Possible Sector Approaches to Road Transportation CO_2 Reduction

～Introduction to Japan's Efforts ～

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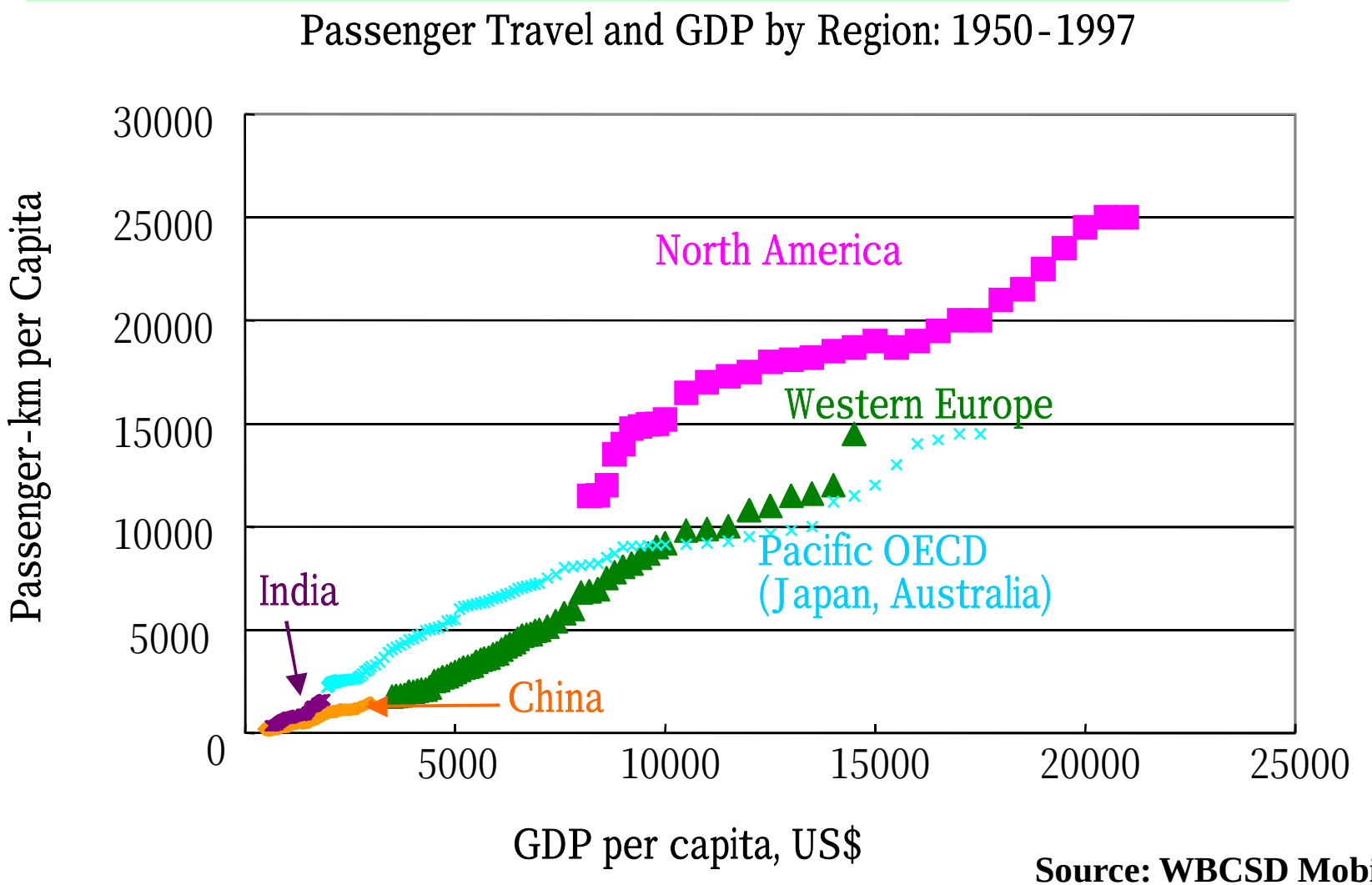
Japan Automobile Manufacturers Association, Inc.

