transport volume

This is another aspect, intelligent infrastructure.

It is also an important to improve infrastructure by ITC technologies to have better flow of traffic.

		Strategy		
		Avoid Reduce traffic demand	Shift Reduce emissions per unit transported	Improve Reduce emissions per kilometer
Instruments	Technology	<ul style="list-style-type: none"> ■ Pedestrian Oriented Development ■ Bicycle Oriented Development ■ Transit Oriented Development 	<ul style="list-style-type: none"> ■ Integrated Public Transport System ■ Highly Competitive Railway 	<ul style="list-style-type: none"> ■ LEV, EV ■ Alternative Energy ■ Advanced Infrastructure Technology ■ Logistic Efficiency ■ Smart Grids
	Regulation	<ul style="list-style-type: none"> ■ Traffic Restriction / Bans ■ Parking Regulation ■ Compact City ■ Mix Land Use 	<ul style="list-style-type: none"> ■ Bus/Tram Priorities ■ Non Motorized Transport ■ Smarter Modal Evolution 	<ul style="list-style-type: none"> ■ Emission Standard ■ Fuel efficiency regulation ■ Eco-Drive
	Information	<ul style="list-style-type: none"> ■ Information and Communication Technologies ■ Telework ■ Smart Choices for Workplace and Schools 	<ul style="list-style-type: none"> ■ Awareness Campaign 	<ul style="list-style-type: none"> ■ Knowledgebase ■ Intelligent transport systems ■ Labeling of Vehicle Performance ■ Information Service Improvement
	Economic	<ul style="list-style-type: none"> ■ Fuel Tax ■ Road Pricing ■ User Charges / Fees ■ Location Subsidy 	<ul style="list-style-type: none"> ■ Fuel Tax ■ Road Pricing ■ User Charges / Fees ■ Energy Consumption Subsidies 	<ul style="list-style-type: none"> ■ Fuel Tax ■ LEV Preferential Tax

Co-benefits

Integration

11

Yoshitsuqu Hayashi, Nagoya University, SIG11, World Conference on Transport Research Society

As I have shown, we have a lot of varieties of options and policy tools to reduce CO2 emission from road transport sector.

This is an matrix proposed by WCTRS SIG 11 on applicable policy tools for mitigation actions in road transport sector.

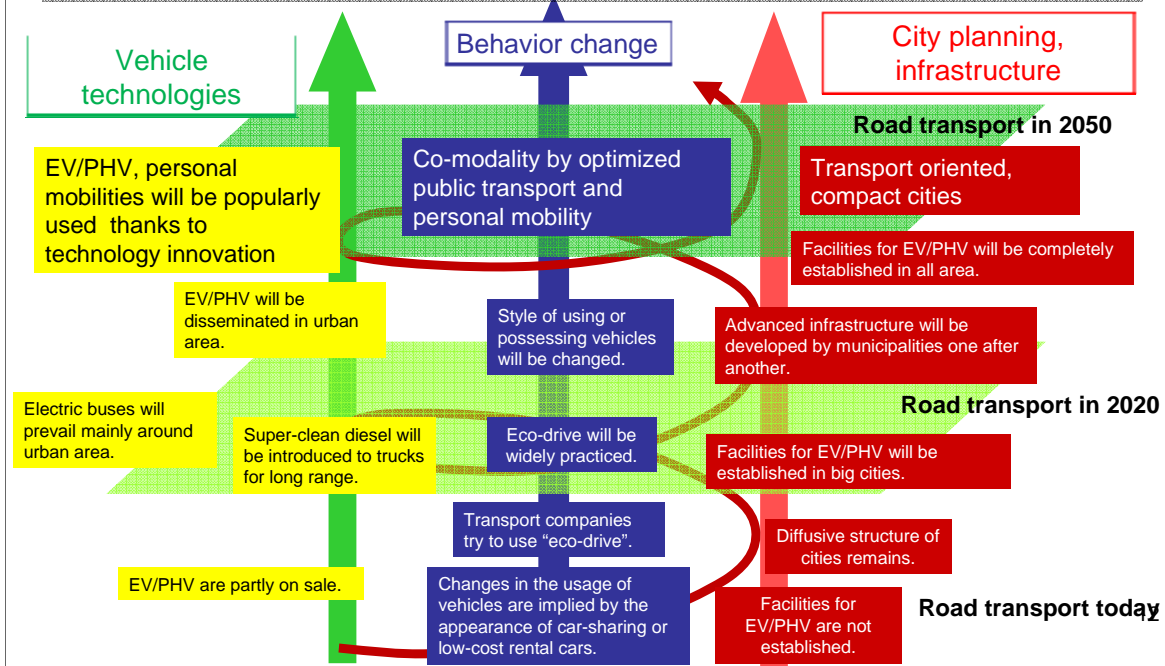
We also recognize a fact, Vehicles technology is only an integrated part in transport system which is defined by the other elements, like land use, people's behavior in the region concerned.

We also see another point that it is important for us to develop good methodologies to find out the best policy mix according to domestic/local situations in the concerned region.

Anyhow, we have to start by learning how transport system works in the concerned region and how all the tools can work in the most effective way through integrated approach.

