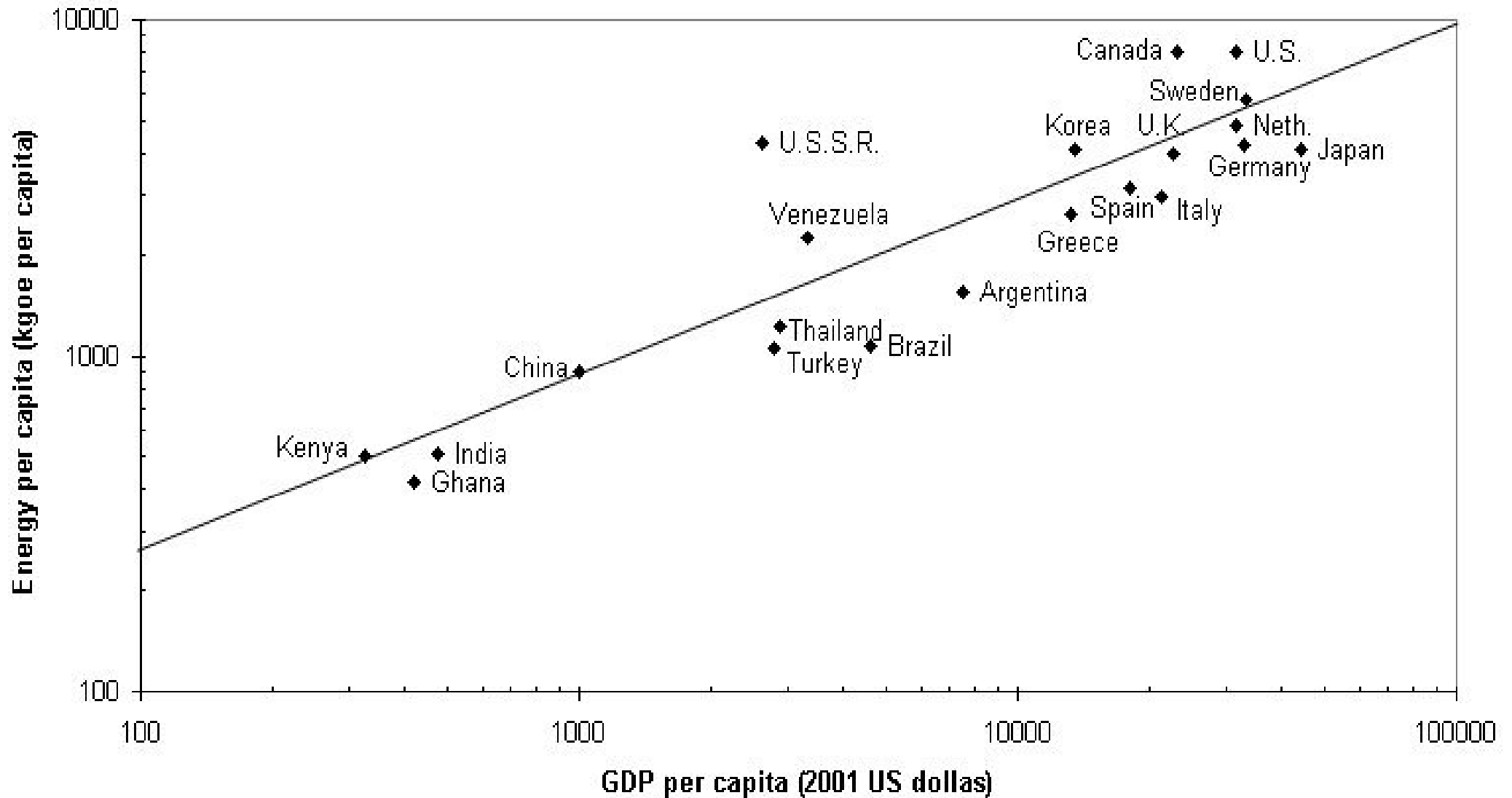


Trend of Energy Consumption in Transportation and Its Implications

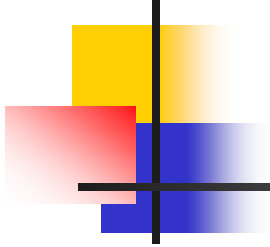
Asst. Prof. Dr. Chumnong Sorapipatana



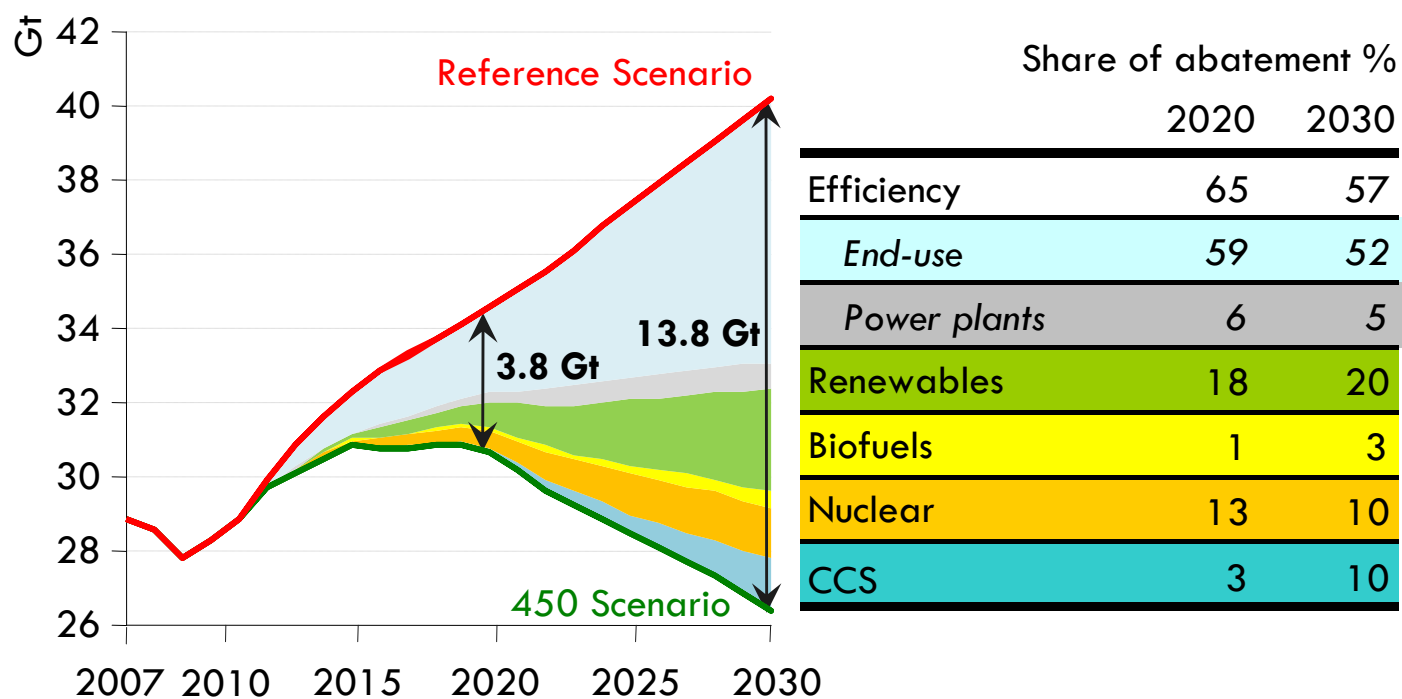
GDP per capita versus energy consumption per capita for selected countries 2001



Implications of the energy trends in the Reference Scenario by IEA, 2009

- 
- Current energy trends are patently unsustainable — *environmentally, economically & socially*
 - Rising CO₂ emissions imply an inexorable rise in global greenhouse-gas concentration & potentially catastrophic climate change
 - Increasing oil & gas imports & prices threaten to exacerbate energy insecurity
 - Current energy trends in the least-developed regions would leave millions dependent on traditional fuels & lacking access to electricity

