Overview of MLIT's Vehicle Environmental Policy

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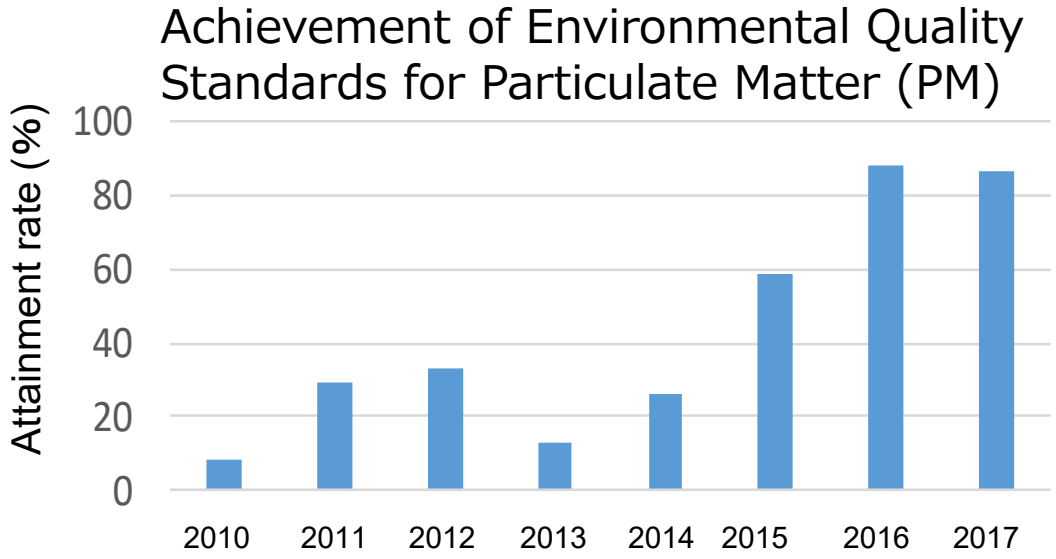
Expert Workshop: International best practices to promote eco-friendly cars, International Transport Forum

Air quality in Japan

- Air quality has been improved with the gradual enforcement of emissions regulations.

