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Motor Vehicle Demand and Air Pollution in China

Kiyoyuki Minato

Japan Automobile Research Institute



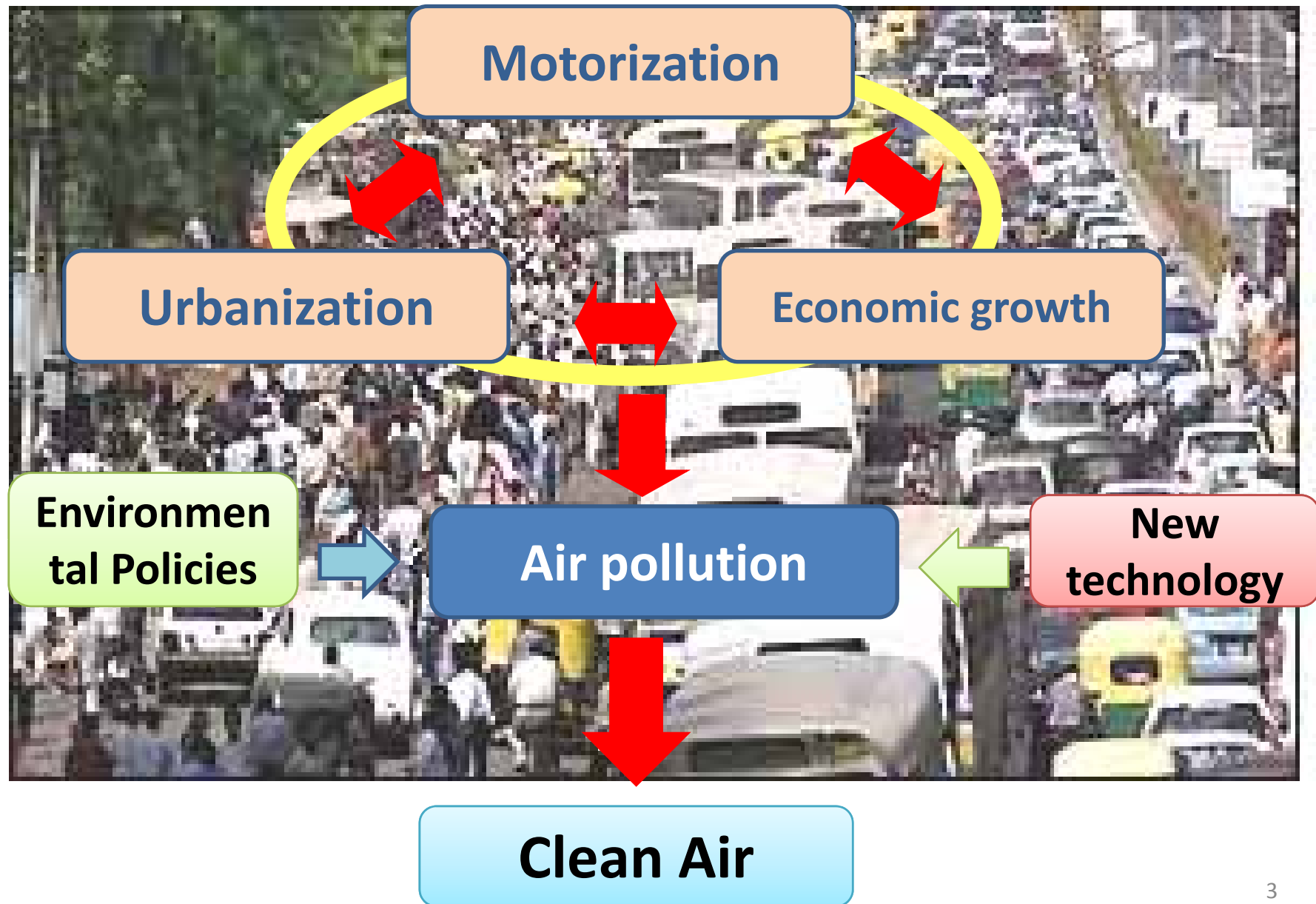
Development of the Chinese motorization

- The chronicity of the traffic congestion
- The increase of the energy consumption
- Rapid increase of the Urban population
- The progress of the air pollution by the car spread and delay of measures

The Report is the Present Conditions of the Chinese Air Pollution and the Countermeasures

- Estimation (- 2030) of the car populations
- Estimation of emission from cars
- Proposal for the air pollution improvement

Chinese Environmental degradation



The intensification of the air pollution damage in Japan

Environmental problems caused by Automobiles

1970 s

Detect of health hazard by automobile emission



Detect of health hazard by the photochemical smog (1970年)