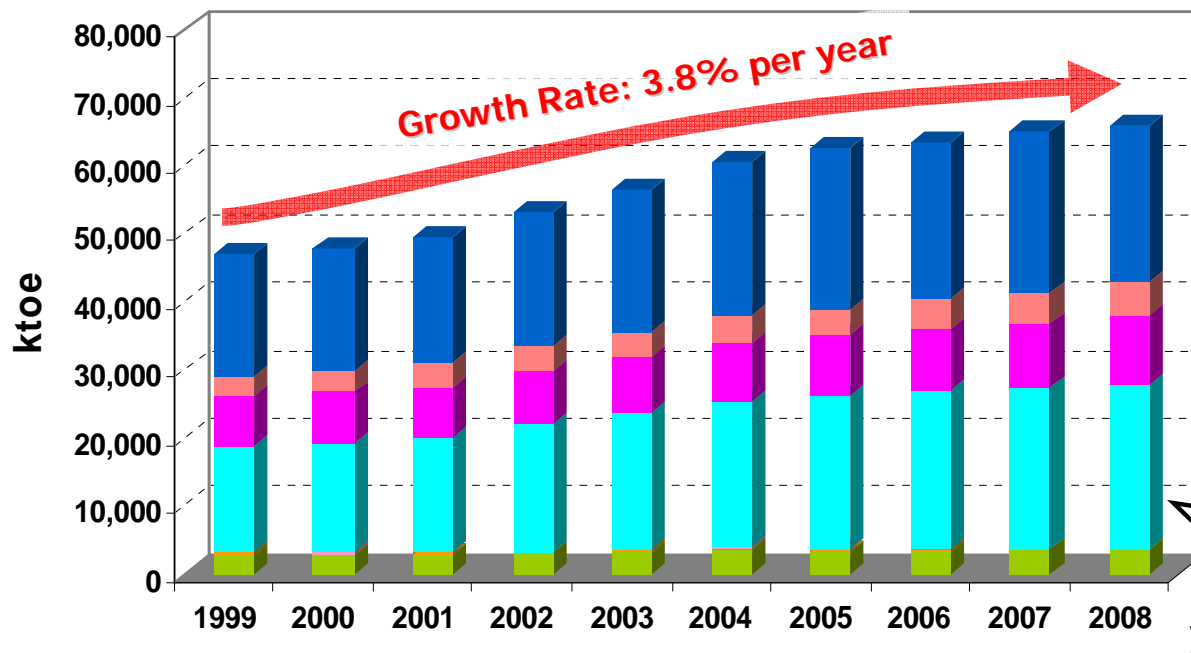
World abatement of energy-related CO₂ emissions in the 450 Scenario (IEA-Energy Outlook, 2009)



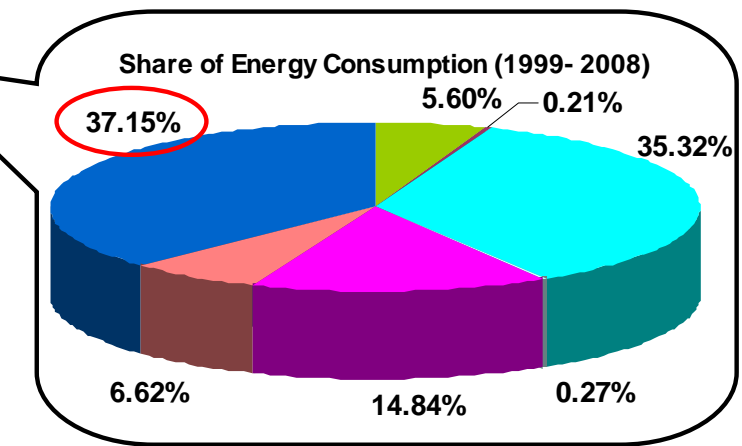
Efficiency measures account for two-thirds of the 3.8 Gt of abatement in 2020, with renewables contributing close to one-fifth

