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ROAD CONGRESS**
Mexico City 2011

MODAL SHIFT & INTEGRATION OF TRANSPORT MODES IN ASIA

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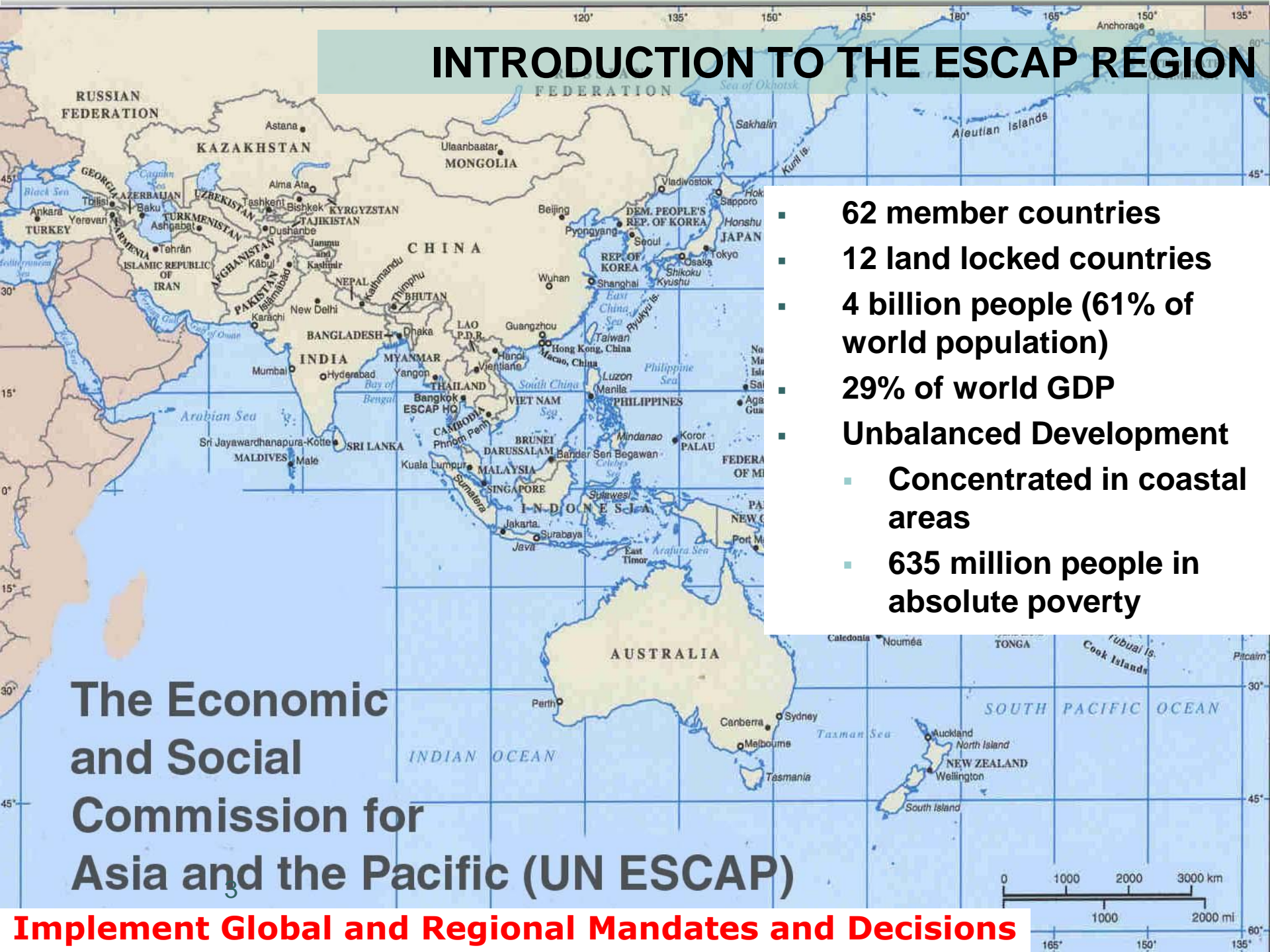
UNITED NATIONS
ESCAP

Economic and Social Commission for Asia and the Pacific

OUTLINE OF THE PRESENTATION

- A. Introduction to Asia
- B. Status of the Asian Highway & Trans-Asian Railway
- C. Passenger & Freight Mode Share in Asia
- D. Energy use in Transport and Road Sector
- E. Emission from Transport and road sector
- F. Intermodal Integration: Freight and Passengers
- G. Concluding Remarks