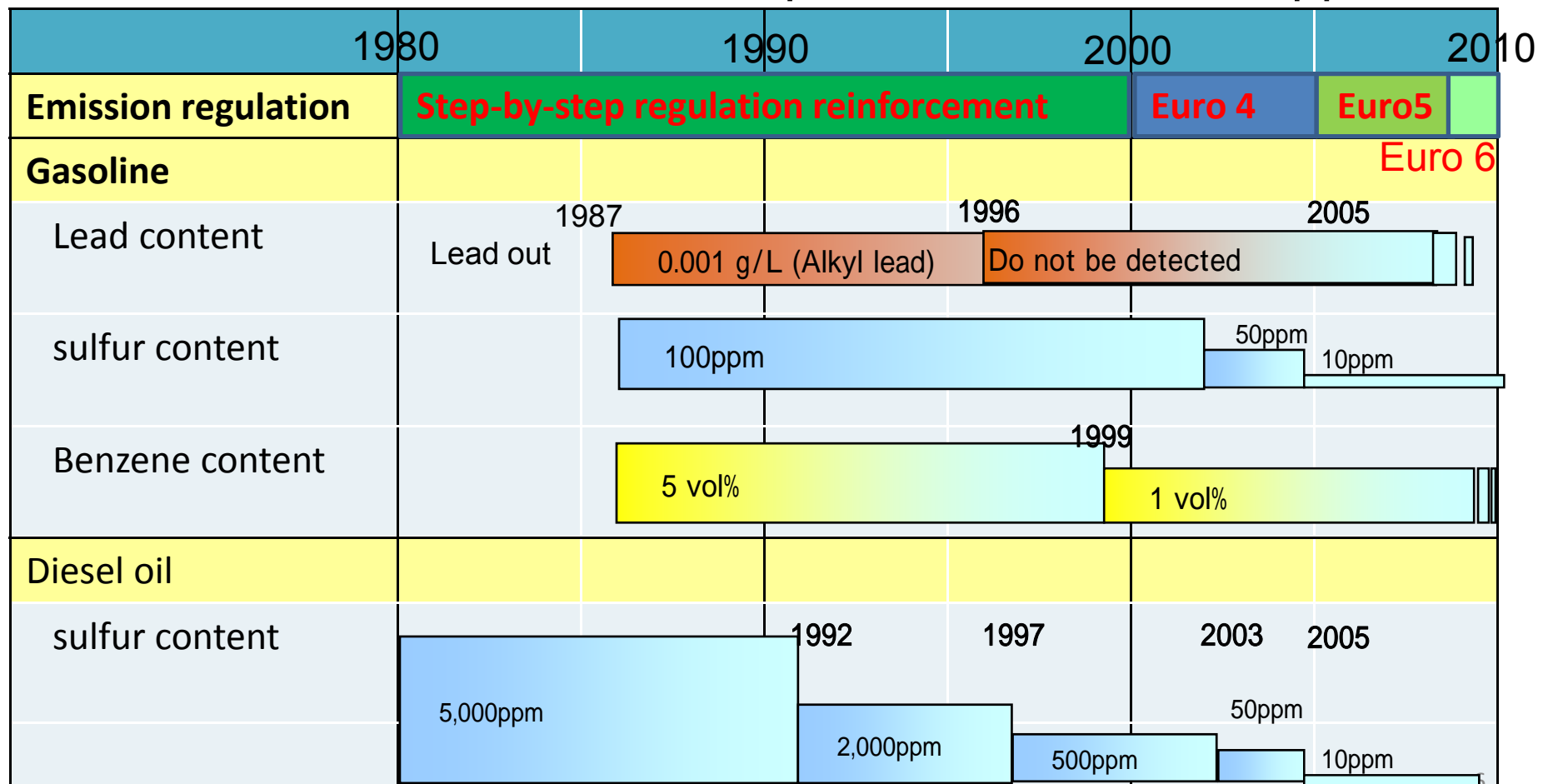
Action of the Japanese Government

- 
- 1971** Establish of Japan Environment Agency
phase-out of leaded gasoline (* world's first)
 - 1973** Air pollution Control Act
 - 1978** The Muskie Act for Japan
(The world's severest emission regulation)
 - 1992** Tighter control of Nox emission (in special area)
 - 2001** Tighter control of NOx · PM
 - 2003** New short emission control (Gasoline vehicle)
 - 2005** New long emission control (Diesel vehicle)
(* The world's severest emission regulation)
 - 2009** Post new long emission control (* Last regulation ?)

Improvement of the fuel quality

➤ In correspondence with emission regulation, the fuel quality regulation has been strengthened, too .

➤ Sulfur content of G & D are equal to or less than 10ppm



Recapitulate

Effective Policy for promoting Clean Air

Without control to hold of passenger cars,
The most effective method of combination of
「regulation」 and 「treatment」