Energy Consumption in Thailand

Energy Consumption by Economic Sector

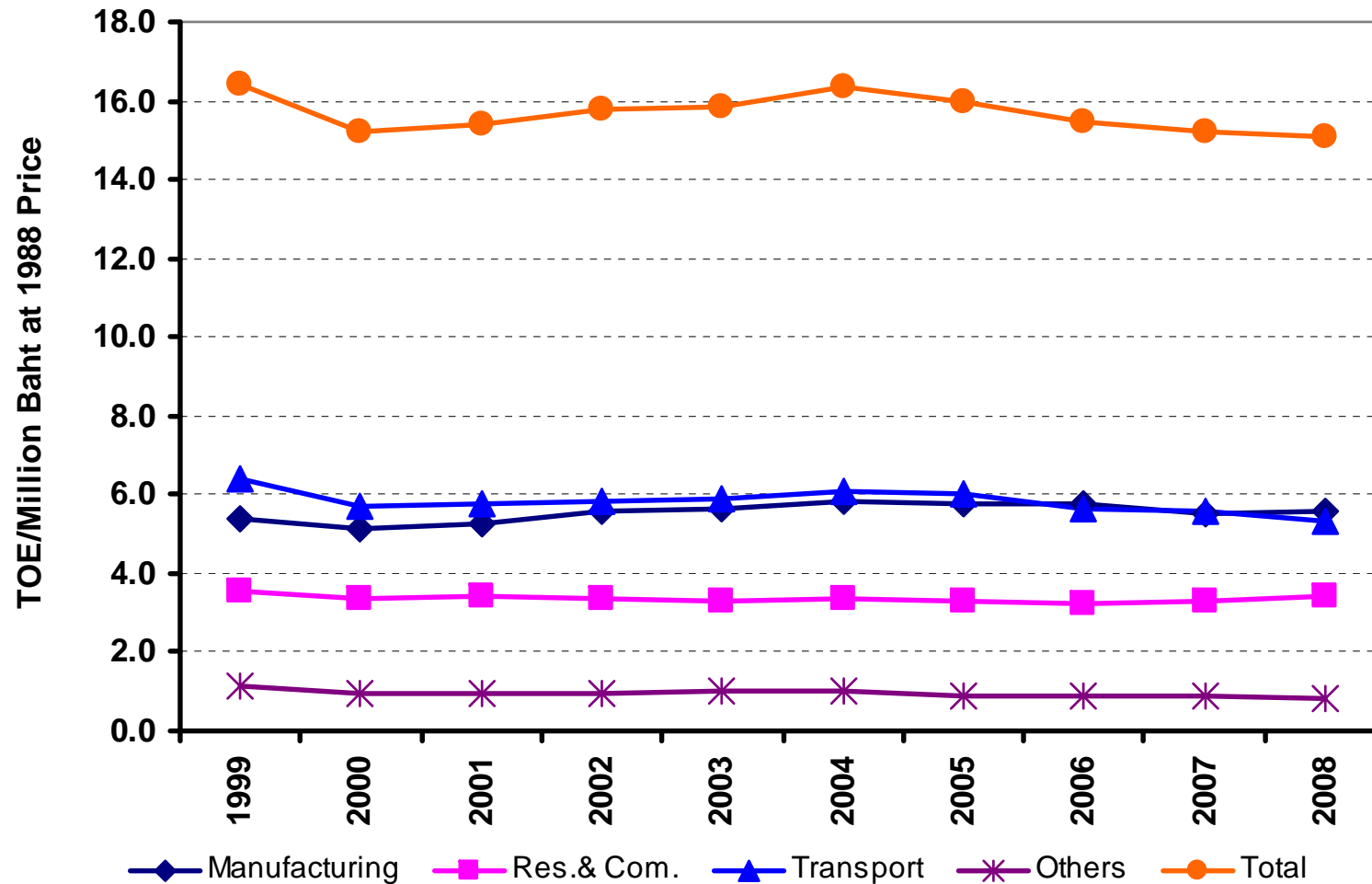


Source: DEDE 2008

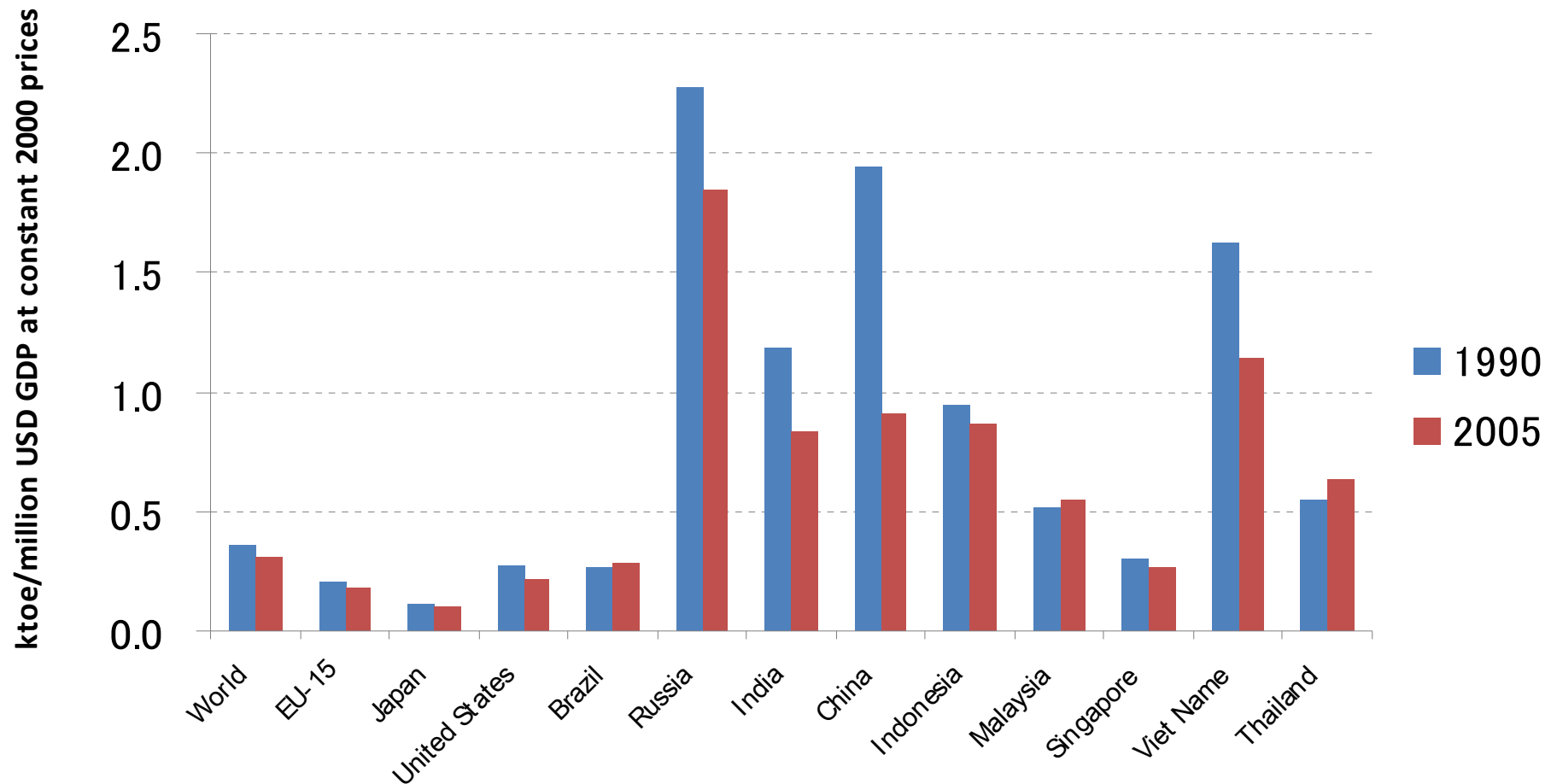


Trends of Energy Intensity

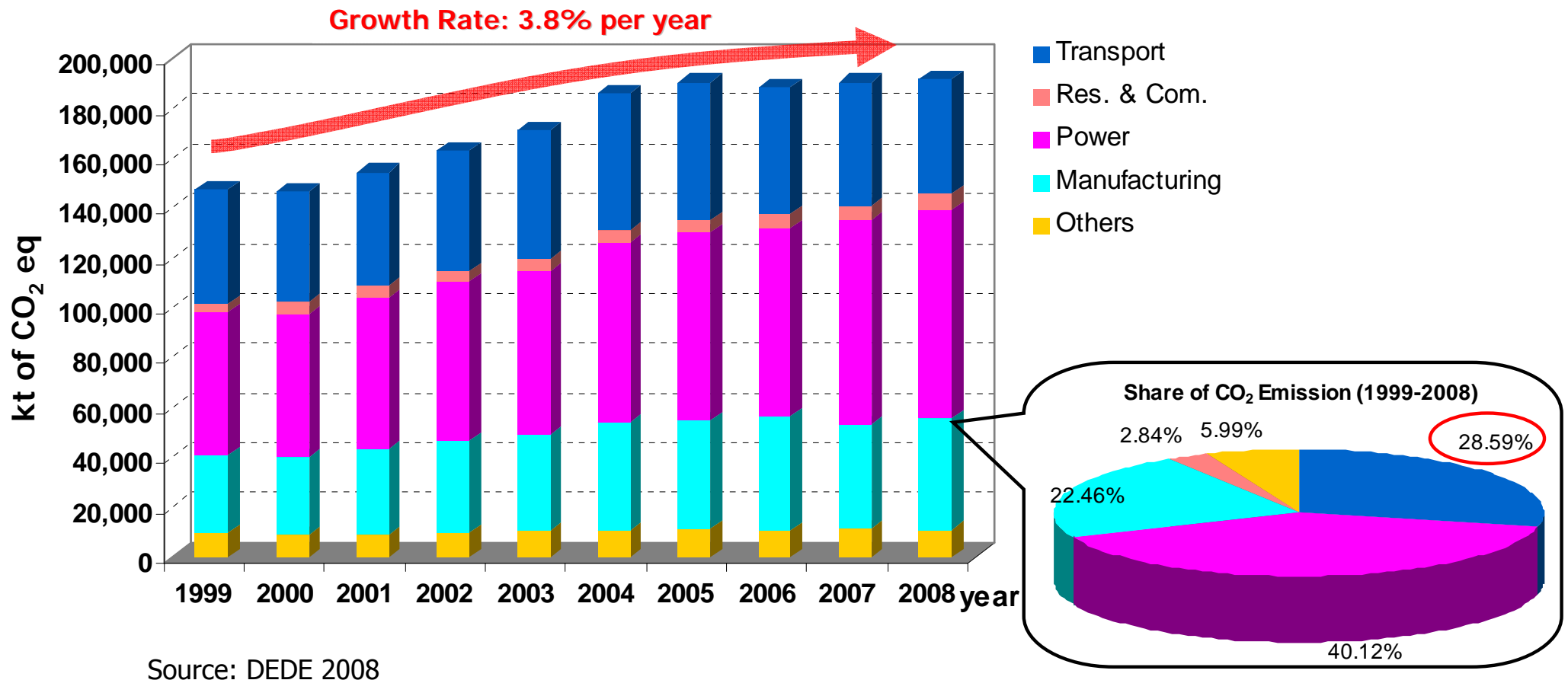
Thailand's Energy Intensity of Economy



Comparison of Energy Intensity