1980s in Tokyo

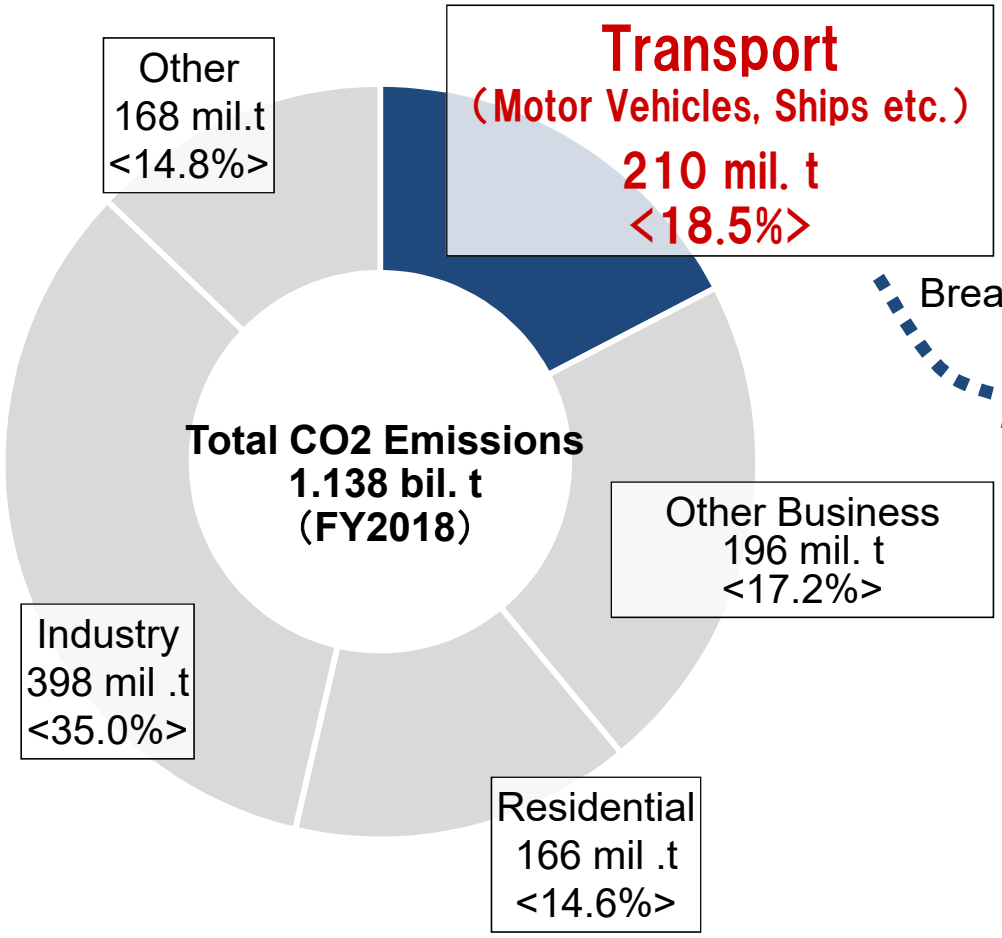
Late 2010s in Tokyo



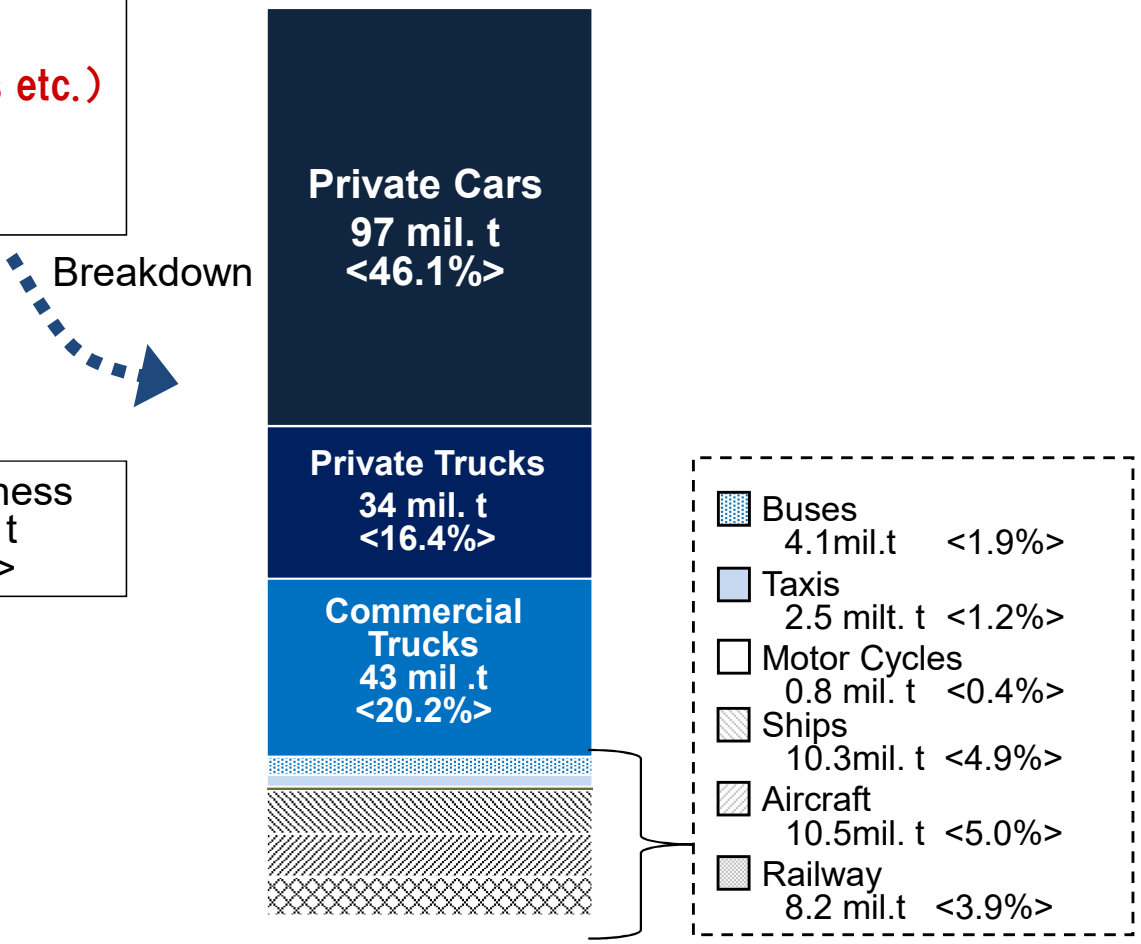
Current Status of Carbon Dioxide Emissions in Japan

- Of all CO_2 emissions in Japan, **the emissions from the transport sector account for 18.5%** (FY2018).
- The emissions from all motor vehicles account for **86.2% of the transport sector CO_2 emissions** (**15.9% of all CO_2 emissions in Japan**).