Necessity of Road Transport Sector Approach

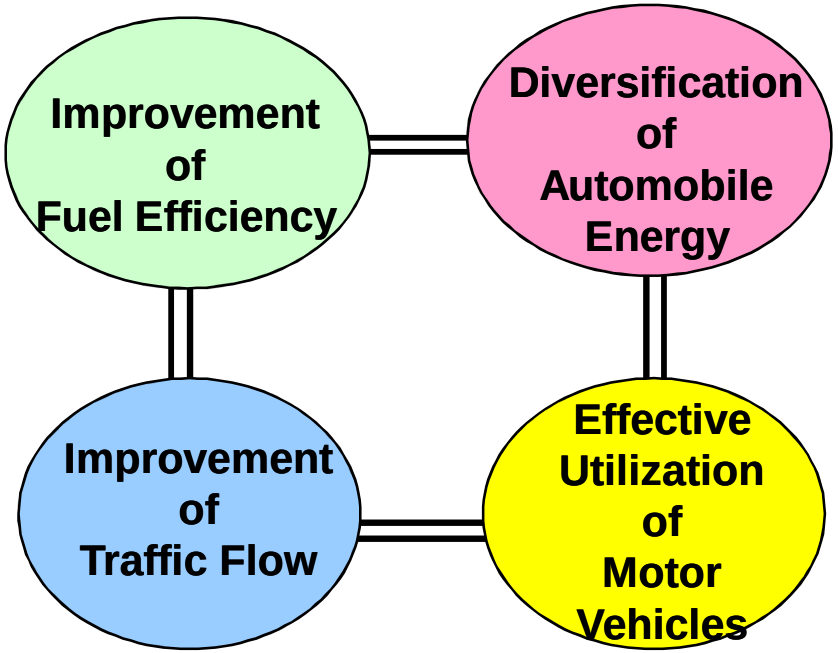
Travel distances of individuals and goods increase with economic growth. Motorization will continue to increase in the future, especially in developing countries, and so will travel distances.



Source: WBCSD Mobility 2001

Comprehensive Measures Should be Implemented

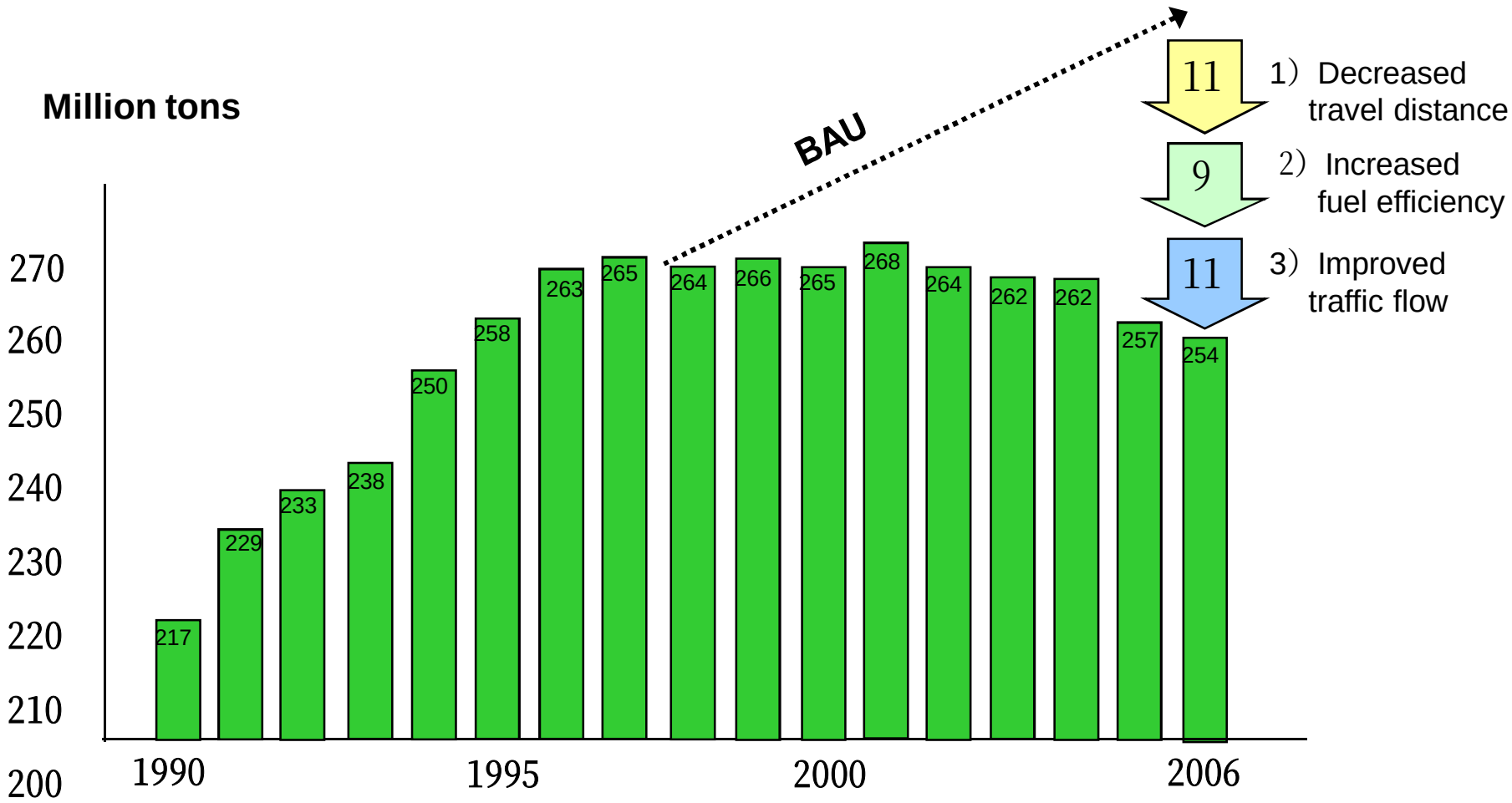
A comprehensive approach such as improving vehicle fuel efficiency, development of alternative fuels, upgrading of road infrastructure and effective utilization of vehicles make it possible to balance with economic growth.