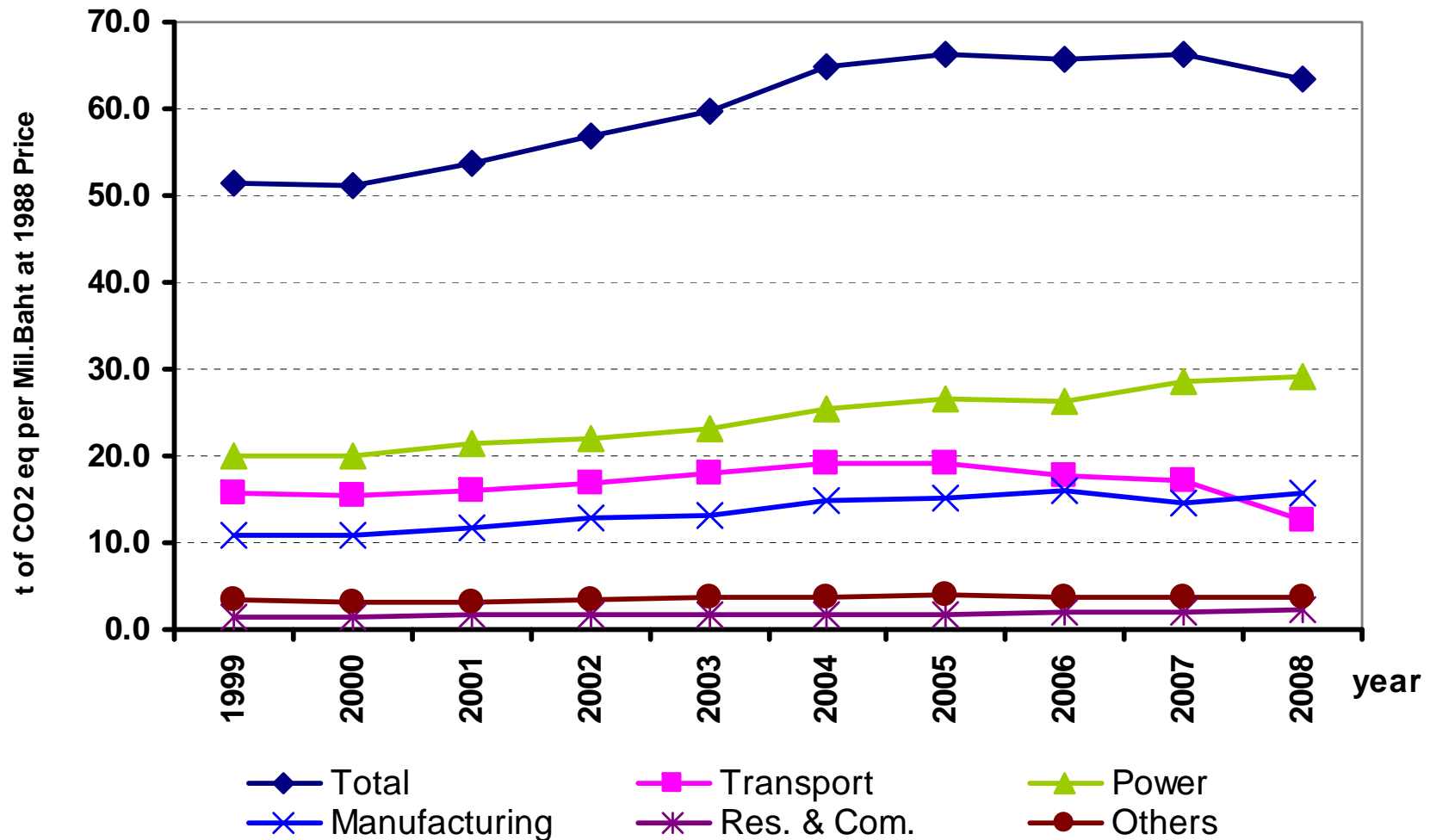


GHG Emission from Energy Sector



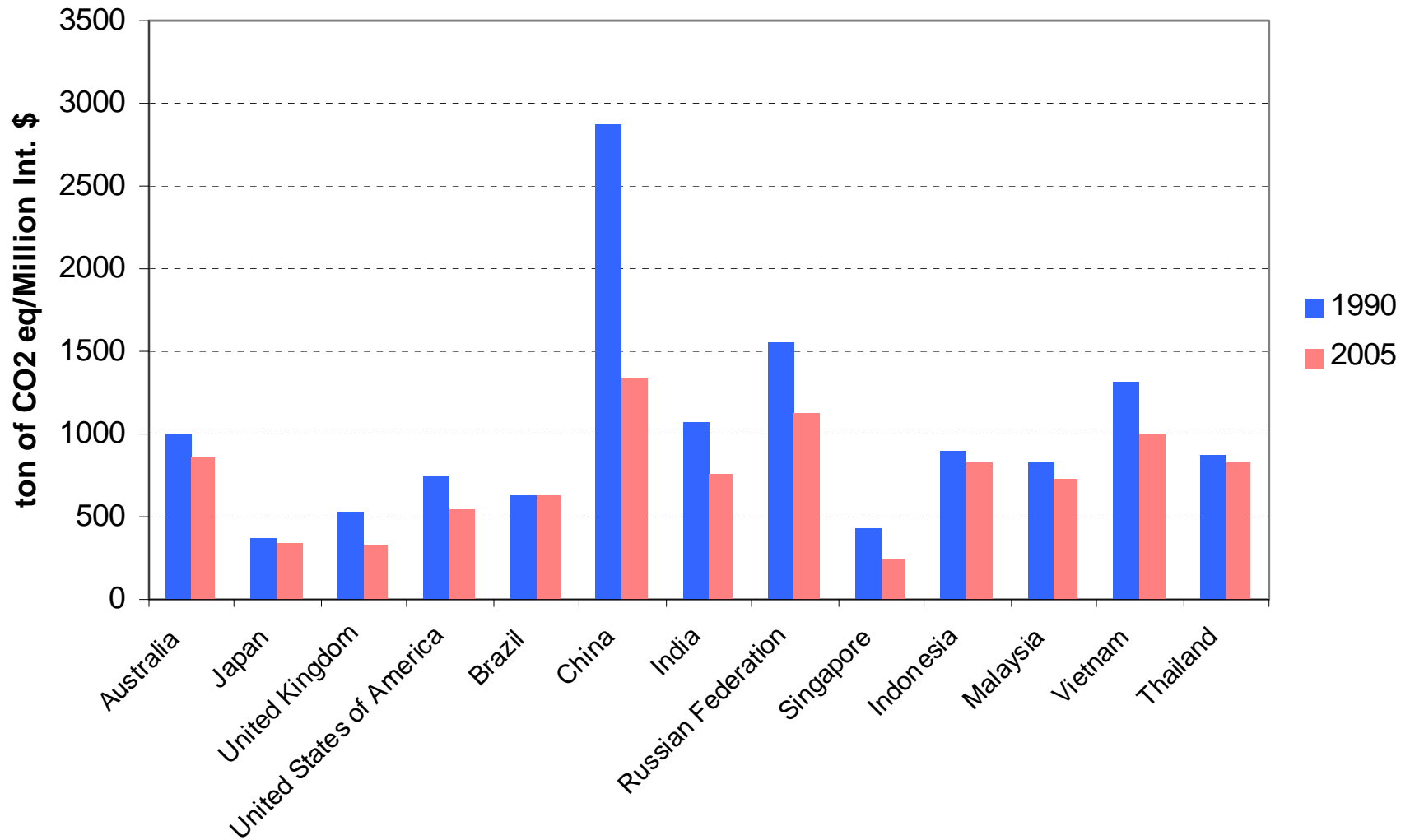
Trends of GHG Emission Intensity

Thailand's Energy Intensity of Economy



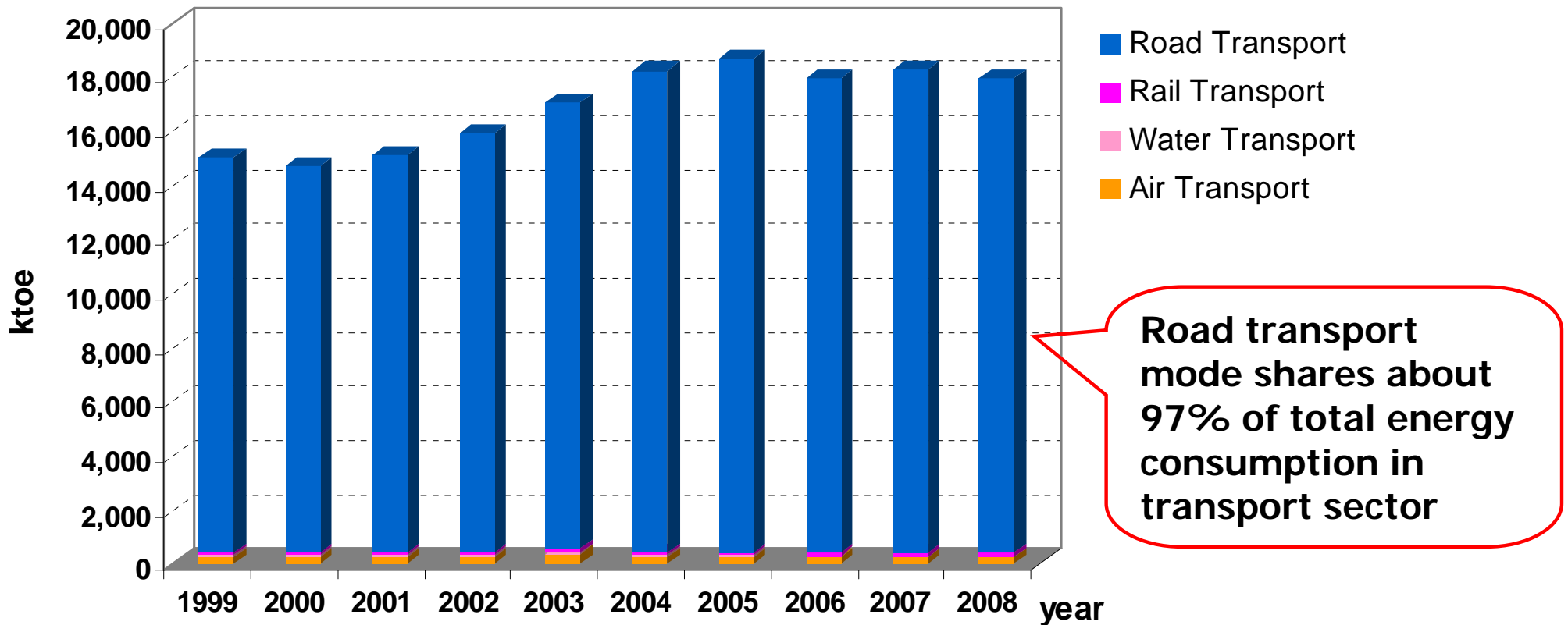
Comparison of GHG Emission Intensity

GHG Emission Intensity of Economy



Energy Consumption Transport Sector