INTRODUCTION TO THE ESCAP REGION

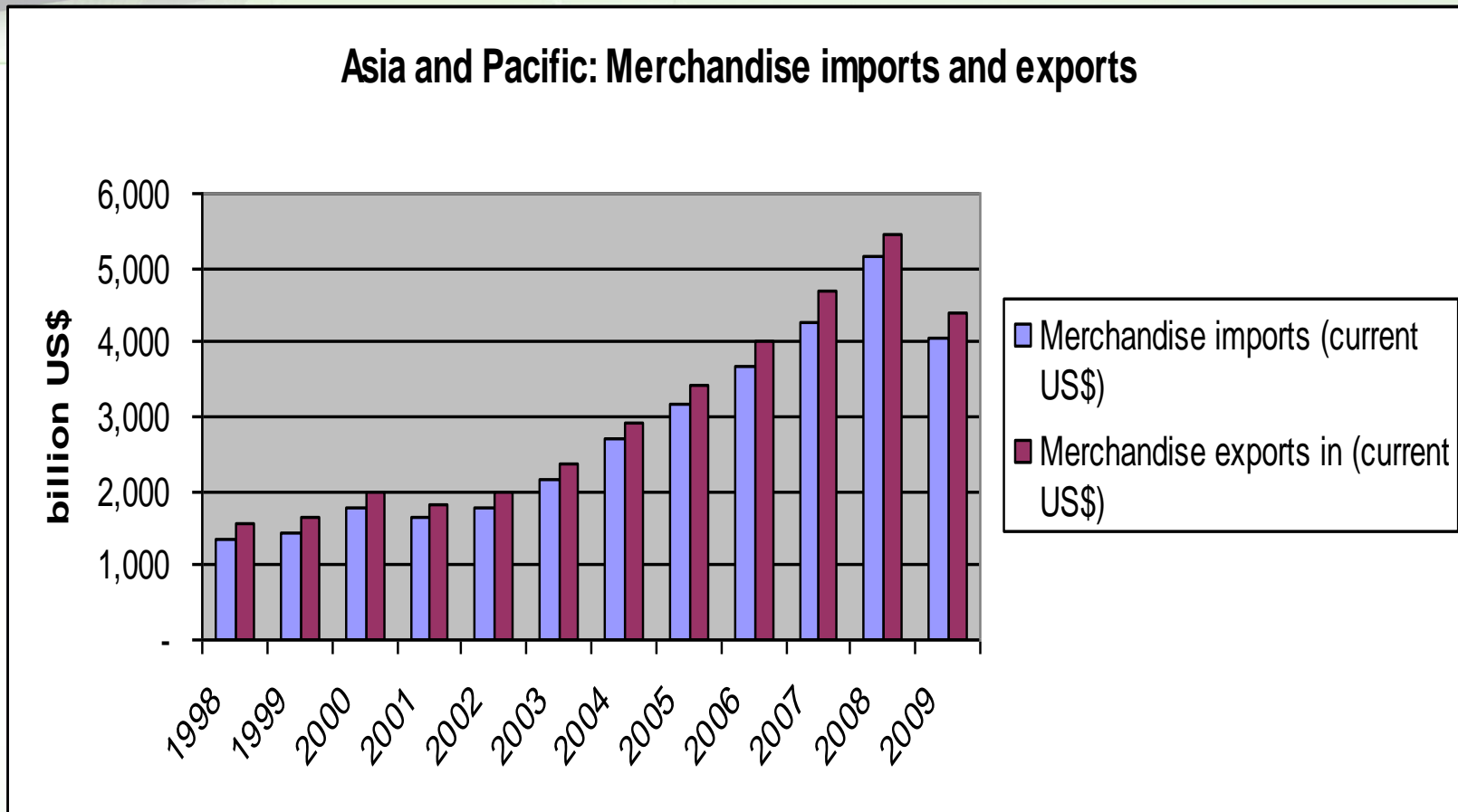


- 62 member countries
- 12 land locked countries
- 4 billion people (61% of world population)
- 29% of world GDP
- Unbalanced Development
 - Concentrated in coastal areas
 - 635 million people in absolute poverty

The Economic and Social Commission for Asia and the Pacific (UN ESCAP)

Implement Global and Regional Mandates and Decisions

TRADE GROWTH IN ASIA & THE PACIFIC



Higher demand for imports and exports lead to the increase in demand for international transport



Cent. Asia-China trade

2001: US\$ 1 billion
2007: US\$ 16 billion

INTRA-ASIAN TRADE

Selected trade volumes in US\$

ASEAN-China trade

2000: US\$ 39.5 billion
2010: US\$ 293 billion

India-China trade

2001: US\$ 2.31 billion
2010: US\$ 61.7 billion

ASEAN-India trade

1998: US\$ 5.9 billion
2010: US\$ 50 billion

ASIAN HIGHWAY NETWORK

142,000 km, 32 countries



- Intergovernmental Agreement entered into force on 4 July 2005
- 28 Parties & 1 signatory
- Obligations of the Parties
- Negotiating mechanism
- Working Group



Legend
 — Asian Highway Route
 - - - Potential Asian Highway Route
 Ferry Link
 Capital City

The designations employed and the presentation of material on this map do not imply the expressing of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not been agreed upon by the parties.

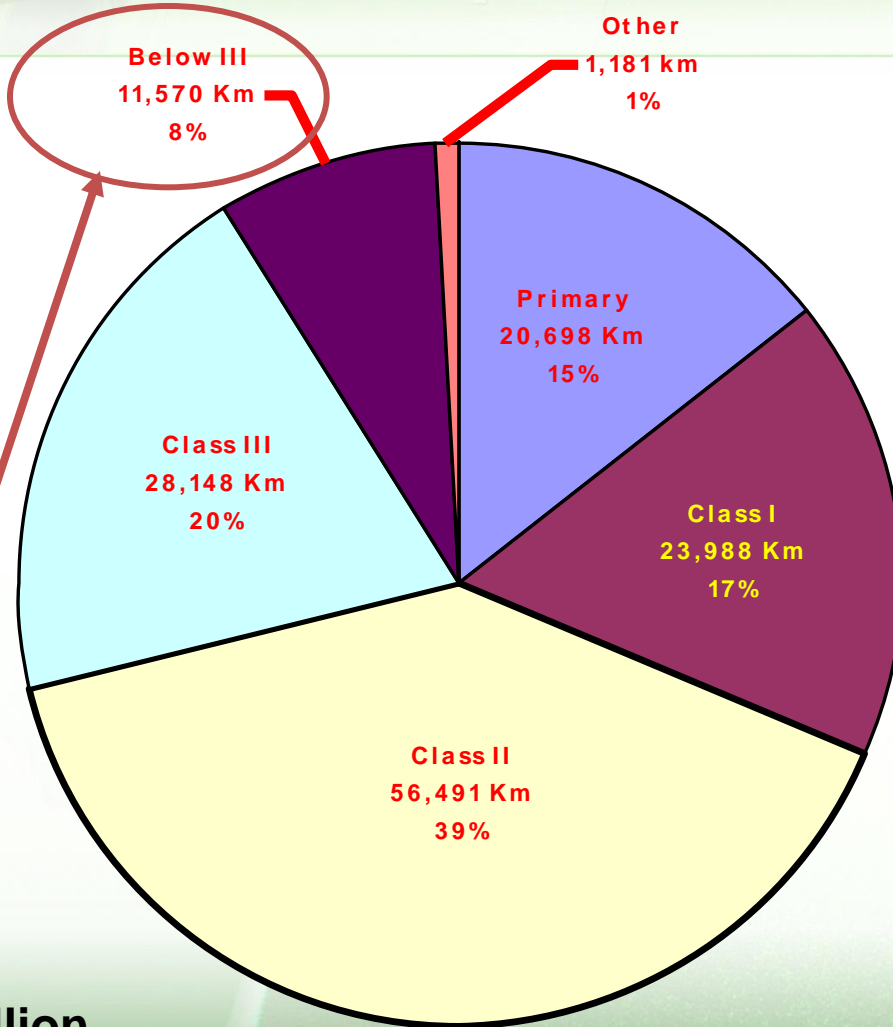
ASIAN HIGHWAY CLASSIFICATION & DESIGN STANDARDS