CO_2 emissions from each sector in Japan



CO_2 emissions from the transport sector (breakdown)



Source: "The GHG Emissions Data of Japan (1990-2018)" (2020)

Japan's CO_2 Reduction Target

Mid-term target (26% reduction by FY2030 compared to FY2013)

GHG emissions:
To be at the level equal to **26.0% reduction compared to FY2013** (25.4% reduction compared to FY2005) by 2030 (About 1.042 billion t CO_2)

Energy source CO_2 emissions:
To be at the level equal to **24.9% reduction compared to FY2013** (24.0% reduction compared to FY2005) by 2030 (About 0.927 billion t CO_2)

	Targeted emissions for each sector in FY2030	Compared to the FY2013 result (FY2005 result)
Energy source CO_2	**927**	**24.9% (24.0%) reduction**
Industry sector	401	6.5% (12.3%) reduction
Other business sector	168	39.8% (29.7%) reduction
Residential sector	122	39.3% (32.2%) reduction
Transport sector	**163**	**27.6% (32.1%) reduction**
Energy conversion sector	73	27.7% (29.8%) reduction

Long-term target - 2050 Carbon Neutral

Prime Minister's general policy speech (Oct. 2020)
We aim for, by 2050, zero emission of GHG as a whole, namely, the transition to "2050 Carbon Neutral", a decarbonized society.

Policy toward Carbon Neutral in Automotive Sector

Integrated approaches to promote not only electrification but also reform towards wiser use of cars are necessary in order to achieve the reduction of CO2 emissions, while activating the transport essential in the society.

Well-to-Tank

Tank-to-Wheel

Carbon-Neutral Fuels

- Synthetic fuel
- Renewable energy etc.

Electrification

- Electric Vehicle, Fuel-Cell Vehicle
- Recharging facility, hydrogen station etc.

Wise Use of Car

- New mobility service
- Efficient and decarbonized logistics
- Automated driving and digital technology
- User awareness of electrification etc.

Target and trend of Next-Generation Vehicles

Target units and the Current Situation of Next Generation Vehicles in Japan

<Ref.> New passenger car sales: 4.30 million units (2019)

		FY2019	**2030**
Conventional Vehicle		60.8% (2.61 mil. units)	30-50%
Next-generation vehicle		**39.2%** **(1.69 mil. units)**	**50-70%**
	Hybrid Vehicle	34.2% (1.47 mil. units)	30-40%
	Battery Electric Vehicle Plug in Hybrid Vehicle	0.49% (21 thou. units) 0.41% (18 thou. units)	20-30%
	Fuel Cell Electric Vehicle	0.02% (700 units)	3%
	Clean Diesel Vehicle	4.1% (0.175 mli. units)	5-10%

New Target in the "Green Growth Strategy" (Dec. 2020)

- **Electrification of all new passenger cars by mid-2030s**

(*) EV, FCV, PHEV and HV are included.

Measures to Promote Next-Generation Vehicles

1. Regulations and standards

- ✓ Fuel efficiency standard and emission regulation are stipulated for each type of motor vehicles.

2. Tax incentives & subsidies

- ✓ Next-generation vehicles are promoted through tax incentives and subsidies.

3. International harmonization of regulations (WP.29)

- ✓ International harmonization of regulations related to FCVs and EVs.

FY2030 Fuel Efficiency Standards for Passenger Cars

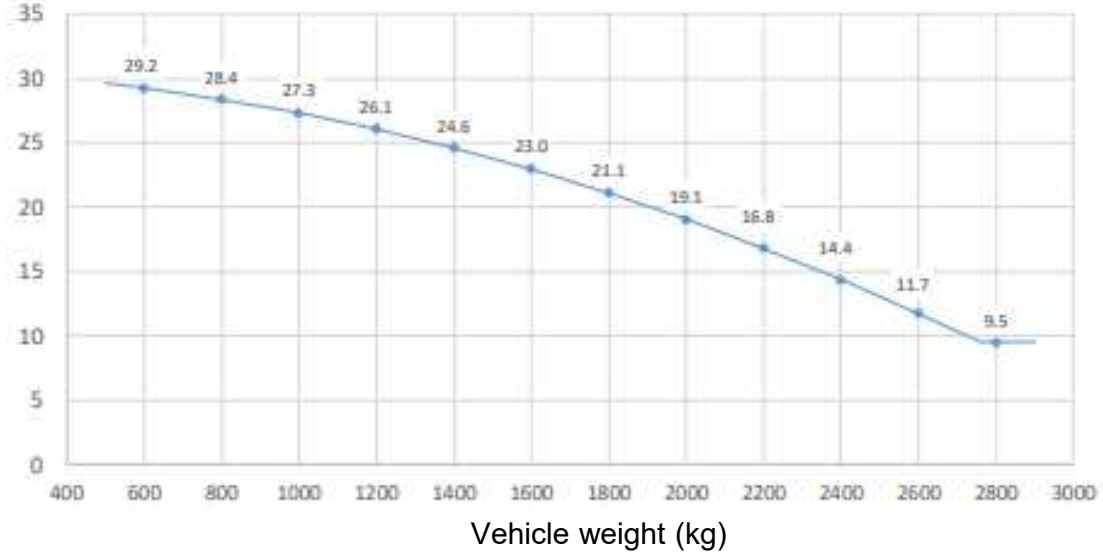
- Target Year : FY 2030
- Scope : Gasoline Vehicles, Diesel Vehicles, LPG Vehicles, EVs and PHEVs
- Fuel Efficiency Standards :
  - M(Vehicle Weight) : Less than 2,759kg