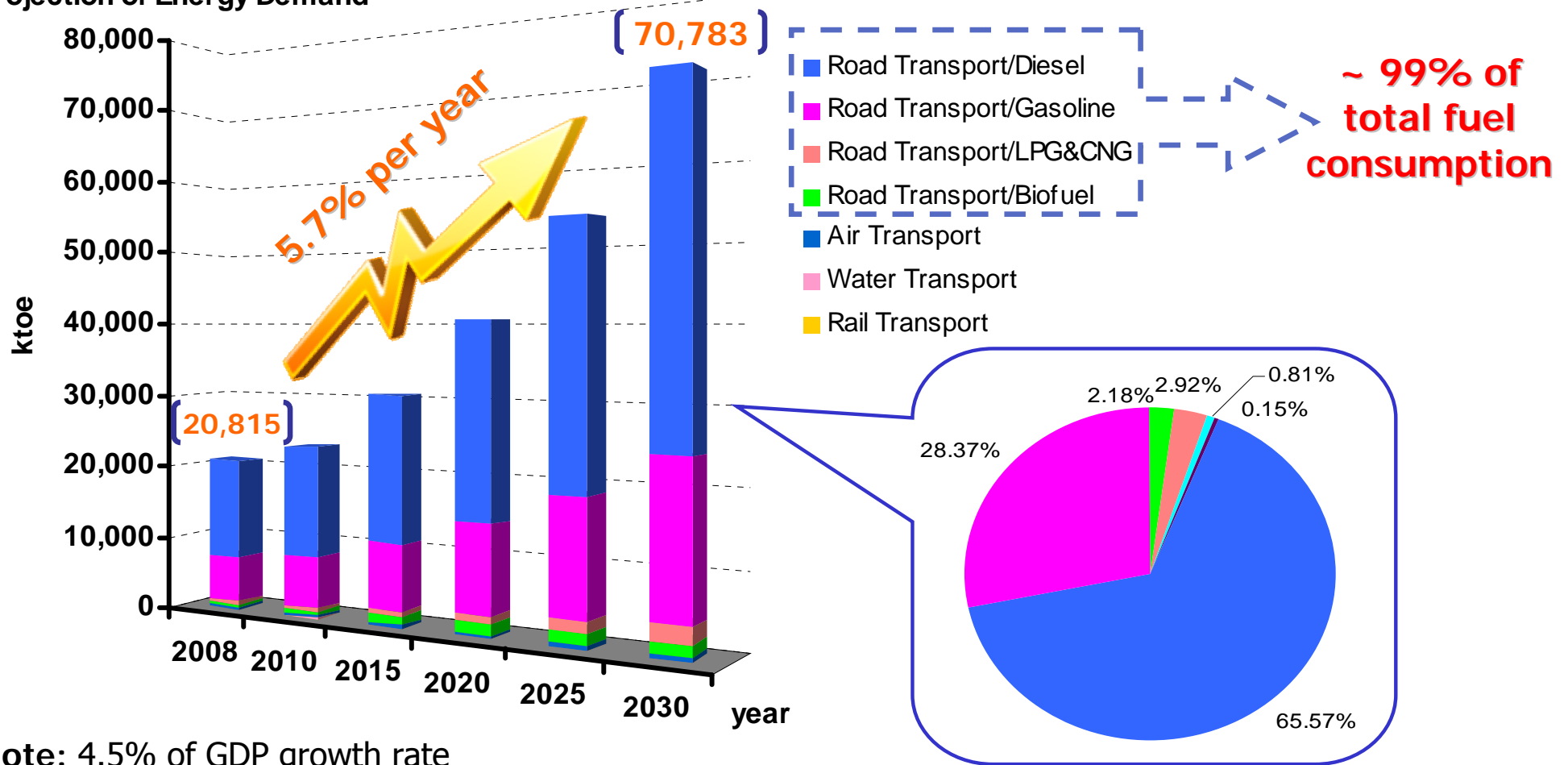
Energy Consumption in Transport Sector



Source: DEDE 2008

Projections of Energy Demand in Transport Sector

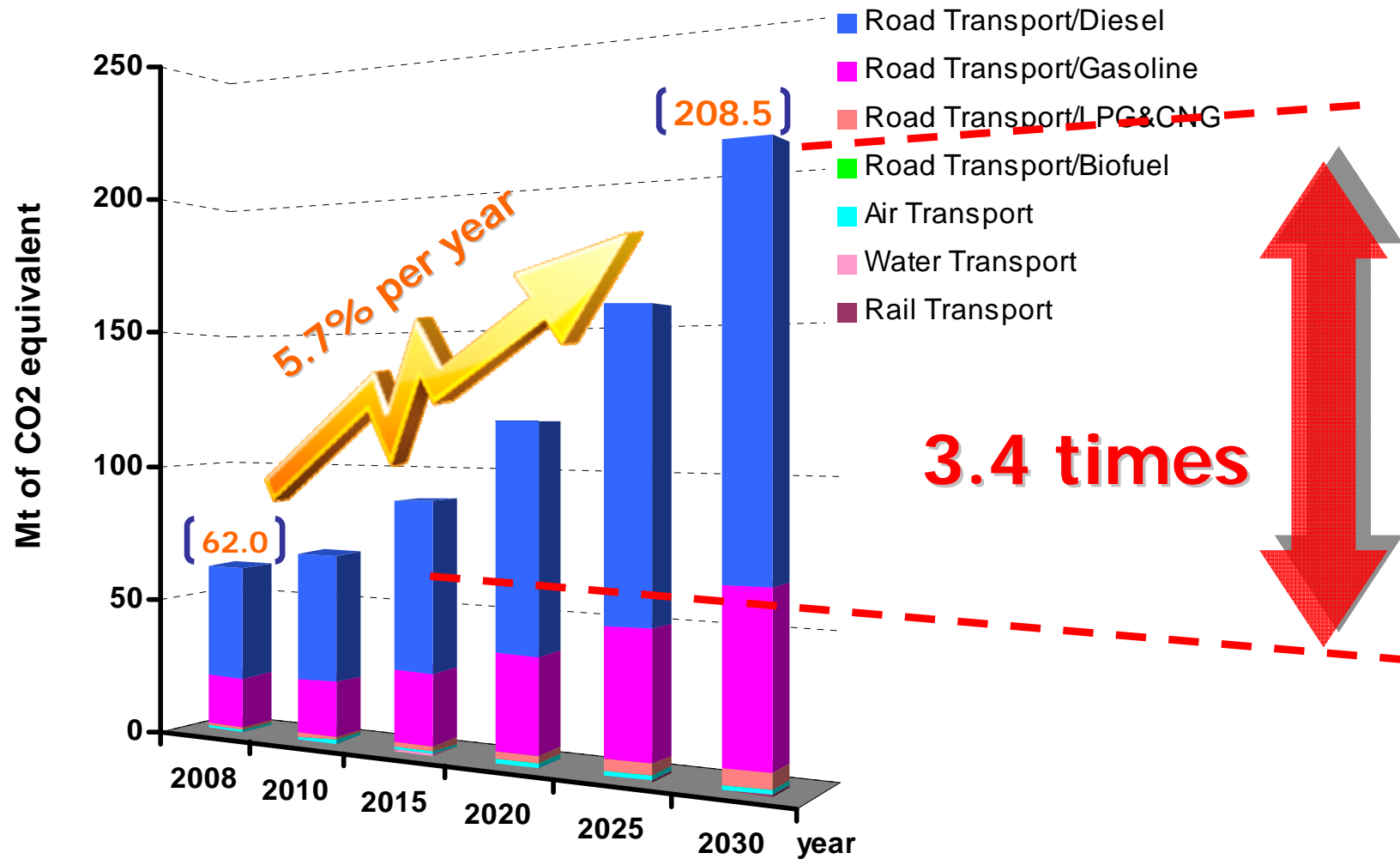
Projection of Energy Demand



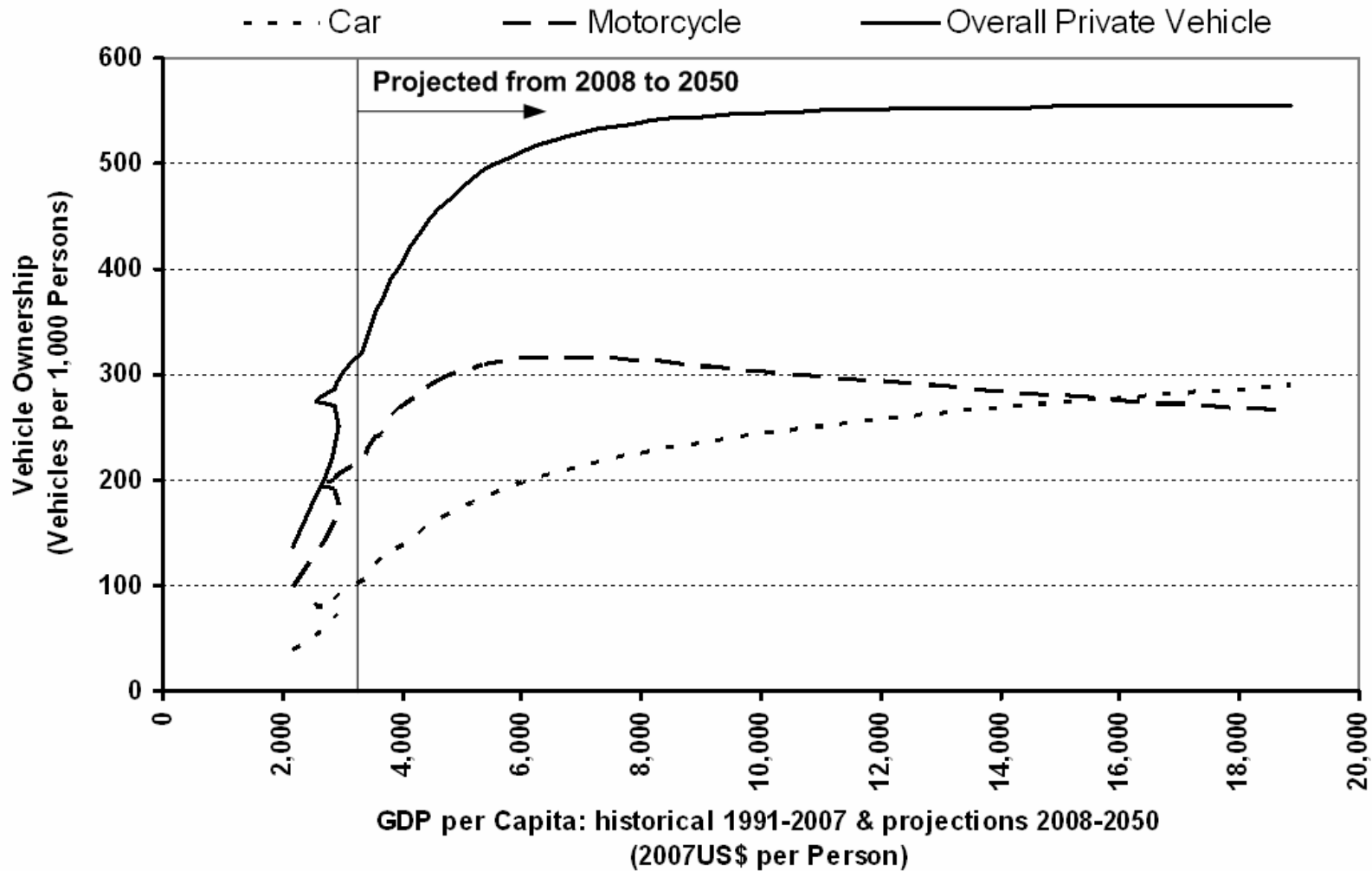
Note: 4.5% of GDP growth rate
0.6% of population growth rate