- “Minimum” standards and guidelines for construction and upgrading of AH to facilitate international road traffic

Primary Class	Access controlled highway, Design Speed of 60-120 km/hr, 4 lanes or more
Class I	Design speed of 50-100 km/hr, 4 lanes or more (divided)
Class II	Design speed of 40-80 km/hr, 2 lanes (wide:7m)
Class III	Design speed of 30-60 km/hr, 2 lanes (narrow: 6m), Surface Treatment (DBST) can be used for pavement



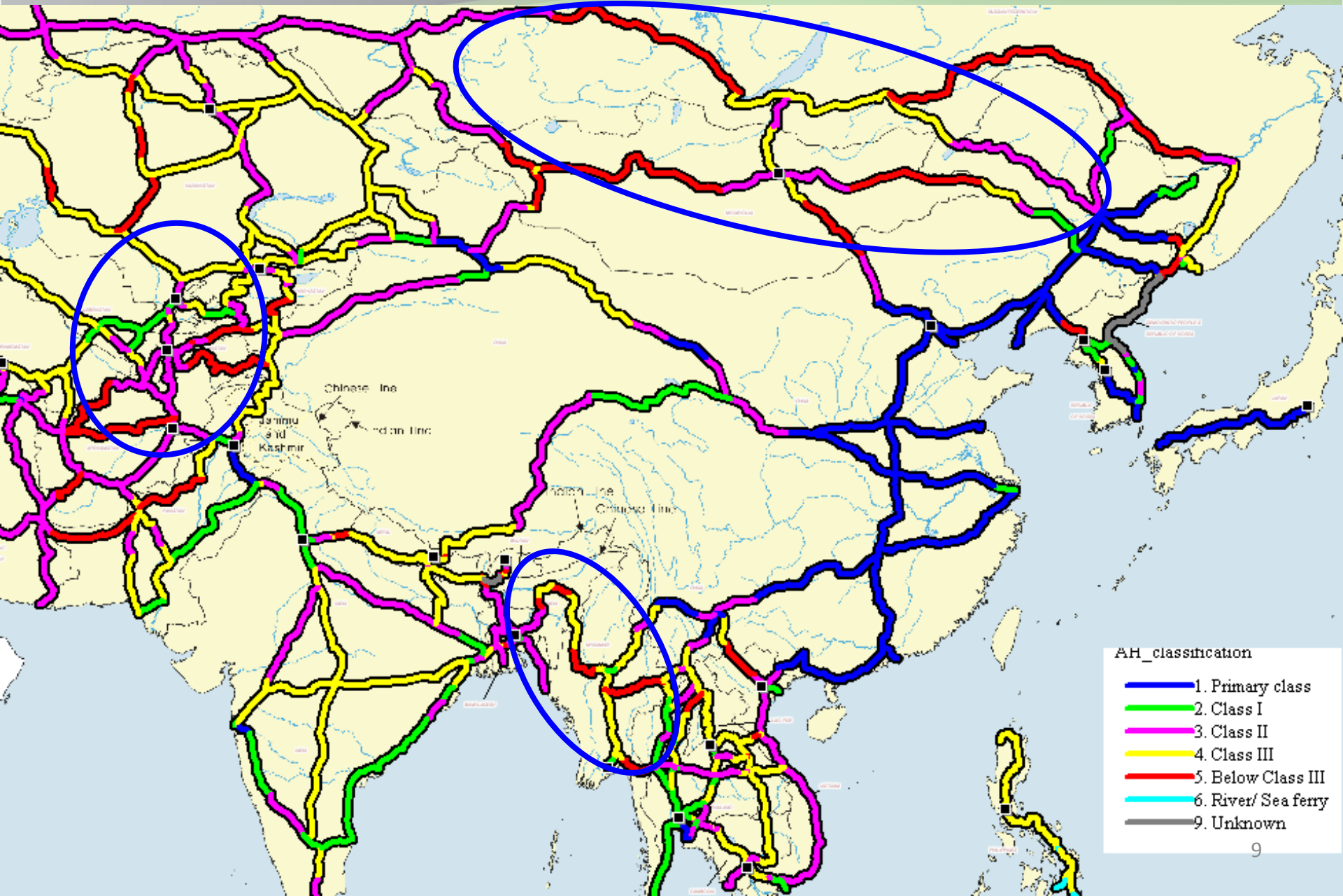
CONFORMITY WITH DESIGN STANDARDS



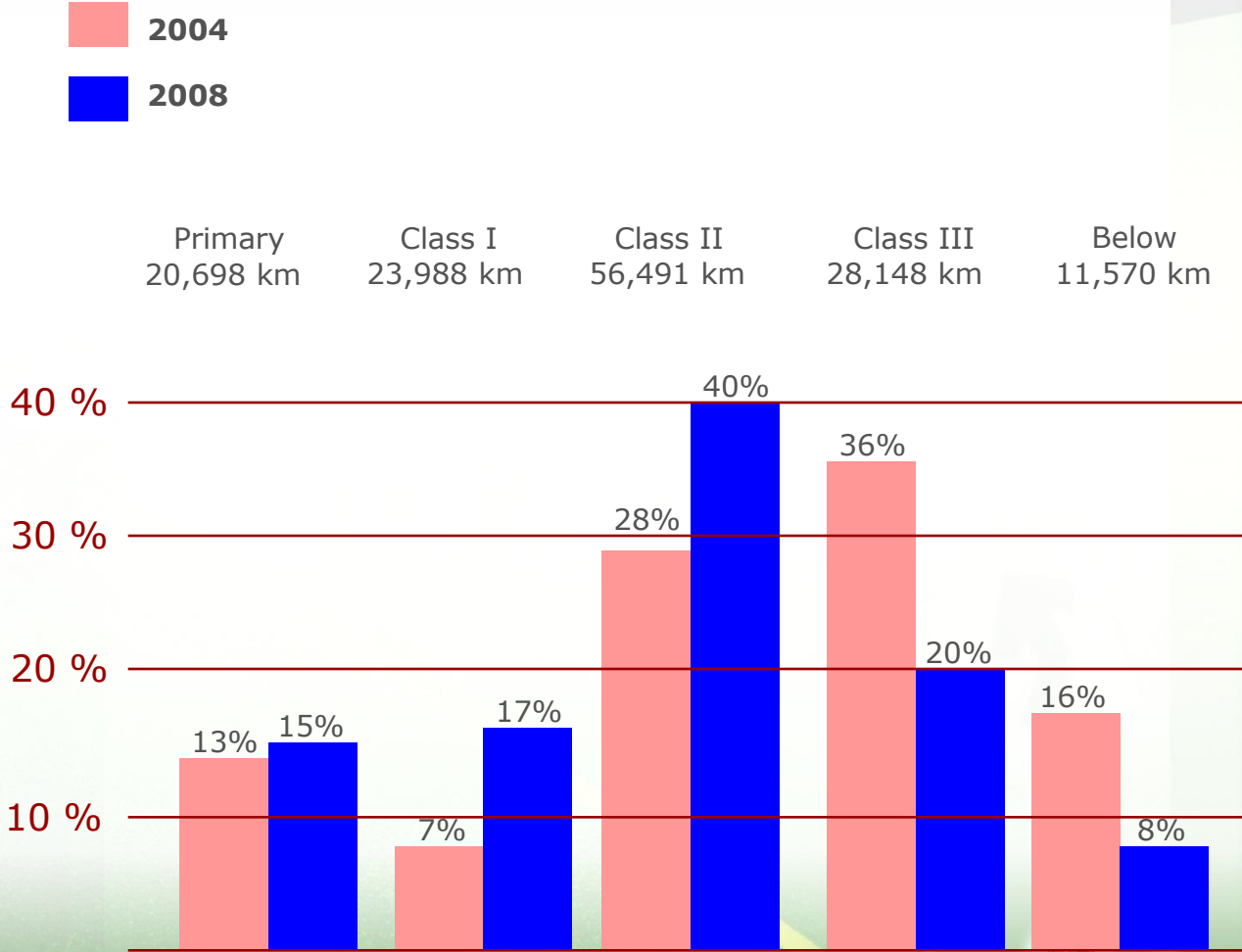
US\$ 18 billion



ASIAN HIGHWAY ROAD CLASS

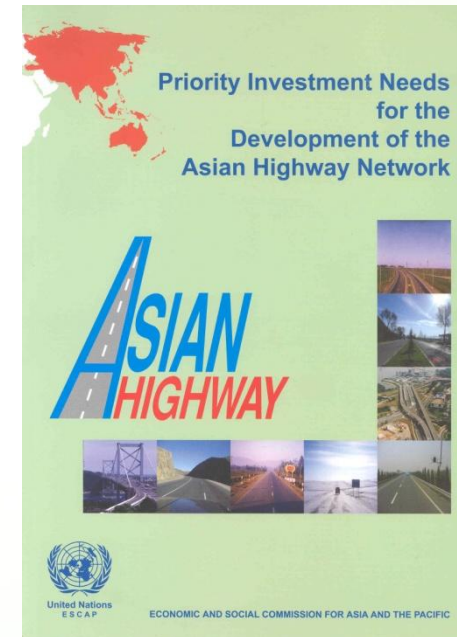


PROGRESS IN UPGRADING OF THE ASIAN HIGHWAY



ASIAN HIGHWAY PRIORITY INVESTMENT NEEDS

- US \$ 26 billion being invested or committed for AH
 - US \$ 18 billion required to upgrade 26,000 km
 - Upgrading to class III and improvements
 - Asian Highway Investment Forum, 2007
 - Increasing role of private sector
 - Publication available at
 - http://www.unescap.org/ttdw/Publications/TIS_pubs/pub_2424/pub_2424_fulltext.pdf
-
- Development Bank's 70% of financing on roads
 - Asian Development Bank financed 21% of Asian Highways, 8% of Trans-Asian Railway
-
- AH development included in nation policies and plans
 - Projects supported by bilateral and multilateral donors and Governments



Trans-Asian Railway Network

TRANS-ASIAN RAILWAY NETWORK 117,000 km, 28 countries
10,500 Km Missing Links



- Track Gauges**
- 1,676 mm
 - 1,520 mm
 - 1,435 mm
 - 1,067 mm
 - 1,000 mm
 - 1,000/1,435 mm
 - - - TAR LINK - PLANNED/UNDER CONSTRUCTION
 - . . . POTENTIAL TAR LINK
 - - - POTENTIAL TAR LINK TO BE CONSIDERED
 - BREAK-OF-GAUGE
 - FERRY CROSSING

- 22 signatories
- 16 Parties
- Entered into force on 11 June 2009
- Working Group on TAR



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DEVELOPING TRANS-ASIAN RAILWAY INFRASTRUCTURE

Building the missing links

Islamic Republic of Iran – Afghanistan
(ongoing)

US\$ 24 billion

Islamic Republic of Iran – Azerbaijan
(ongoing)

China - Kyrgyzstan

ASEAN - China

Turkey - Georgia
(ongoing)

Islamic Republic of Iran – Armenia

Thailand - Lao PDR
(inaugurated March 2009)

Islamic Republic of Iran – Pakistan
(completed end 2008)

