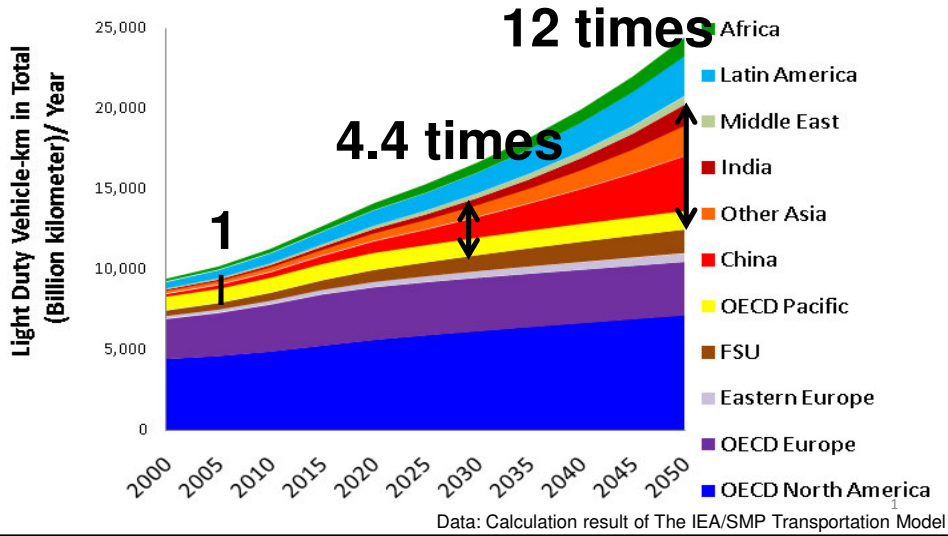


Annual Light Duty Vehicle Travel

• Increase of traffic volume (vehicle-km) may cancel effort for emission reduction in Asia.



Air Pollution in Asian Large Cities

According to WHO report (2002),
2/3 of death by air pollution is concentrated in Asia.

1990

City	CO	NO2	PM10	O3	SOx	Lead
Jakarta 1990	C	B	D	C	C	C
Kuala Lumpur 1990	C	C	B	C	B	C
Manila 1990	D	D	D	D	B	C
Bangkok 1990	B	B	E	B	B	C
Ho Chi Minh City 1990	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Beijing 1990	D	D	E	C	A	B

Latest Year (2002-2005)

City	CO	NO2	PM10	O3	SOx	Lead
Jakarta 2004	E	C	E	C	D	D
Kuala Lumpur 2004	C	D	D	C	B	A
Manila 2002	C	E	E	D	C	B
Bangkok 2005	A	D	D	B	C	B
Ho Chi Minh City 2002	C	E	E	N.A.	E	E
Beijing 2005	E	E	D	N.A.	C	N.A.

A	50 % below from WHO standard
B	Within WHO standard
C	Within 200 % over from WHO standard
D	Within 300 % over WHO standard
E	300 % over from WHO standard

Data Sources: Official sites of Ministry of Environment, Report of WB, Report of ADB

Time Schedule for Emission Regulation Introduction (Gasoline Passenger Vehicle)

2004													
Country	2000	2001	2002	2003	2004	Target: Euro 2				Target: Euro 4			
Indonesia	5000					Euro 2				Euro 4			
Malaysia	Euro 1					Euro 2				Euro 3			
Philippines	Euro 1					Euro 2				Euro 3			
Thailand	Euro 2					Euro 3				Euro 4			

2008													
Country	2000	2001	2002	2003	2004	Target: Euro 2				Target: Euro 4			
Indonesia	5000					Euro 2				Euro 4 (Considered)			
Malaysia	Euro 2					Euro 3				Euro 4 (plan)			
Philippines	Euro 1					Euro 2				Euro 4			
Thailand	Euro 2					Euro 3				Euro 4			

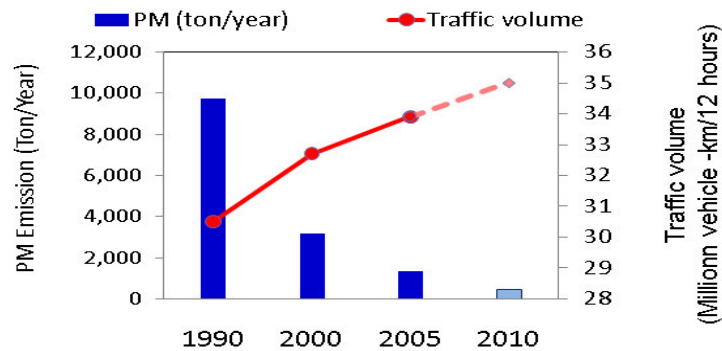
Sulfur content by emission regulation
 EURO2 : < 500 ppm
 EURO3 : < 150 ppm
 EURO4 : < 50 ppm

Data source :
 AMEICC2004 ,
 2007, AAF2008

Year of ULG : Unleaded Gasoline
 Year of lead phase out

Target : AMEICC 2004 target year

Total PM Emission from Vehicle and Traffic Volume -Case of Tokyo-



'90 diesel NOx reg
'97 diesel NOx-PM reg

'05 New Long-Term Reg (G,D)

'09 Post New Long-Term Reg (G,D)

'03 Diesel Sulfur 50 ppm

'05 Diesel Sulfur 10 ppm

Integrated Measures for Sustainable Automobile Society in Asia

- **Emission Regulation**
- **Fuel Quality Monitoring System**
- **Inspection and Maintenance Programs, Registration System**
- **Air Quality Monitoring**
- **Clean Vehicles
(CNGv, EV, HEV etc.)**
- **Public Campaign and Education about Environment**