Source: Pongthanaisawan J. and Sorapipatana C. (2010)

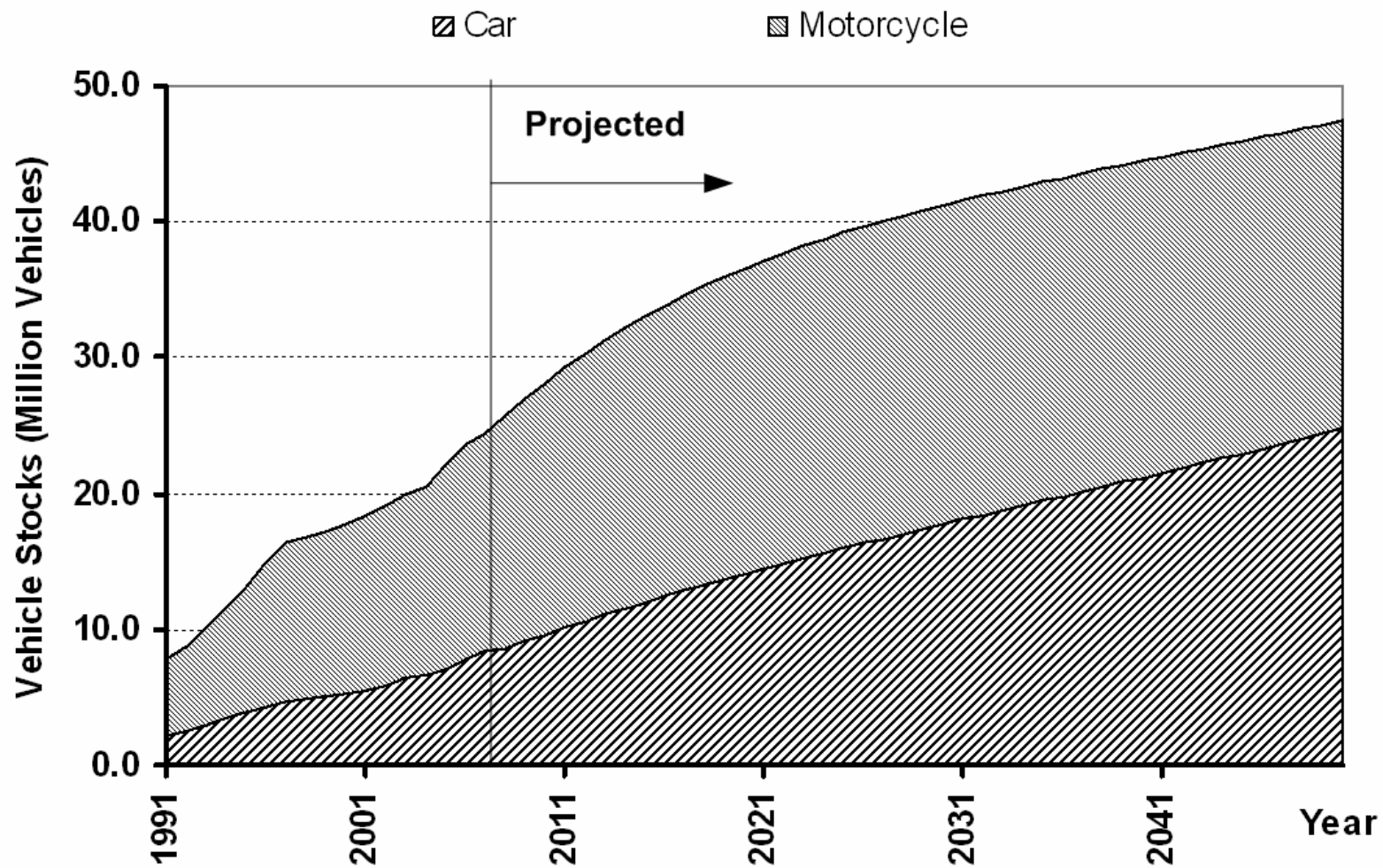
Projections of GHG Emission in Transport Sector



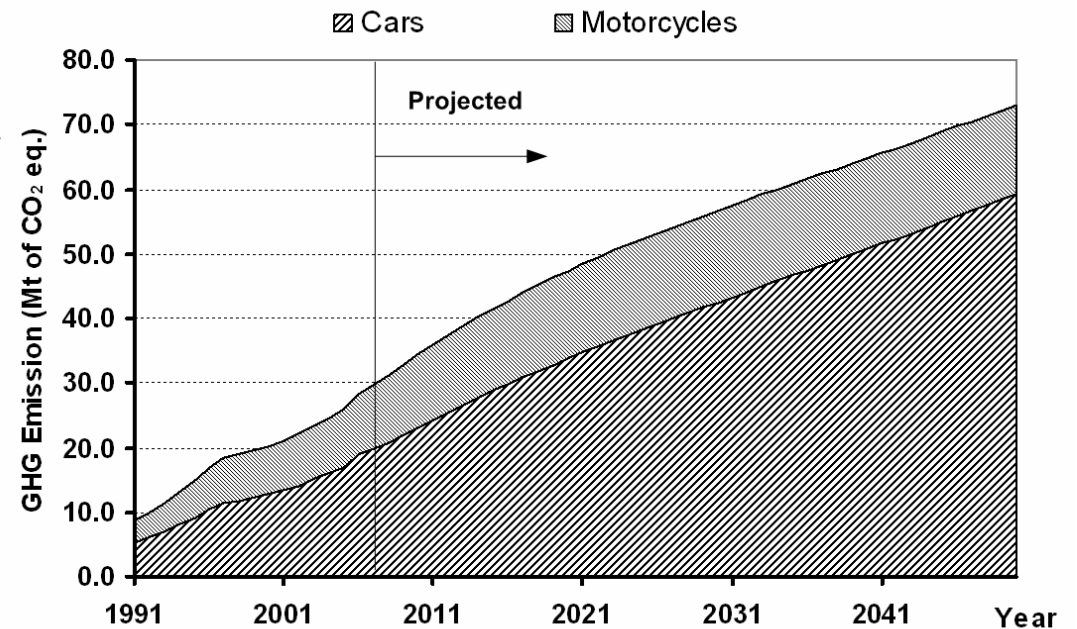
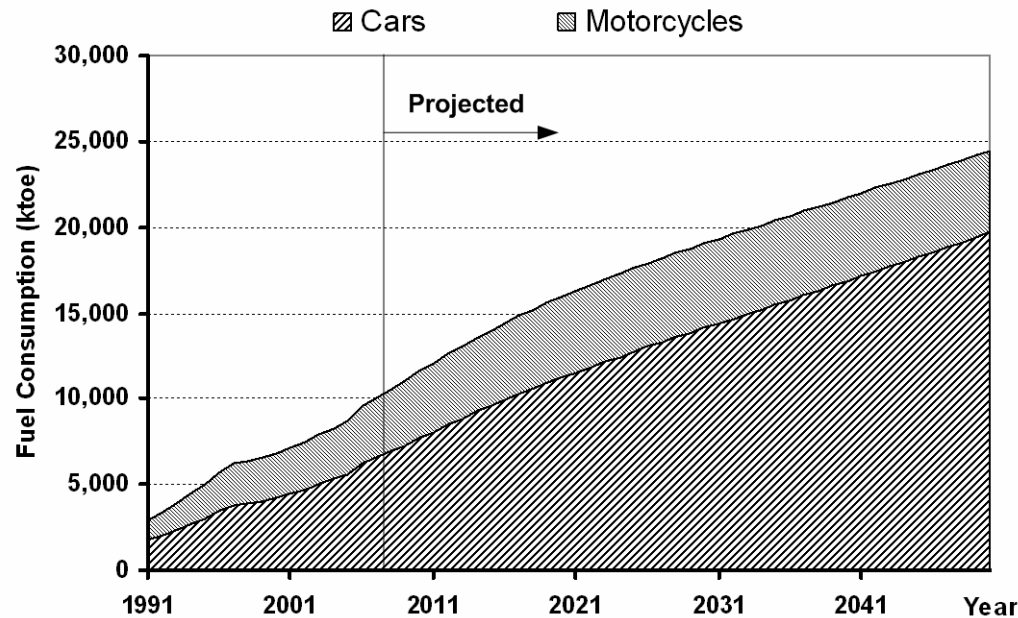
Private Vehicle Ownership