Myanmar - Thailand
Myanmar - India

Thailand - Cambodia
Cambodia - Viet Nam

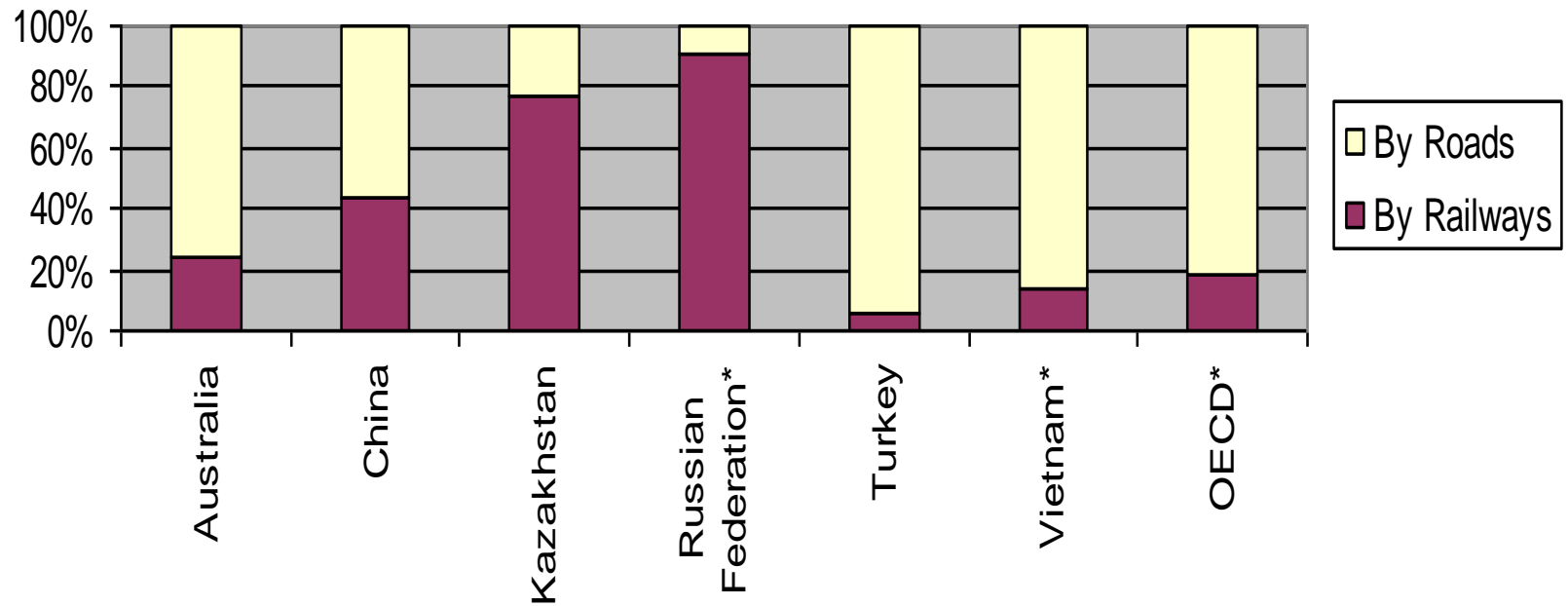
Track Gauges

— 1,676 mm
— 1,520 mm

● BREAK-OF-GAUGE
..... FERRY CROSSING

MODAL SHARE: GOODS

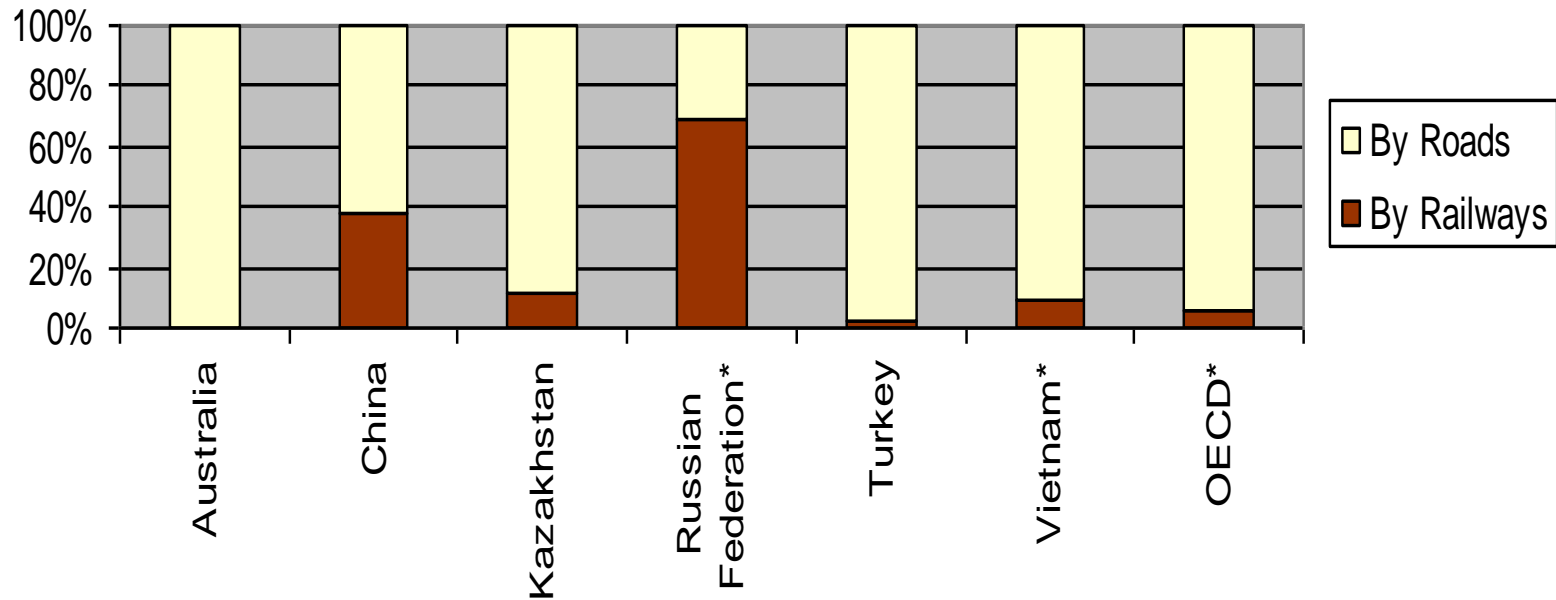
Asia and Pacific (selected countries)
Modal share of goods transported in 2008 (ton-km)



Source: Calculated from World Data Indicators*

MODAL SHARE: PASSANGERS

Asia and Pacific (selected countries)
Modal share of passenger carried in 2008 (passenger-km)