Regulation to makers

Fuel economy
Emission regulations

Incentive measures to Consumer

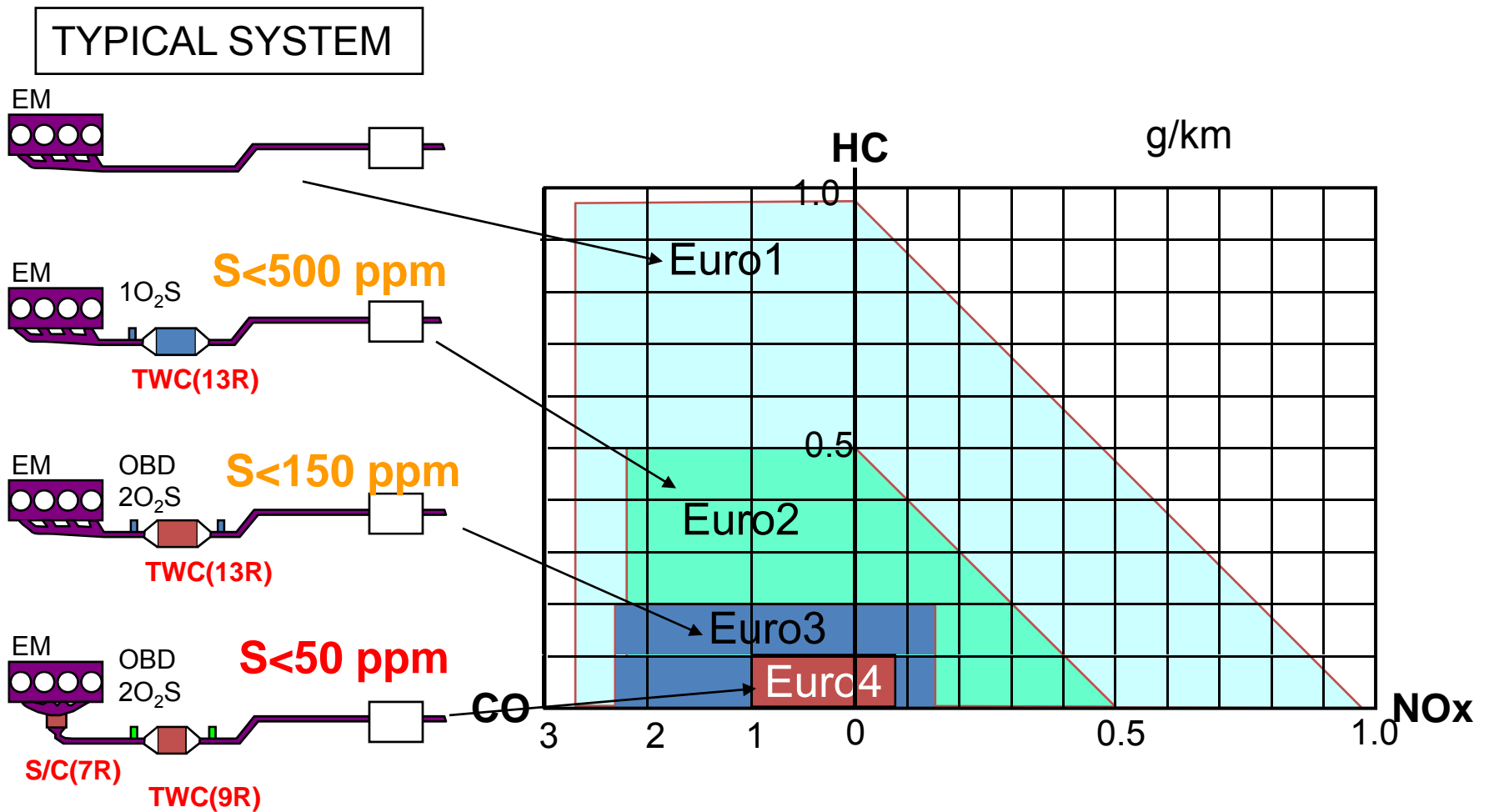
Tax incentive
subsidy

Supplies clean car in
market

Support clean car purchase of
consumers

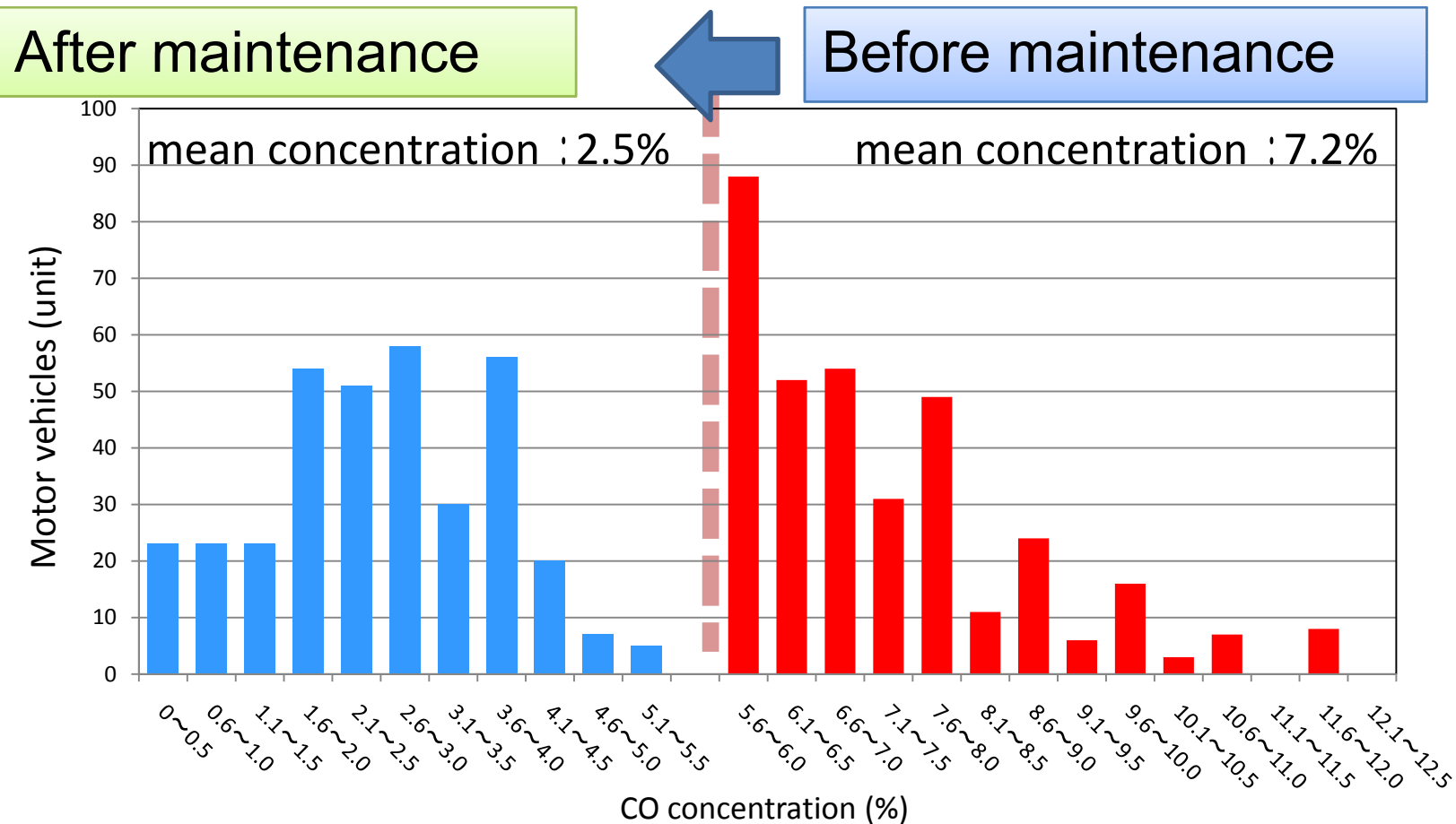
Promoting Clean energy vehicles

Emission Control Level and Countermeasures on Gasoline Passenger Cars



The Example of the Maintenance Effect (CO) (Japan : 1970 practical example)

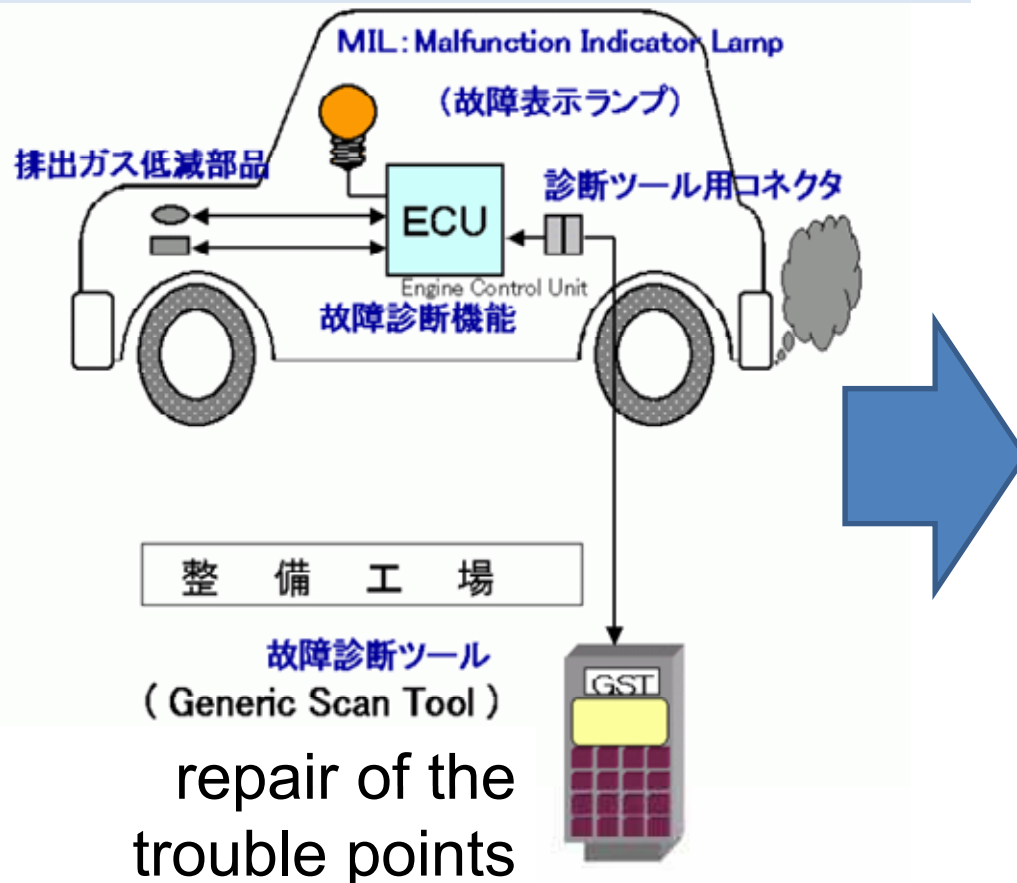
➤ The maintenance is a measure with the effect for Safety, Emission reduction and energy saving .