Private Vehicle Stocks

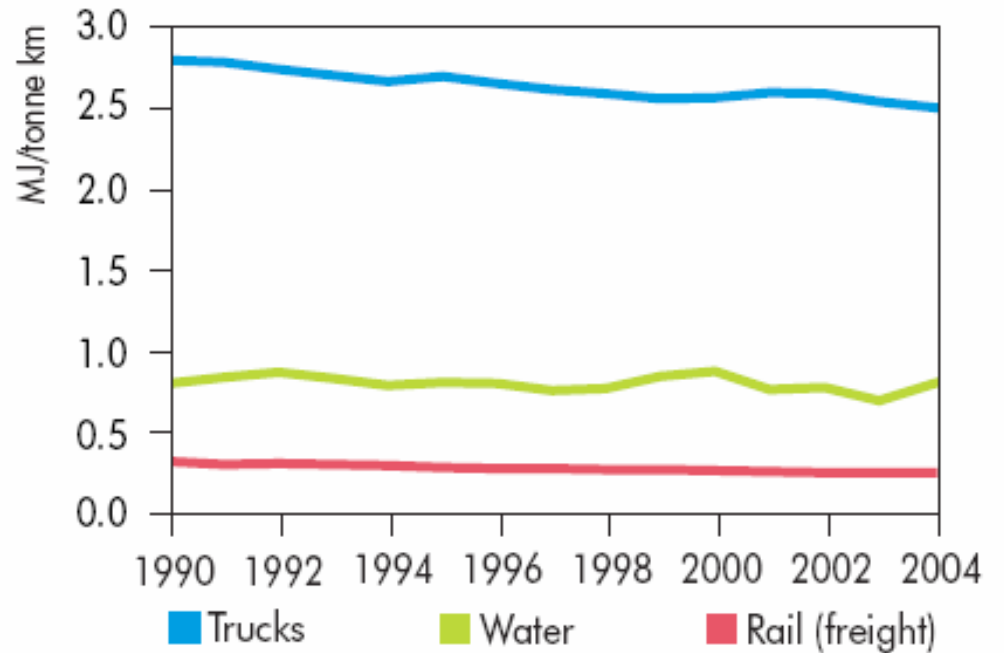
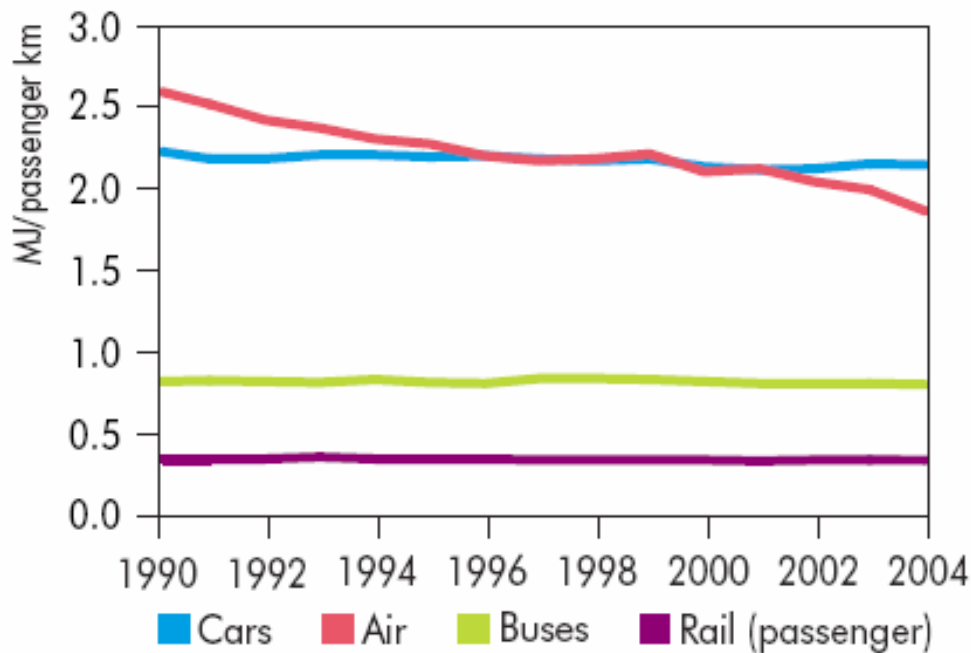


Energy Demand and GHG Emission of Private Vehicles



Energy intensity of different transport modes

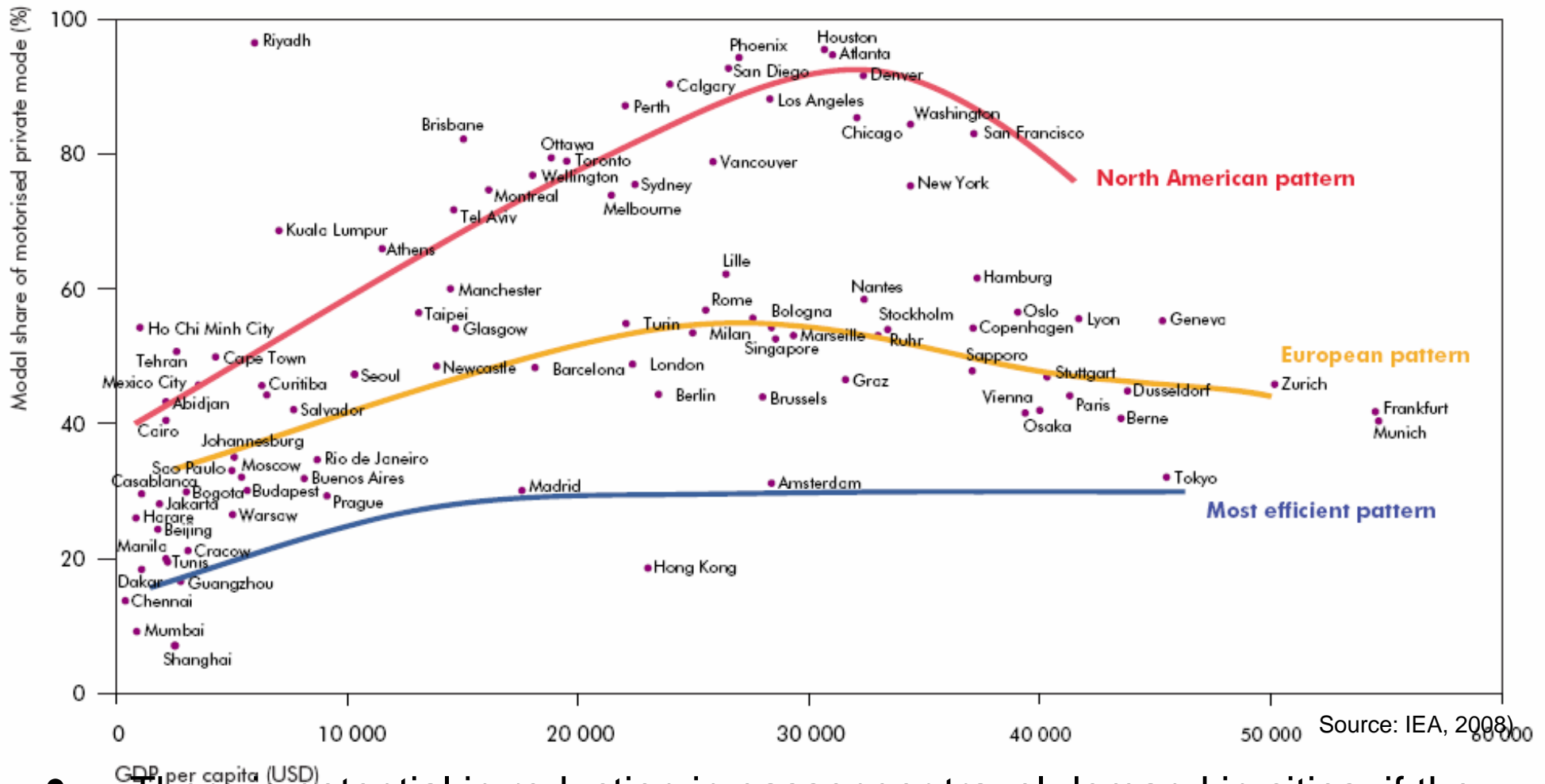
Energy Intensities in Transport in IEA countries during 1990-2004