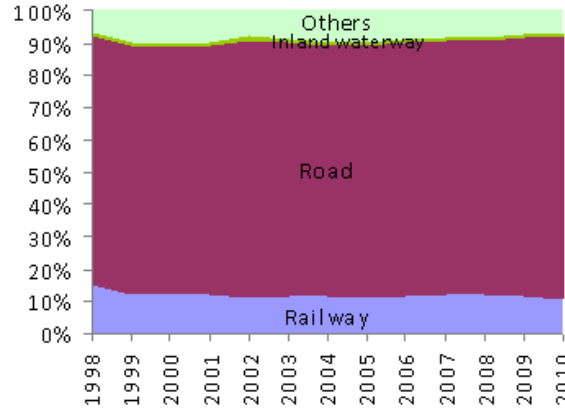


Source: Calculated from World Data Indicators*

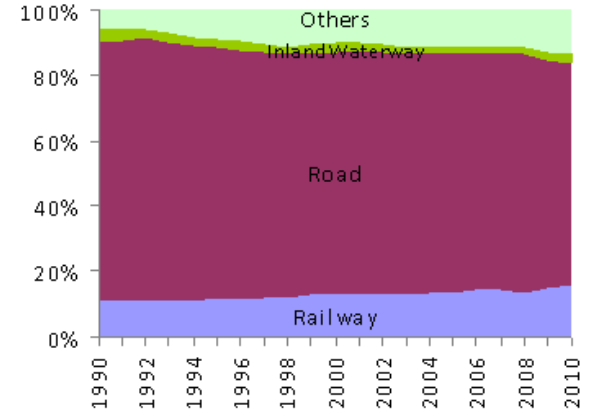
FREIGHT MODAL SHARE TREND

Freight share by modes (ton)