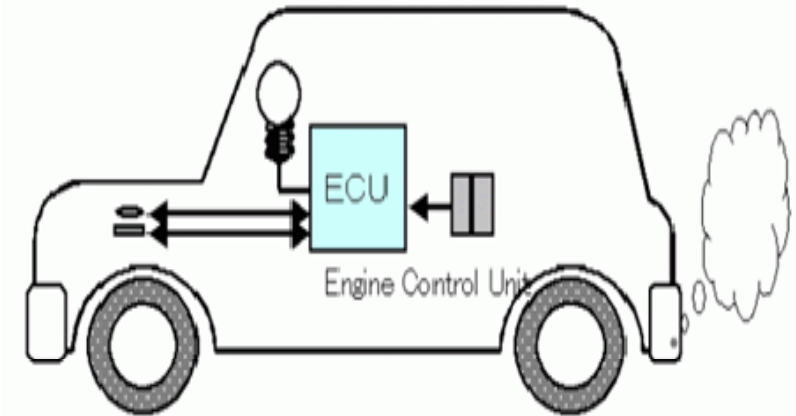
Emission reduction plan

- The abnormal detection of the vehicle and immediate measures are effects for emission reduction.

heterology of the emission device



Normal drive



The Serious Air Pollution in the Large Cities in China

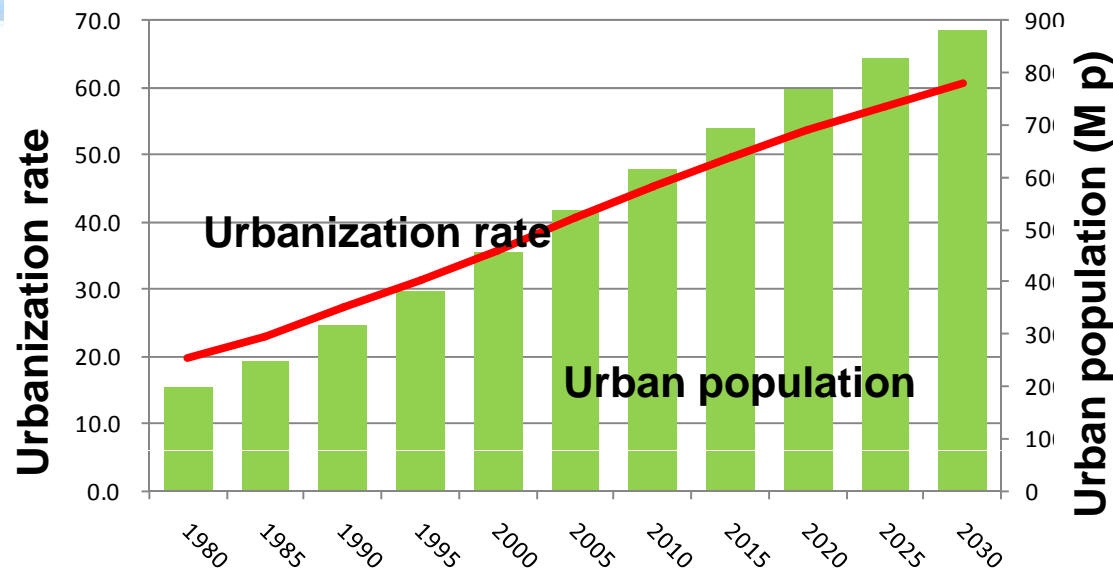
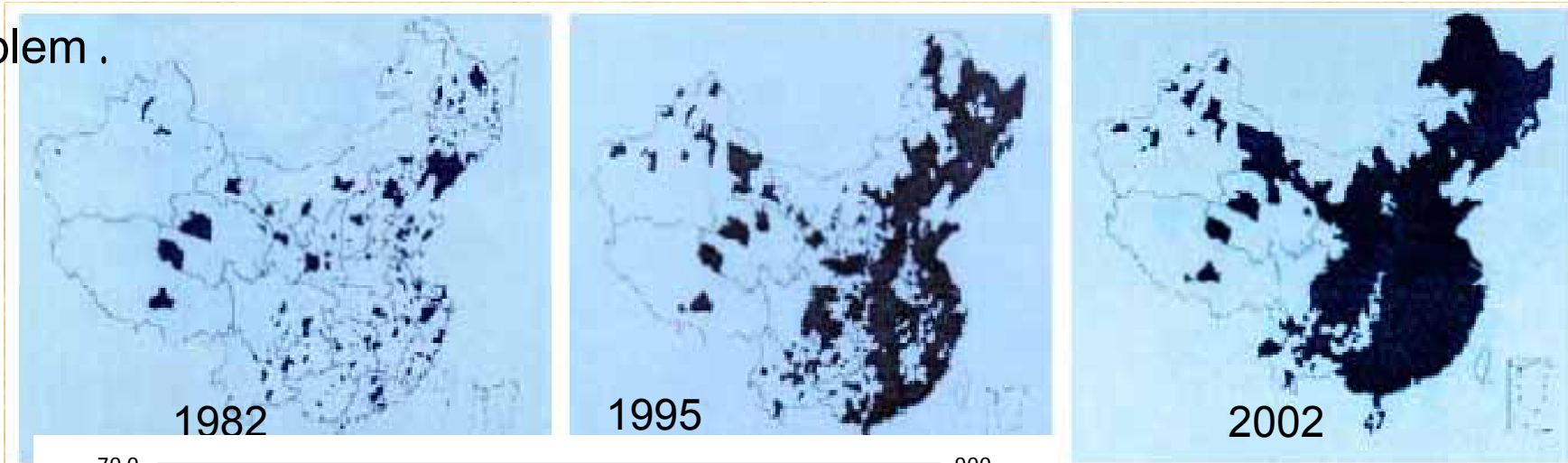
➤ **The influence of the vehicle emission increases**

Vehicle emission is the main factor of the urban air pollution.

- **The NO_x density in the large cities rise**
 - More than 40% of the NO_x are vehicle emission .
- **The CO density on roadside exceeds national standard**
 - More than 80% of CO are vehicle emission .
- **PM from vehicle's origin emission increases**
 - 20-30% of PM is vehicle emission . The emission ratios increase .
- **The outbreak of the photochemical smog increase**
 - O₃ density rise causes a new urban environmental problem

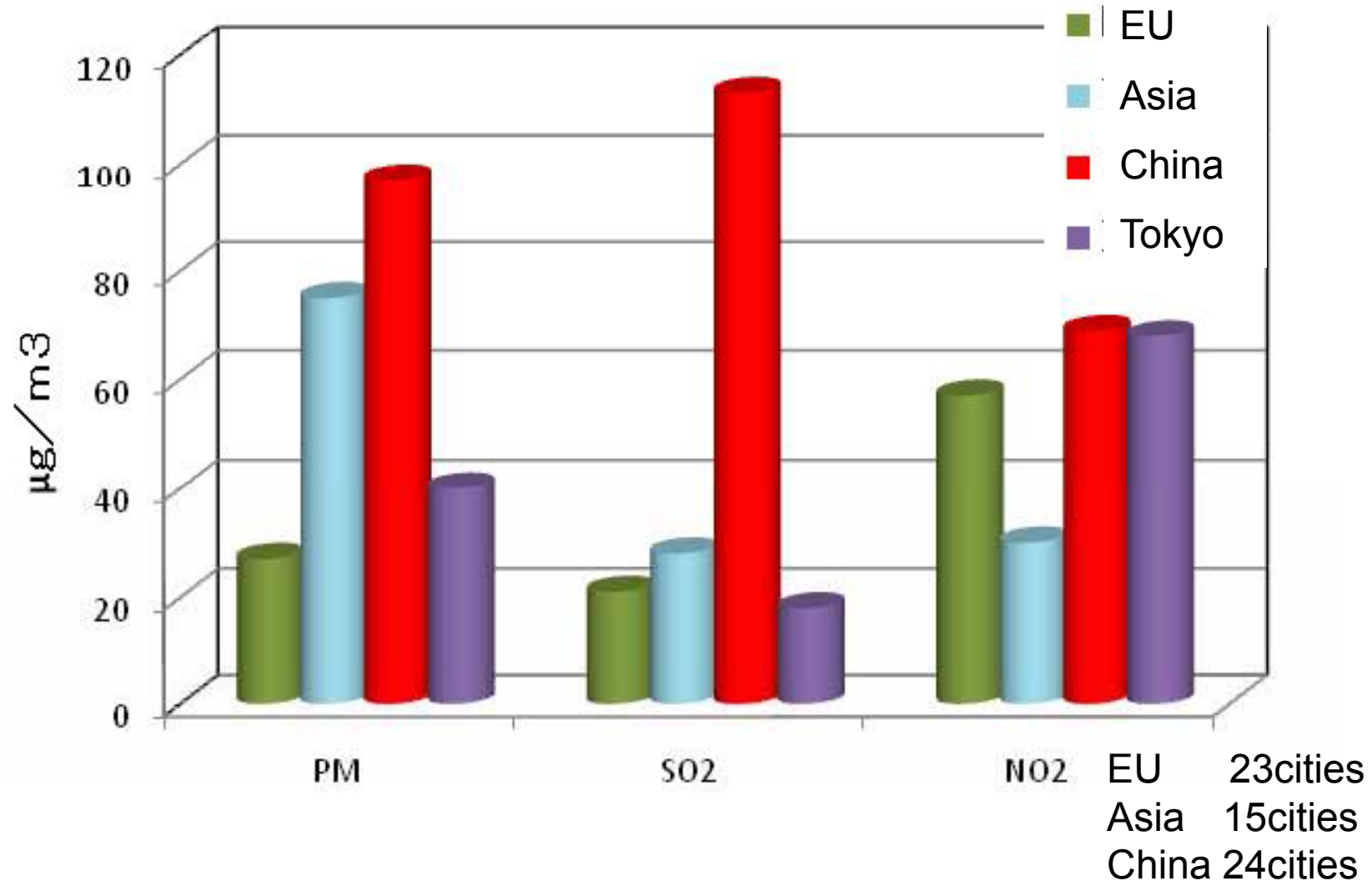
Development of the Urbanization in China