CO_2 Emissions = Actual fuel consumption x Carbon density x Total travel distance

CO_2 Emissions in the Transport Sector Are on the Decrease

After reaching the peak in 2001, CO_2 emissions in the transport sector have been on the decrease. The CO_2 reduction in the transport sector is attributable to: 1) decreased travel distance, 2) increased fuel efficiency, and 3) improved traffic flow.

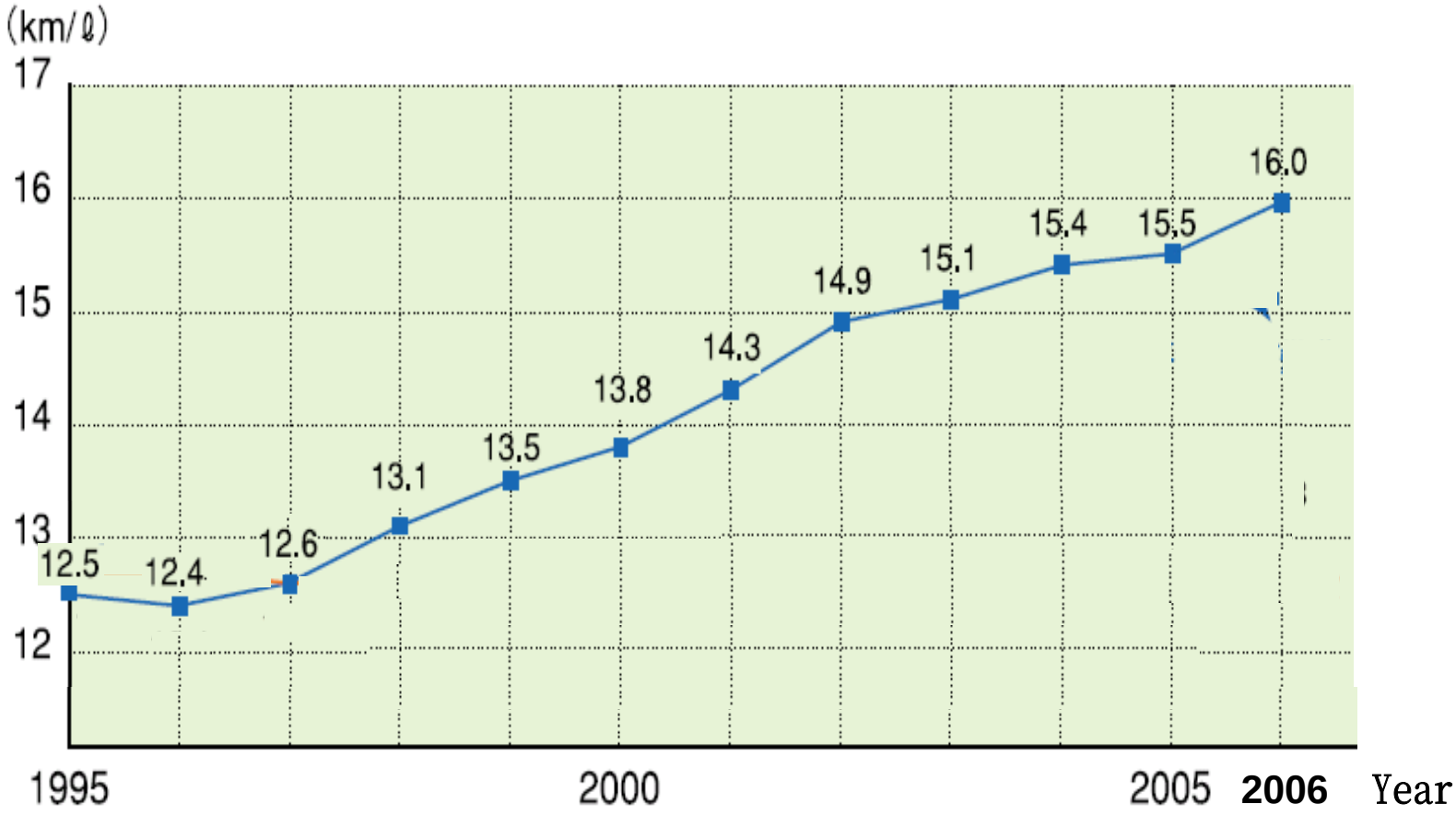


Note：Road transport shares 90% of all transport sector

Source：Japanese Government

Fuel Efficiency of New Passenger Cars Is Increasing

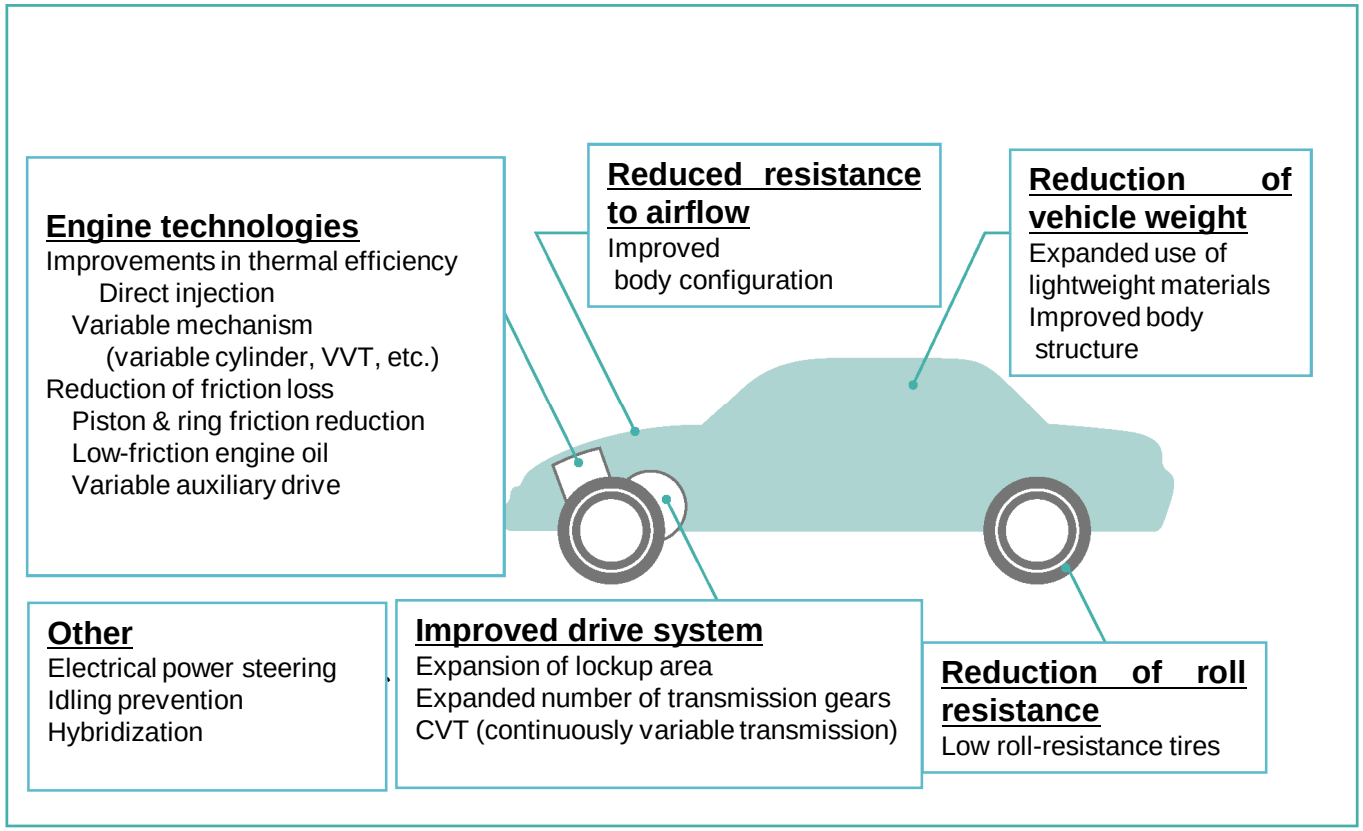
The average fuel efficiency of newly registered vehicles in Japan is increasing year by year.