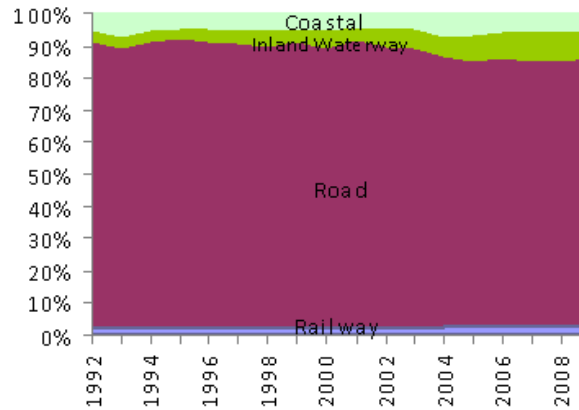
Kazakhstan



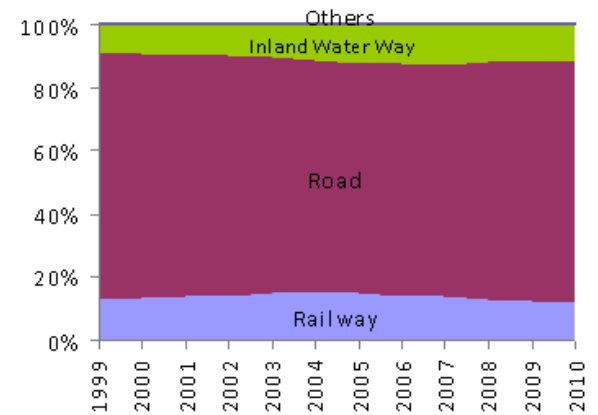
Russian Federation



Thailand



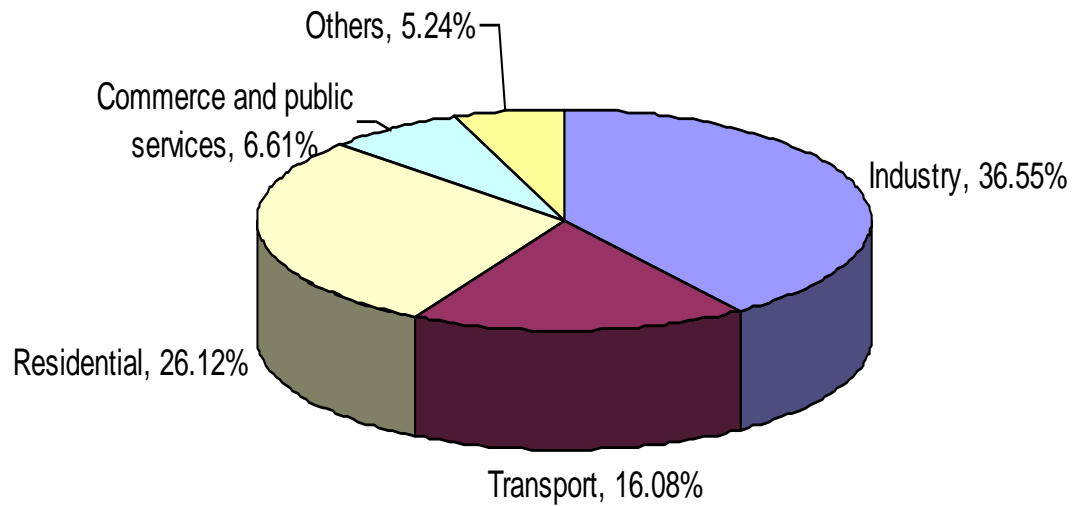
China



■ Railway
 ■ Road
 ■ Inland Waterway
 ■ Others