$$FE = -2.47 \times 10^{-6} \times M^2 - 8.52 \times 10^{-4} \times M + 30.65$$

  - M(Vehicle Weight) : 2,759kg and over

$$FE = 9.5$$

Regulation target (km/L)



Target Values※	Increase from the actual value in FY2016
25.4km/L	+32.4%

※ Calculated by using the weighted harmonic mean of the sales figures of FY2016

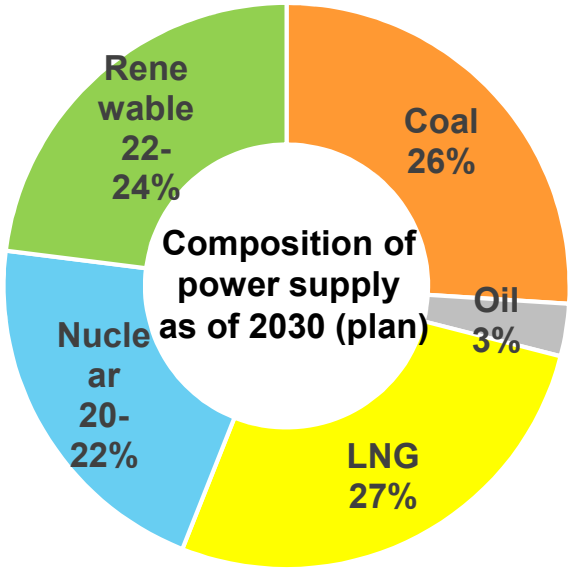
- Assessment of Fuel Efficiency: The concept of Well-to-Wheel efficiencies is introduced in the next fuel efficiency standards.

Well-to-Wheel Assessment

- ✓ FY2030 Fuel Efficiency Standards introduces “Well-to-Wheel” evaluation, which incorporates the assessments of generation, transmission and consumption of energy.
- ✓ Most cost effective approach for energy saving and de-carbonization will be promoted among various technical options, including carbon-neutral fuels and renewable energy.