Fuel efficiency of New passenger cars

Major Fuel-Economy Technologies

Steady step-by-step technological progress is required for improving fuel efficiency. As a result of full mobilization of human and financial resources in a concentrated period of time, Japan's auto makers succeeded in largely increasing fuel efficiency. They are striving hard to increase actual fuel efficiency as well as modal efficiency.



Source: JAMA

Potential for Alternative Fuels

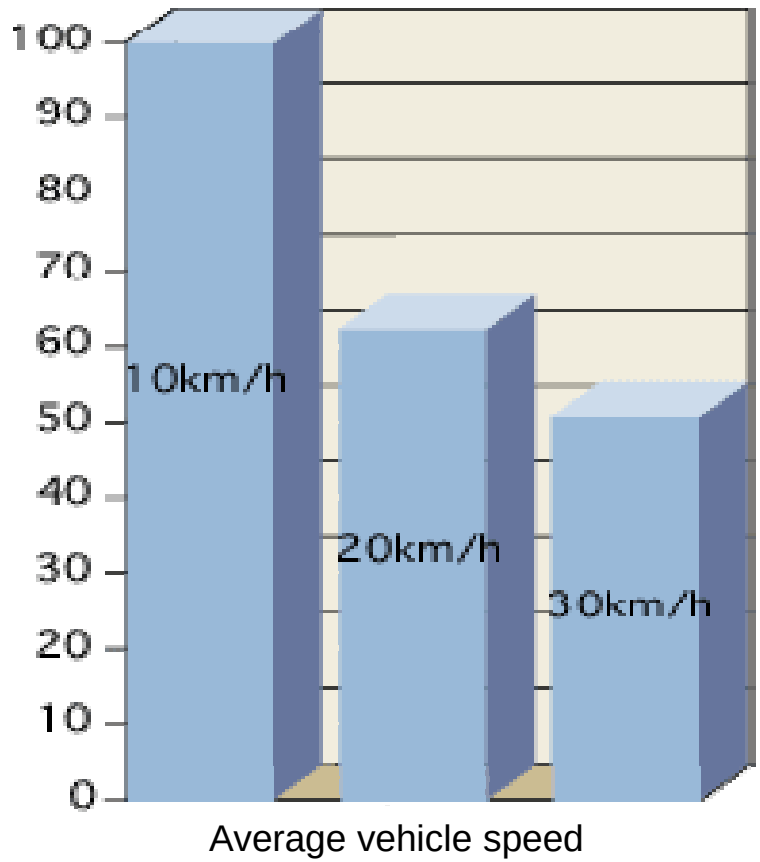
Various approaches have been going on for alternative fuel vehicles aiming low carbon and high energy efficiency

Short-term Plan	Mid-term Plan	Long-term Plan
Gasoline vehicles Clean Diesel vehicles Hybrid vehicles CNG(Compressed natural gas) vehicles Biomass fuels	+ Electric vehicles (City commuter cars) Plug-in hybrid vehicles Fuel-cell Vehicles	+ Full-fledged electric vehicles Next-generation fuel-cell vehicles

Improvement of Road Traffic Flow

Smoother traffic flow increases traveling speed and fuel efficiency, and thus contributes to CO_2 reduction.

CO_2 emission volume



Measures to improve traffic flow:

- Optimum route guidance and goods distribution by use of ITS technologies,
- Upgrading of road infrastructure,
- Advanced signal control systems,
- Minimization of on-street parking,

etc.

Effective Utilization of Motor Vehicles

- Park and ride systems
- Car sharing
- Use of public transportation systems
- Eco-friendly driving practices

Conclusions

-Integrated approach is needed to promote CO_2 emission reduction in the road transport sector, including improvement of vehicle fuel efficiency, development of alternative fuels, improvement of traffic flow, popularization of eco-driving habits. This approach make it possible to reduce CO_2 while econmic growth can be kept.

For the purpose of implementing these comprehensive measures, all the stakeholders, i.e. the government, the auto industry, auto users, and others must take their own share of responsibility and work in cooperation with each other.

All countries are recommended to bring the best practice on CO_2 reduction measures taking into account their countries' actual circumstances, setting up realizable targets where bench marking is possible, so that frame work can be created that all countries needs to try their best contribution to the world's most urgent requirement---CO_2 reduction..