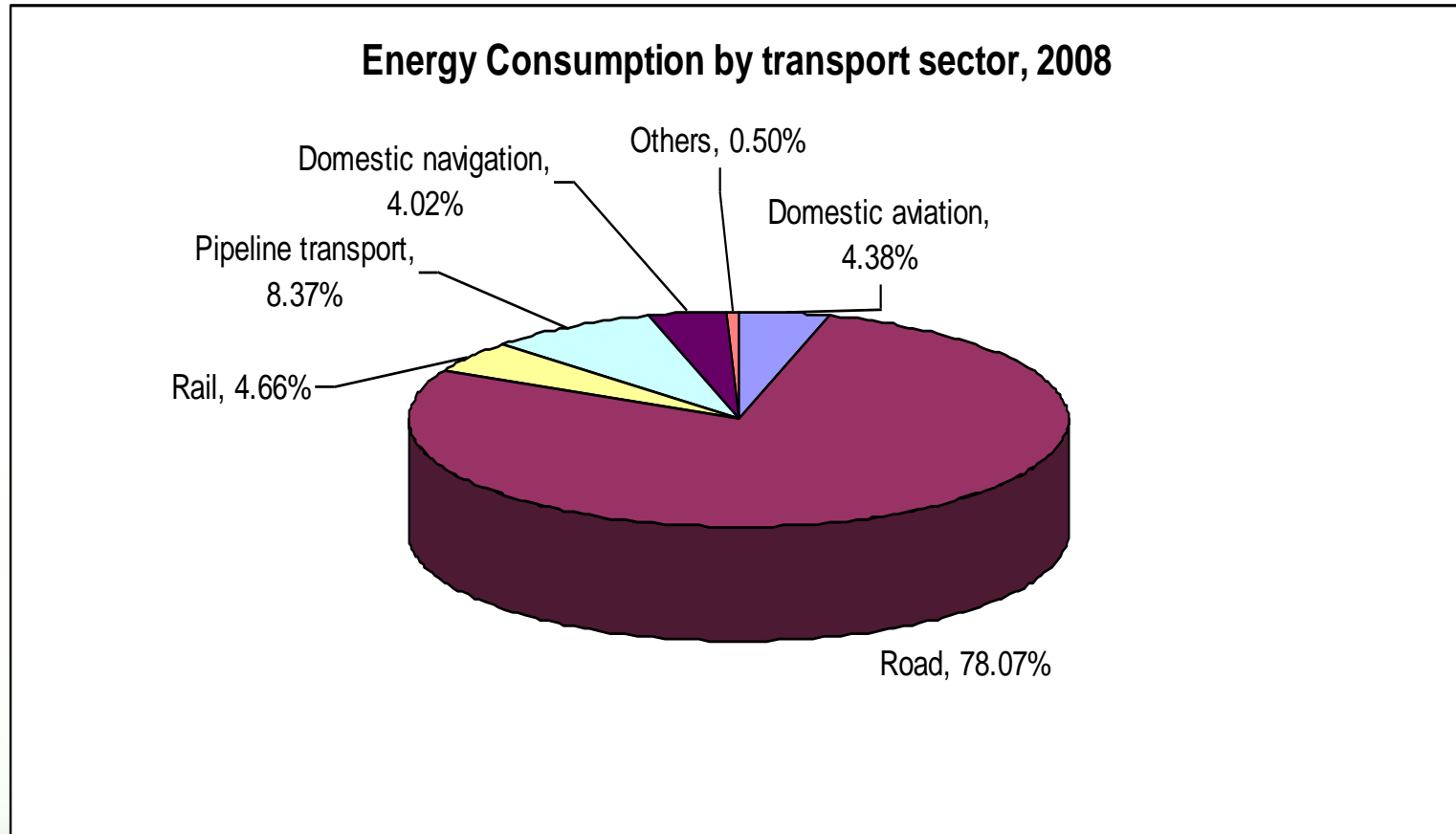
ENERGY CONSUMPTION

Energy Consumption by sector, 2008 (Asia and the Pacific countries)



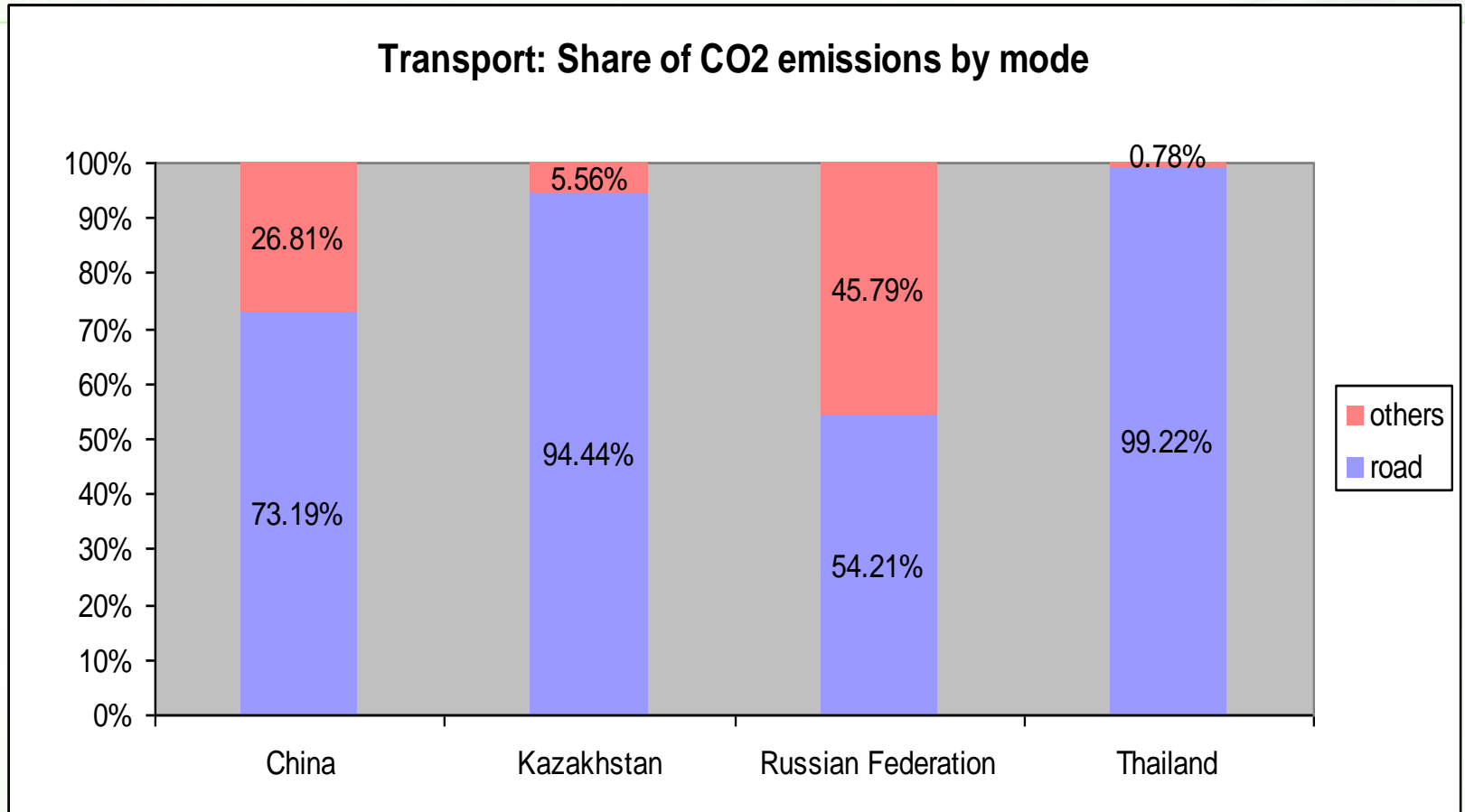
Source: International Energy Agency (IEA), *World Energy Outlook, 2009*