<Well-to-Wheel evaluation – case of Electric Vehicle>

Generation



Transmission

Transmission loss

EV

Power loss during charging

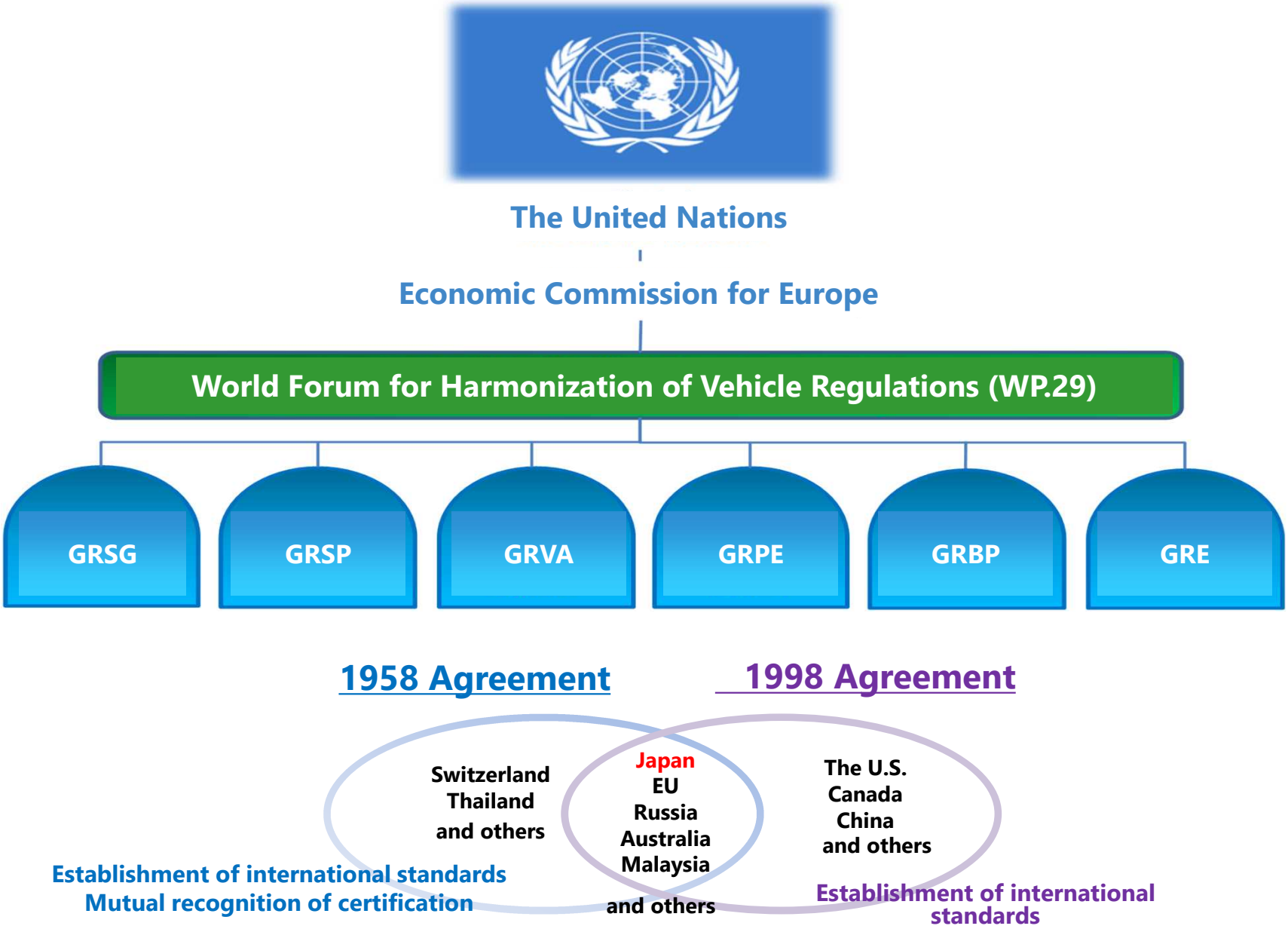
Financial Support for Next-Generation Vehicles

	Hybrid vehicle (HV)	Plug-in hybrid electric vehicle (PHEV)	Electric vehicle (EV)	Fuel cell vehicle (FCV)
				
Tax incentives	Tax incentives available			
Subsidies (private vehicles)		Subsidy by METI 13.0 billion yen		
Subsidies (commercial vehicles)	Subsidy by MLIT 0.51 billion yen Subsidy for EV trucks and HV trucks by MOE 1.0 billion yen			Subsidy for FC buses by MOE 1.62 billion yen
Subsidies (others)		Subsidy for Charging infrastructure by METI 0.9 billion yen		Subsidy for hydrogen supply facilities by METI 12 billion yen

(*) For FY2020
METI: Ministry of Economy, Trade and Industry
MOE: Ministry of the Environment

International harmonization of vehicle regulations (WP.29)

➢ Participation in Activities for Harmonization of Vehicle Regulations at UN-WP.29



International harmonization of vehicle regulations (WP29)

- Japan promotes international harmonization of regulations wherever possible while ensuring environmental preservation in Japan.

UN Regulation No.100 (Electric Safety)
UN Regulation No.134 (Hydrogen fuelled vehicles)
UN Regulation No.136 (Electric powered 2&3 wheelers)
UN GTR No.13 (Hydrogen and Fuel Cell Vehicle Safety)

- International harmonization of regulations offers the following advantages:
  - For automobile manufacturers, promotion of environmental technology by more efficient research and development, and reduced development and production costs through unifying specifications.
  - Reduced purchase prices of next-generation vehicles for motor vehicle users.

Nissan LEAF (EV)

TOYOTA MIRAI (FCV)

Conclusion

- Japan has long-term policy target of “2050 Carbon Neutral” in view of the Paris Agreement, which stipulates its objective to hold that while holding the increase in the global average temperature to below 2℃ above pre-industrial level.

- It is important to take integrated approaches to reduce the emission of GHG.

- MLIT promotes

  1. Establishment of fuel efficiency standards and emission regulations
  2. Tax incentives & subsidies
  3. International harmonization of regulations (WP.29)

- MLIT will contribute to address the environmental problem, not only in Japan but also globally, by making best use of its knowledge and experiences.