- Urban population accelerates rapidly, and over half live in the urban .
- The urbanization becomes the generation factor of the environmental problem .



About 70% of residents lives in large cities in 2030 .

The Air Pollution of Major Cities in China

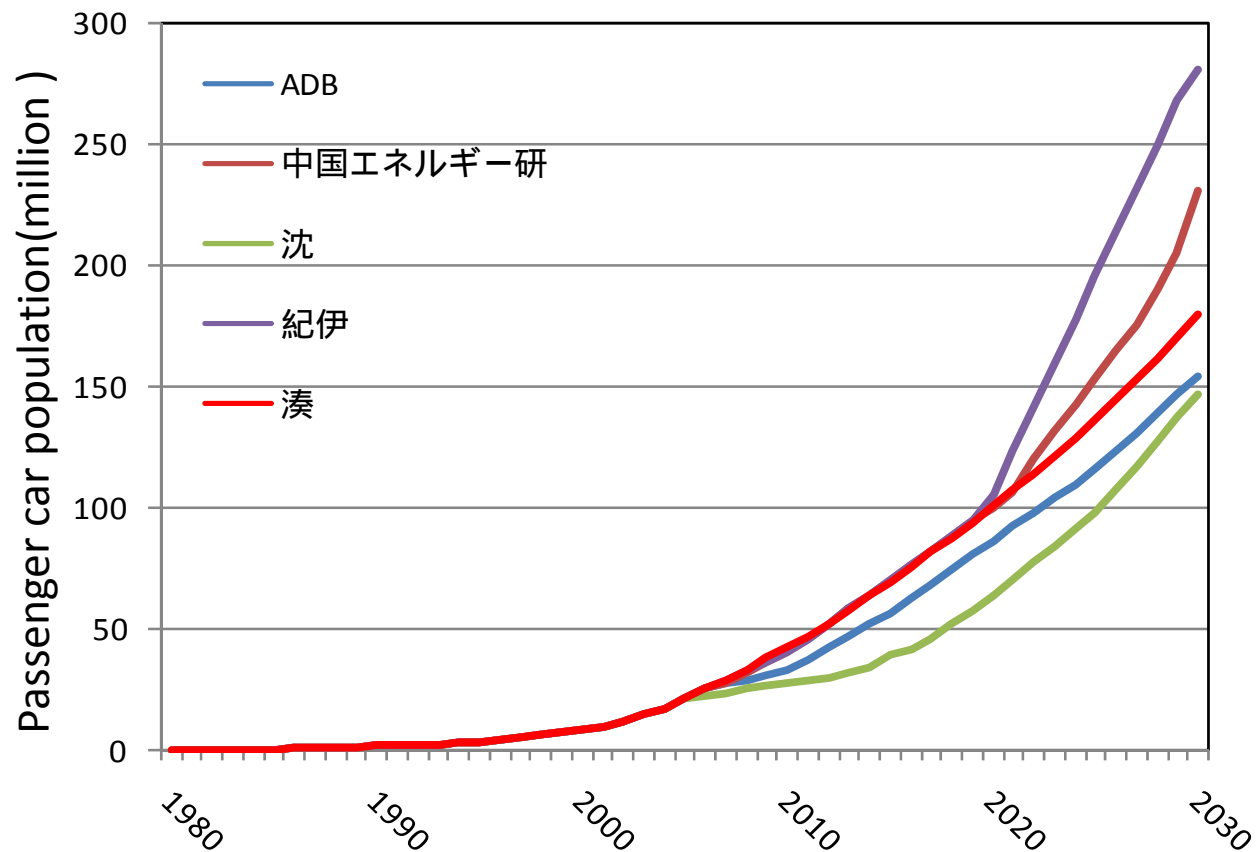


Emission regulation and Fuel quality in China (Gasoline)