ENERGY CONSUMPTION BY TRANSPORT SECTOR



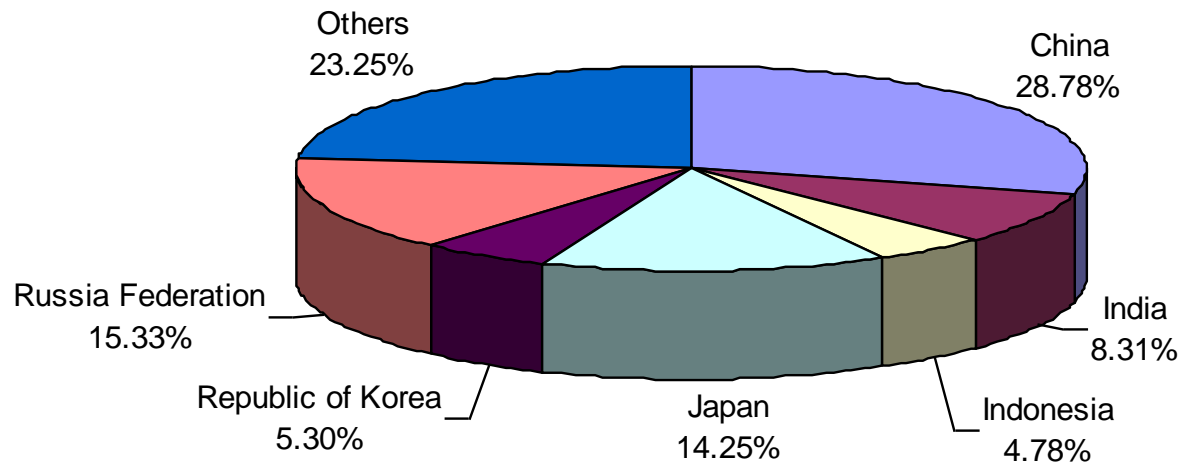
Source: International Energy Agency (IEA), *World Energy Outlook*, 2009

SHARE OF CO2 EMISSIONS BY MODE



SHARE OF CO2 EMISSIONS BY COUNTRIES

Share of CO2 emission in Asia and Pacific by Countries (2008)



MEASURES TO REDUCE EMISSIONS FROM TRANSPORT

- Use of alternate fuels
- Energy efficient vehicle technology
- Demand management
 - Public Transport
 - Non-motorized Transport
- Modal shift
- Integrated urban planning
- Integration of various transport modes

INTEGRATION OF PASSENGER TRANSPORT

Mass Rapid Transit (MRT)

- Heavy rail transit
- Metro
- Commuter rail system
- Light rail transit
- Bus rapid transit (BRT)
- Bus lane / Bus way

Interchange and integrate with other mode of transport e.g. cars, cycling, walk

Shanghai Stadium Exchange: Provide metro/bicycle, metro/pedestrian and metro/bus interchanges



Credit: Sourcebook, Sustainable Urban Transport Project (SUTP)

INTERMODAL INTEGRATION OF FREIGHT TRANSPORT



- **Transport Links**
 - Road, rail, shipping and port networks
- **Transport Nodes**
 - Intermodal nodes/interfaces
- **Transport Services**
 - Private/public sector
- **Intermodal Integration of transport**
 - Development of dry ports
 - Highways, Railways, inland waterways
 - Dedicated Freight Corridors
 - Encouraging modal shift
 - Reduce congestion

Potential role of “dry ports” to serve as:

- Consolidation & distribution centres**
- Focus of development**

Intergovernmental Agreement on Dry Ports



DRY PORTS: CONCEPT & DEFINITION



- **Concept is to develop facility away from ports in inland areas**
 - Ideally connected by railways
- **Regional economic development: near the industrial centres**
- **Various terminologies and definitions- Freight terminals, logistic centres, ICDs**

Definition:

A dry port of international importance shall refer to a secure inland location for handling, temporary storage, inspection and customs clearance of freight moving in international trade.

- Dry ports along major highways and railways
- Dry ports of international importance
- Technical characteristics, guiding principle





DRY PORT DEVELOPMENT IN ASIA

- ❑ Different stages of development
- ❑ Investment and operation: Public, Private and PPP
- ❑ Some examples
 - ❑ Uiwang-city, Republic of Korea
 - ❑ Lat Krabang, Thailand
 - ❑ Birgunj, Nepal
 - ❑ Navoi, Uzbekistan
 - ❑ India
 - ❑ China



ENVIRONMENTAL BENEFITS OF INTERMODAL INTEGRATION

- Intermodal integration can help reduce congestion and CO₂ emissions
 - Consolidation centres – can reduce less than truck loads runs and reduce number of freight trucks
 - Consolidation and distribution centres in UK have combined 25.7% emissions reduction (Zanni and Bristow, 2009).
 - Improved logistics, coordination, and route planning can reduce up to 10-20% emissions (OECD, 2010)
 - Sweden- use of dry ports and freight train from port -25% CO₂ emission reduction (Roso, 2007).
- Lat Krabang, Thailand and Uiwang ICD, South Korea handle 25% cargoes throughput by railway- even though operating over their design capacities



CONCLUDING REMARKS

- Roads would continue to play significant role
- Intermodal transport: infrastructure, nodes, and services
- Policies to promote intermodal transfer points/dry ports
 - Intergovernmental Agreement
 - Partnership: Government & Private sector
- Integration of passenger modes
- Utilize the regional infrastructure for intermodal transport
- Replicate good practices of transport operations and services
- UNESCAP ready to collaborate with international organizations

Thank you!



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