Future of transport

Better future of road transport can be realized through harmonized and simultaneous evolution of “vehicle technologies”, “people’s behavior” and “city planning/Infrastructure”.

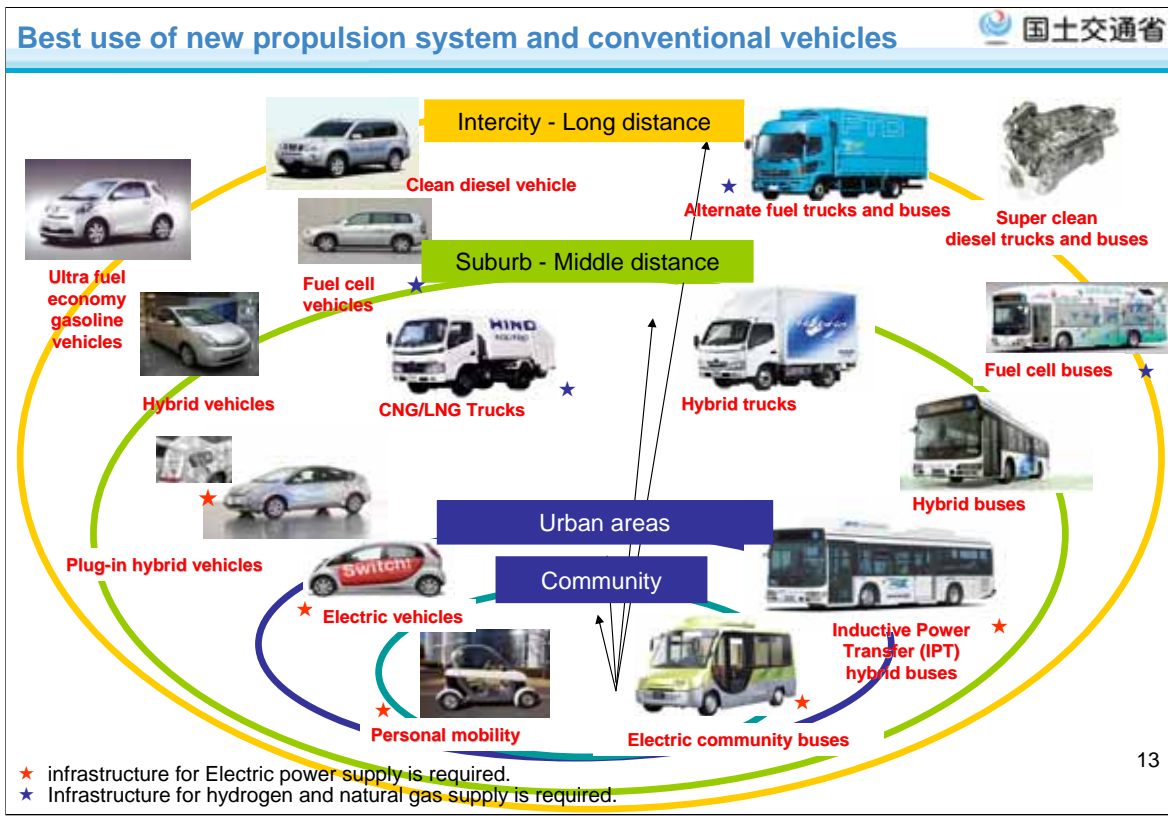


From another perspective, we can say, for the better future of transport, we have to optimize all of the three elements “vehicle technologies”, “people’s behavior” and “city planning/Infrastructure” at the same time, toward transport society in 2050.

Vehicles technology can be explained as an integrated part in transport system which is defined not only by technologies innovations itself, but also by the other elements, like land use, people’s behavior in the region concerned.

We governments and automobile industry should seek for harmonized and coordinated evolution of all the elements toward zero-emission technology, co-modalities by and transport oriented and compact cities.

I think this can be the real heart of integrated approach.



About vehicle technologies for the future, we believe in supreme wisdom and innovative ideas of automobile engineers and experts.

However, we also have to be realistic on the other hand, especially with a fact, uncertainty with the next generation battery technologies.

We also check feasibility to recover initial cost of batteries in life cycle running, as well as energy mix in power generation.

The main field for electric vehicles and Plug-in hybrid could be limited to urban area due to the limited energy intensity and driving range per charging, even though it has an advantage in environmental performance there.

It also means we will can not be independent on ICE technologies even for the future.

- Based on the MEET Ministerial Declaration, Japan will **enhance assistance to systematic and organized efforts of developing countries** to address climate change and air pollution issues in the transport sector.
- Japan's multifaceted assistance includes:
 - Formulation of action plans (e.g. ASEAN-Japan Environmental Action Plan) ;
 - Capacity building on design & effective implementation of policies, measures for: automobiles regulations and fiscal incentives, efficient logistics systems, public transport etc. ;
 - Development of statistical data.

Thank you for your attention

For further information;

Akihiko HOSHI
Environment Division
Road Transport Bureau
Ministry of Land, Infrastructure, Transport and Tourism
e-mail: hoshi-a2rd@mlit.go.jp

We are now in a process to develop next generation policies toward 2020 and 2050.

It is a great pleasure for us to work together with all the developed countries, developing countries, institutes, academics, citizens, as well as international organization to have a concrete pass for the sustainable, better future of transport and society.