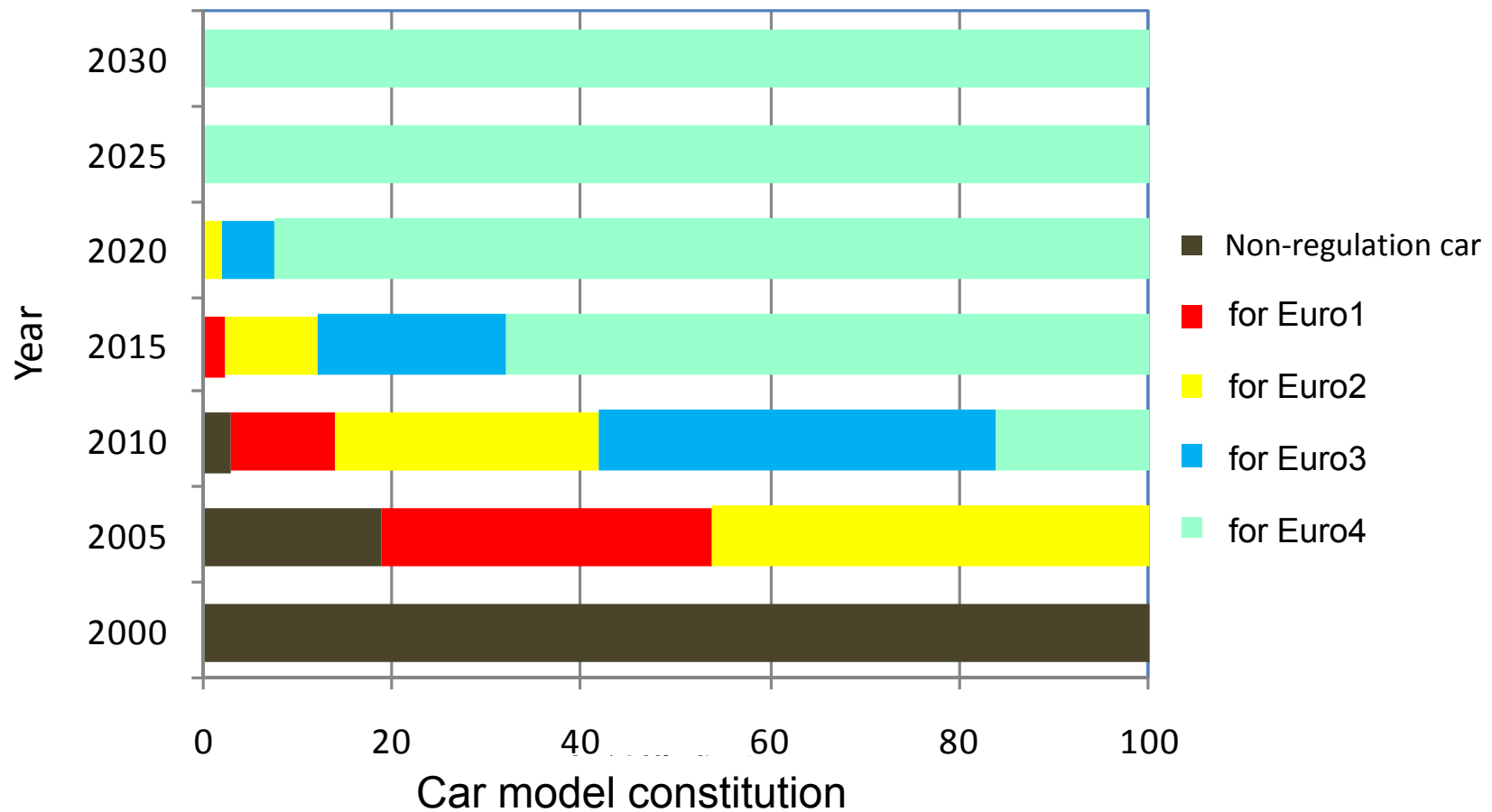
	2005	2006	2007	2008	2009	2010
Emission regl						
National	Euro2			Euro3		Euro 4
Beijing etc	Euro2	Euro3		Euro 4		
Beijing				OBD regulation		
Shanghai		OBD regulation				
fuel property (sulfur content)						
(Regulation value)	← 500ppm		← 150ppm		← 50ppm →	
National	500 ppm		350 ppm			50 ppm ?
Beijing	350 ppm ?			50 ppm ?		
Japan						
Emission	Euro 5				Euro 6	
Fuel property	50 ppm			10 ppm		

Estimation of No. of cars in 2030

- The car becomes around 200 million of them in 2030 in China .
 1. Emission increases more than emission reduction by regulation effort (city environment))
 2. Fuel demand increases→ Energy-saving measures become important (global warming)

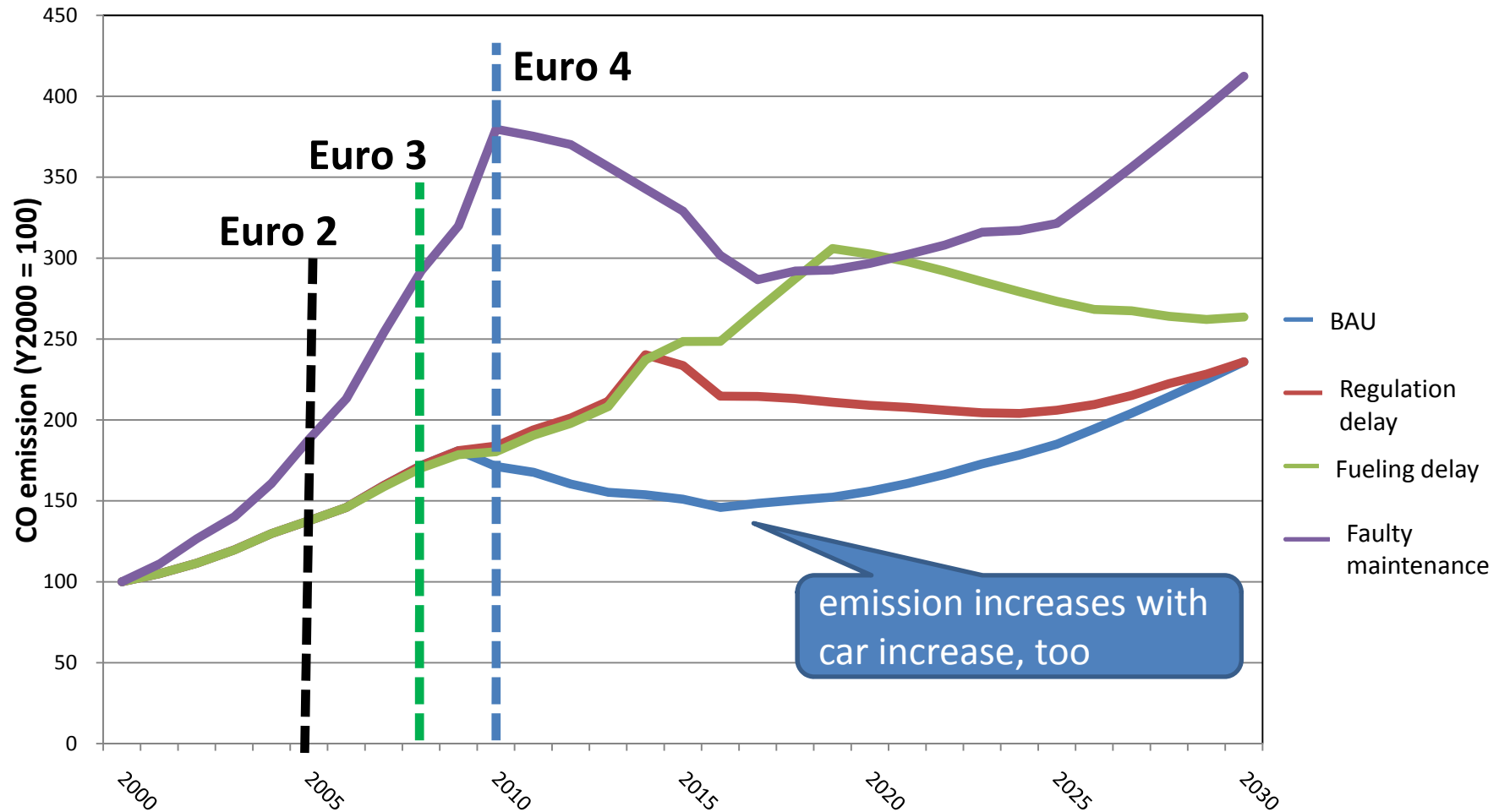


Estimation of the Constitution according to the Car Age in China



Estimation of Emission (CO)

