

Seminar on

# Global Warming and Road Transportation

*~The Impact of Motorization in Fast-Growing Developing Nations  
such as China and India~*

November 15, 2005  
Washington DC

Japan International Transport Institute



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## Changes in Performance and Share of Domestic Passenger Transport by Transportation Means (in 100 Million passenger-kilometers)

Year	Total	Railway	Motor Vehicle	Air Transportation	Water Transportation
<b>1980</b>	<b>2,281</b>	<b>1,383</b>	<b>730</b>	<b>40</b>	<b>129</b>
<i>Share</i>		<i>61%</i>	<i>32%</i>	<i>2%</i>	<i>6%</i>
<b>1985</b>	<b>4,437</b>	<b>2,416</b>	<b>1,725</b>	<b>117</b>	<b>179</b>
<i>Share</i>		<i>54%</i>	<i>39%</i>	<i>3%</i>	<i>4%</i>
<b>1990</b>	<b>5,628</b>	<b>2,613</b>	<b>2,620</b>	<b>230</b>	<b>165</b>
<i>Share</i>		<i>46%</i>	<i>47%</i>	<i>4%</i>	<i>3%</i>
<b>1995</b>	<b>9,002</b>	<b>3,546</b>	<b>4,603</b>	<b>681</b>	<b>172</b>
<i>Share</i>		<i>39%</i>	<i>51%</i>	<i>8%</i>	<i>2%</i>
<b>2000</b>	<b>12,261</b>	<b>4,533</b>	<b>6,657</b>	<b>971</b>	<b>101</b>
<i>Share</i>		<i>37%</i>	<i>54%</i>	<i>8%</i>	<i>1%</i>
<b>2003</b>	<b>13,811</b>	<b>4,789</b>	<b>7,696</b>	<b>12,631</b>	<b>63</b>
<i>Share</i>		<i>35%</i>	<i>56%</i>	<i>9%</i>	<i>0%</i>

## Trend in Development of Land Transportation Infrastructure

<b>Year</b>	<b>Railway</b> (1,000 kilometers)	<b>Road</b> (1,000 kilometers)	<b>Highway</b> (1,000 kilometers)
1980	53	883	—
1985	55	942	—
1990	58	1,028	1
1995	63	1,157	2
2000	69	1,403	12
2003	73	1,810	30

## Changes in Performance and Share of Domestic Freight Transport by Transportation Means (100 Million ton-kilometers)

<b>Year</b>	<b>Total</b>	<b>Railway</b>	<b>Motor Vehicle</b>	<b>Water Transportation</b>	<b>Other Transportation</b>
<b>1980</b>	<b>805</b>	<b>572</b>	<b>76</b>	<b>152</b>	<b>5</b>
<i>Share</i>		<i>71%</i>	<i>9%</i>	<i>19%</i>	<i>0%</i>
<b>1985</b>	<b>1,283</b>	<b>813</b>	<b>169</b>	<b>240</b>	<b>61</b>
<i>Share</i>		<i>63%</i>	<i>13%</i>	<i>19%</i>	<i>5%</i>
<b>1990</b>	<b>1,807</b>	<b>1,062</b>	<b>336</b>	<b>345</b>	<b>64</b>
<i>Share</i>		<i>59%</i>	<i>19%</i>	<i>19%</i>	<i>4%</i>
<b>1995</b>	<b>2,396</b>	<b>1,287</b>	<b>470</b>	<b>577</b>	<b>62</b>
<i>Share</i>		<i>54%</i>	<i>20%</i>	<i>24%</i>	<i>3%</i>
<b>2000</b>	<b>2,725</b>	<b>1,377</b>	<b>613</b>	<b>666</b>	<b>69</b>
<i>Share</i>		<i>51%</i>	<i>22%</i>	<i>24%</i>	<i>3%</i>
<b>2002</b>	<b>2,895</b>	<b>1,566</b>	<b>678</b>	<b>578</b>	<b>73</b>
<i>share</i>		<i>54%</i>	<i>23%</i>	<i>20%</i>	<i>3%</i>

- The year to year increase in vehicle ownership is a ratio of 10% or higher.
- The number of passenger vehicles owned per 100 persons is 1.5~2.0.
- Price of a low-priced new vehicle is equivalent to a per-household annual income.

# Start of Motorization in China

China	Number of passenger vehicles owned	Number of vehicles per 100 persons	Per-capita GDP
2000	8.53 million	0.7	\$846
2001	9.94 million	0.8	\$927
2002	12.04 million	1.0	\$955
2003	14.80 million	Approx. 1.2	<\$1000
2004	—	—	—
2005*	19.78 million	1.6	\$1,140

*\*The figures for 2005 are based on 2000-2002 performance.*

## Present & Future CO<sub>2</sub> Emission by Road Transport Sector in China, EU, and Japan ( in CO<sub>2</sub> million tons)

Year	China	EU (15)*	Japan*
2000	225	816	229
2010	344 (+119)	816 (0)	219 (-10)
2030	558 (+333)	—	—

*\*Figures are the actual results of CO<sub>2</sub> emissions from 2002.  
( ) compared with the year 2000*

# Present & Future Oil Import of China ( in toe million tons)

Year	Import	Own Products	Import Dependence
2000	58	163	26%
2010	190	176	52%
2020	446	146	75%

*Information taken from 2004 Asian World Energy Outlook  
( Japan Energy Economy Research Institute)*



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