Source: IEA, 2008

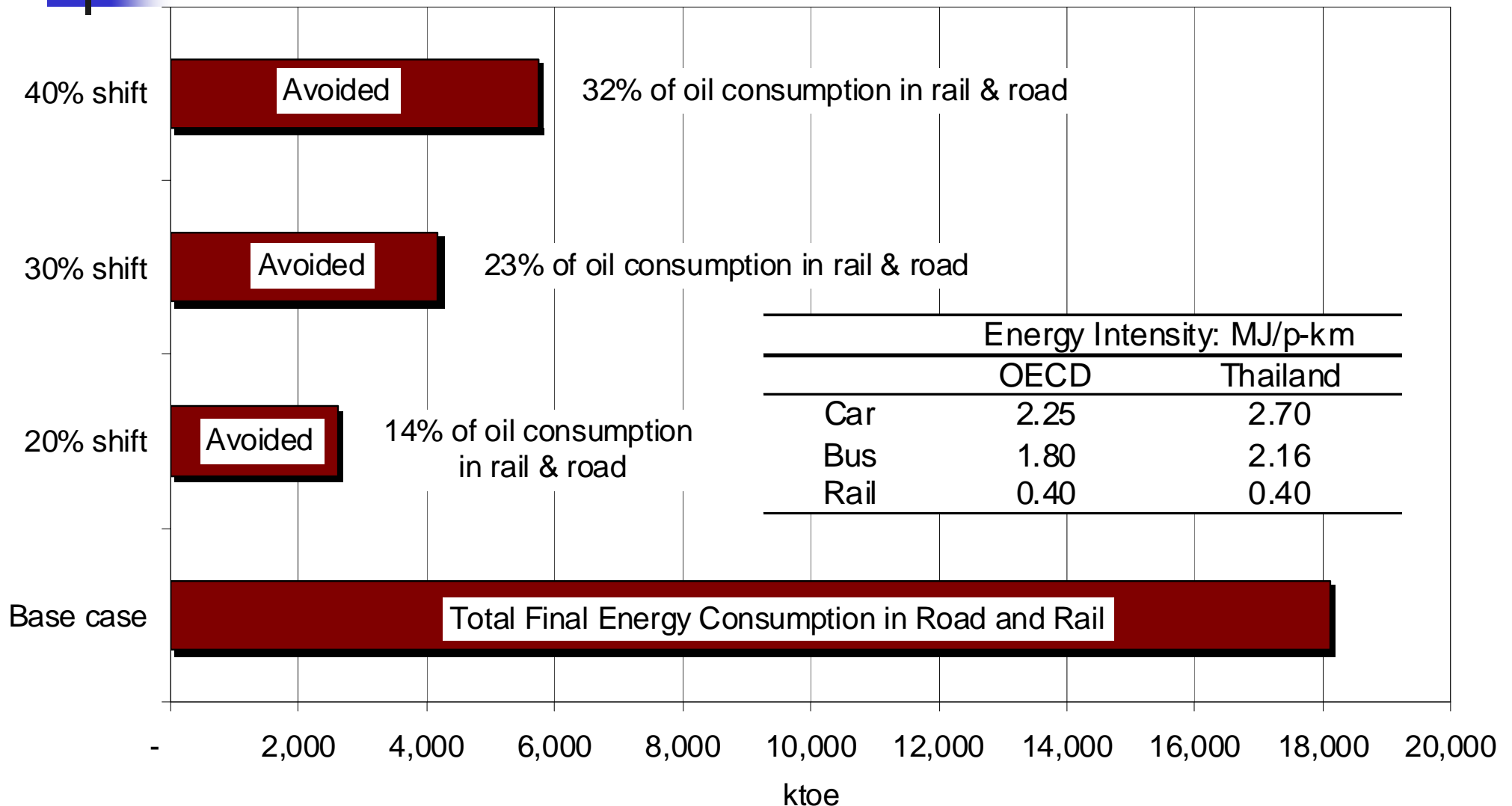
- Modal Shift towards energy efficient mode of transport can utilize the benefit of the variable energy intensities of different modes in transport

Share of private transport mode



- There is potential in reduction in passenger travel demand in cities, if they invest heavily in public and non-motorized transport infrastructure.

Oil Savings by Shifting to Mass Rapid Transit in Thailand in 2004






Pitfall in Transport Planning

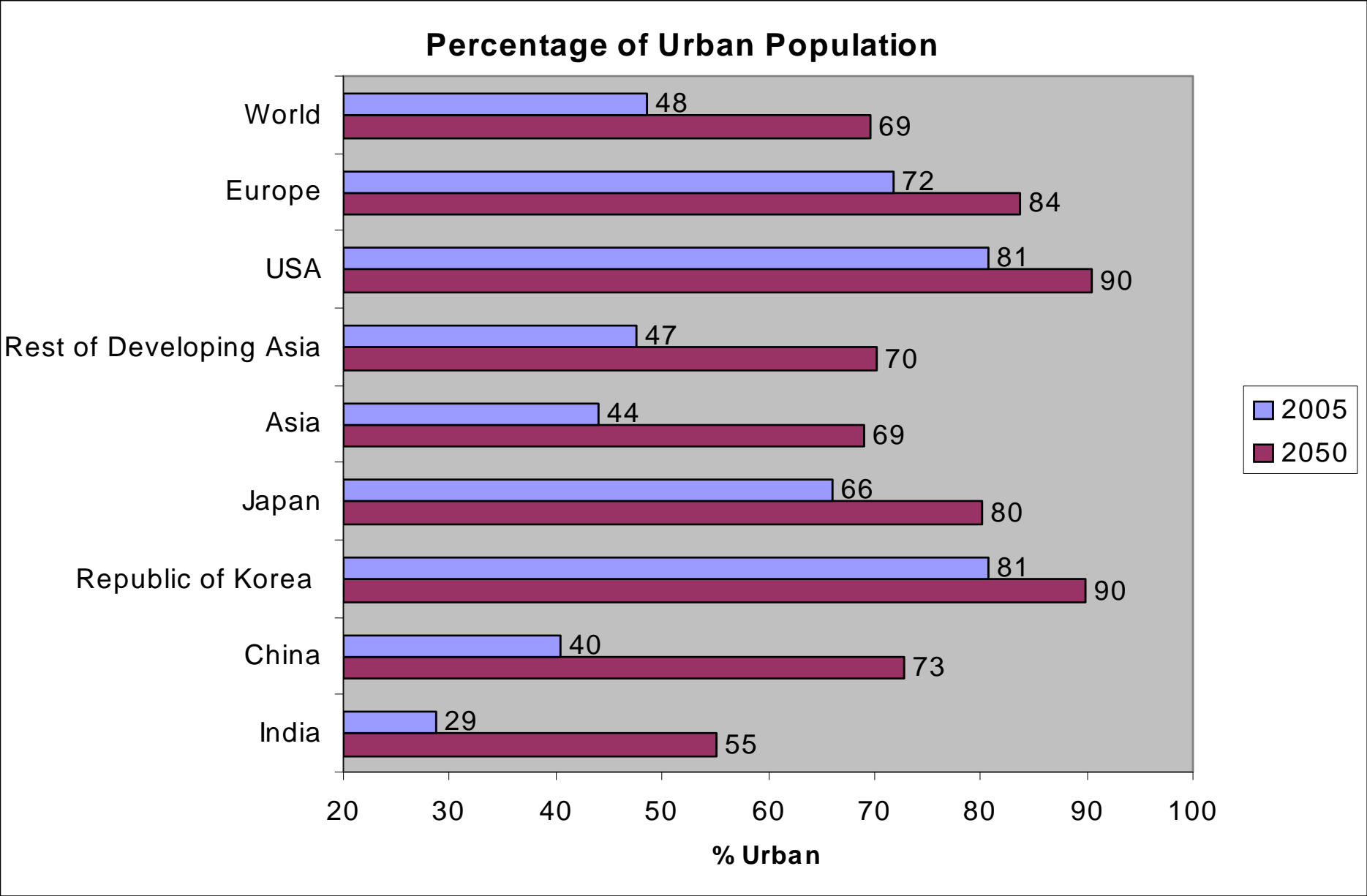
- Annual fiscal budget is always allocated to road transport, as a routine fiscal process.
- Do not wait for fully development of rail transport. But planners should focus on the road transport for public as the first priority, immediately.
- Urban planning of land uses must be integrated with the development of road transport for public is the key success factor.

Key strategy is to focusing on public transport as the first priority before private transport, even it is a road transport system.



Prevent road public congestion by integrating public transport with urban planning before it becomes a crisis.

70% of Thai population lives in rural areas in 2005



Adopted from Prof. Ram Shrestha's
Key note Lecture



Economics of BRT

Bus Rapid Transit
\$1-10 million / km

Metros
\$42-220 million / km



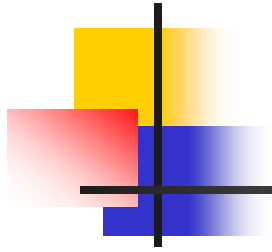
The difference is political will





ป้องกันปัญหาง่ายกว่าการเยียวยา

**Prevention is better than
healing**



**Thank You for
Your Attention**