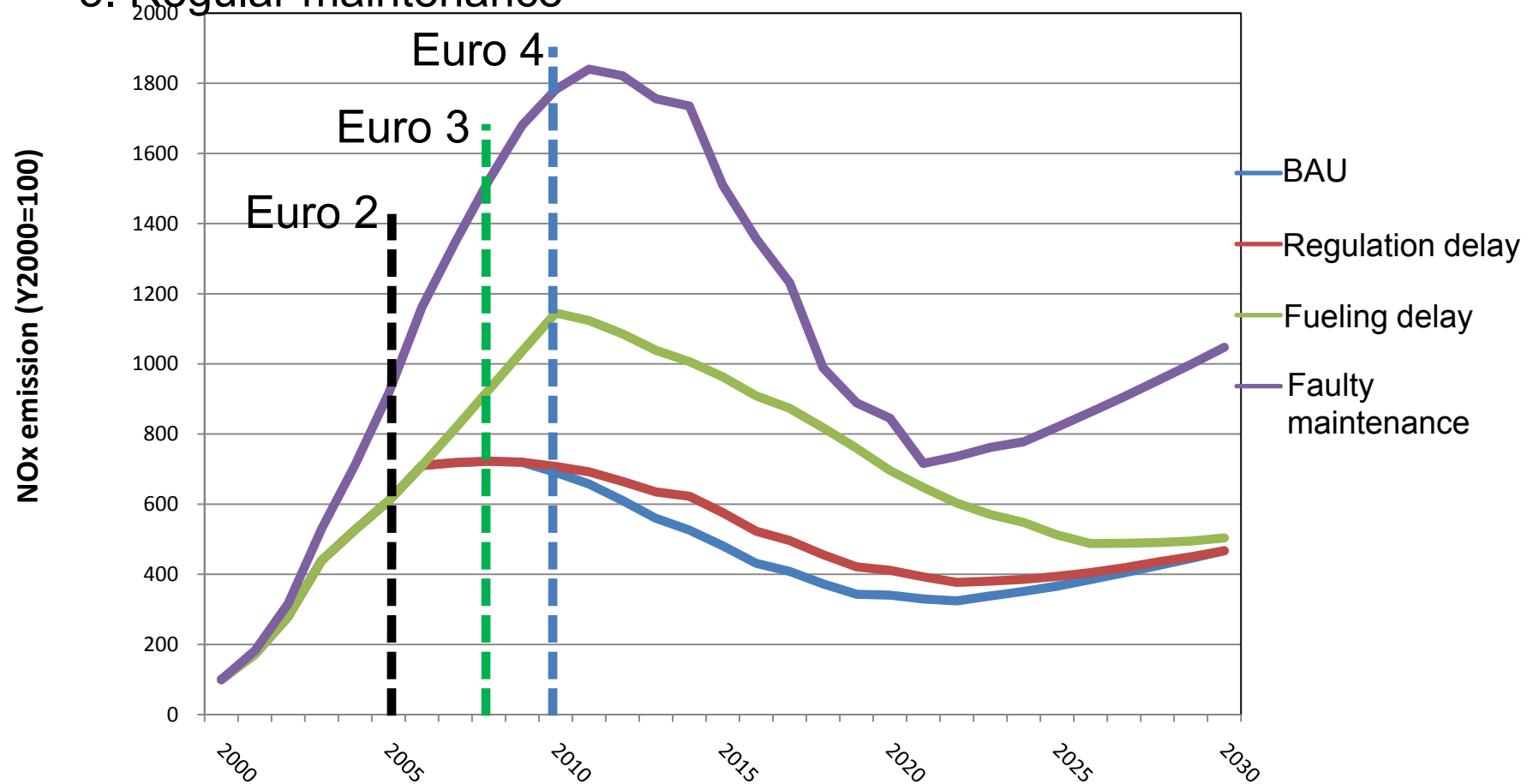
- The maintenance deficiency is a factor of the emission increase.
- Regulation and car inspection / maintenance enhancement are essential.



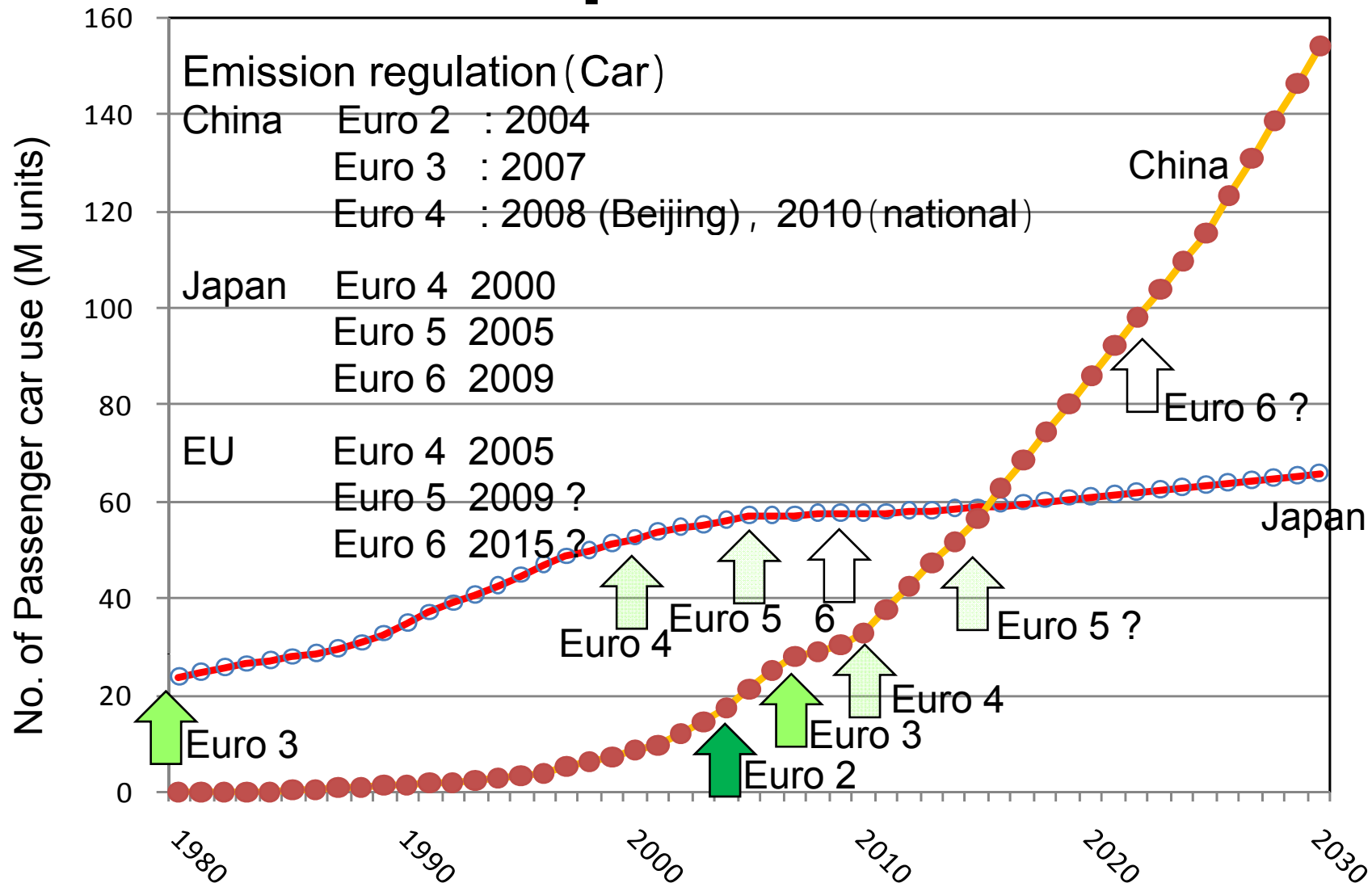
Estimation Emission (NOx)

➤ The enforcement of following three items is important for emission reduction

1. Introduction of the emission regulation
2. Guarantee of the fuel quality
3. Regular maintenance




How do you make use of our experience?



Emission Reduction Measure in Future

- In future, Increase of car use cancel effort for emission reduction in China

- Remaining Problems
 - Implementation of the further emission regulation immediately
 - Guarantee of the fuel quality corresponding to the emission regulation
 - Buildup of car inspection / maintenance (good use of OBD device)
 - The promotion of the clean vehicle by the tax benefit
 - The promotion of the public transport policy
 - Environmental campaign and education

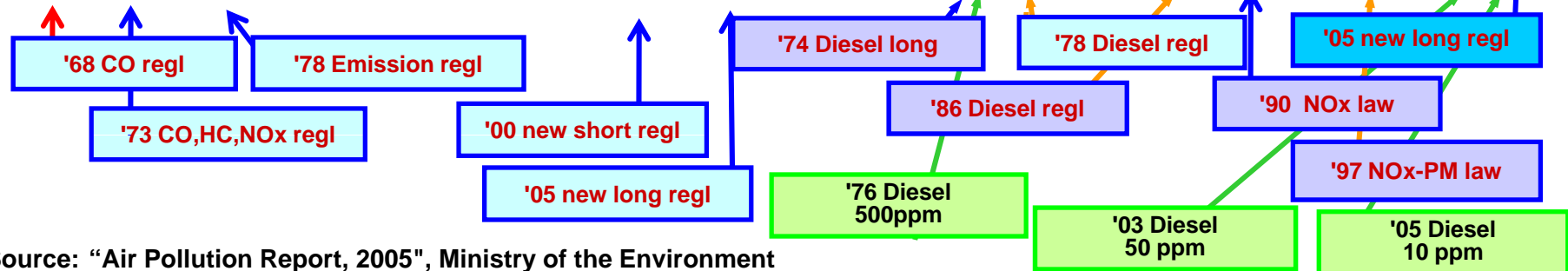
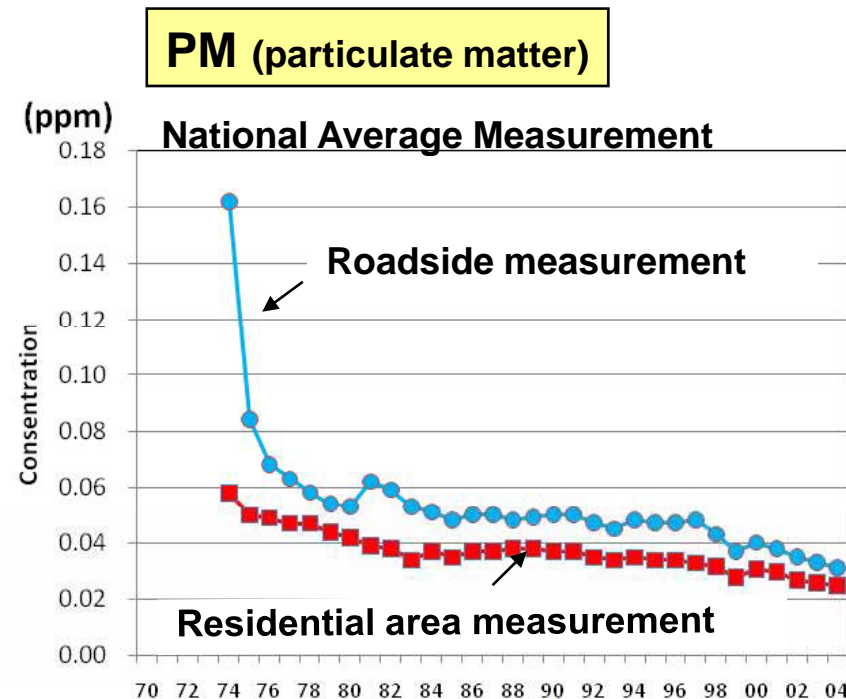
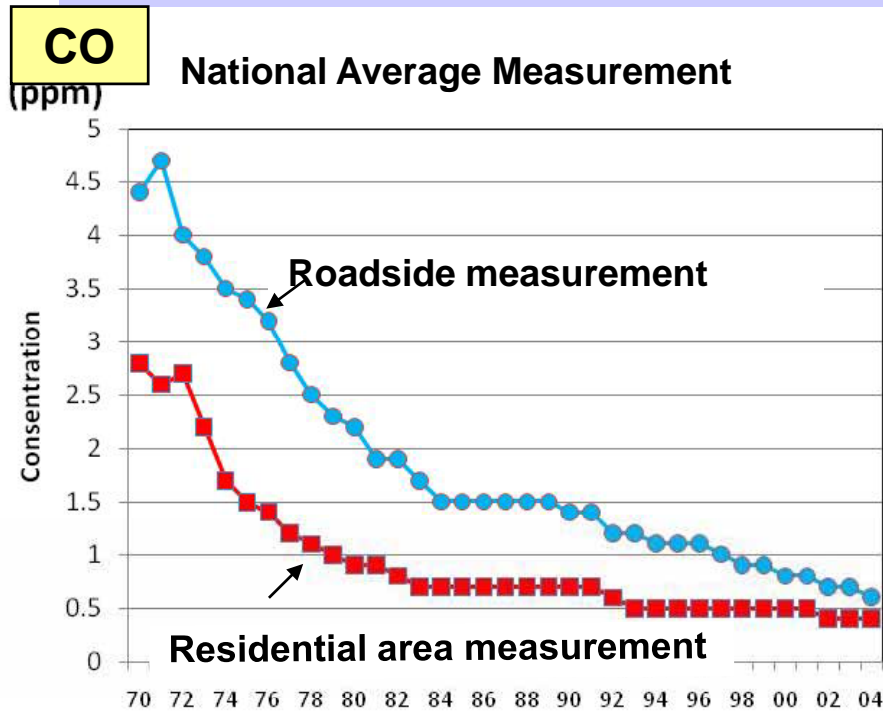
A photograph of two young children in school uniforms, one boy and one girl, both wearing face masks. They are standing outdoors, possibly in a schoolyard. The boy on the left is wearing a white shirt with a red tie and a dark vest. The girl on the right is wearing a white shirt with a red tie and a dark vest with green trim. The background is slightly blurred, showing other people and a building.

Let's improve air pollution
together. We can make
better environment in
China and Asia!

Thank you for your Attention

Japan's Effort for Air Quality Improvement

- * * Effective combination of emission/fuel regulations.
- * Air quality improving or stable despite expanding vehicle fleet.



Source: "Air Pollution Report, 2005", Ministry of the Environment