



Railways for Development

An overview of China's Railway Development Program

World Bank Transport Forum, April
2009

John Scales: Transport Coordinator, Beijing.

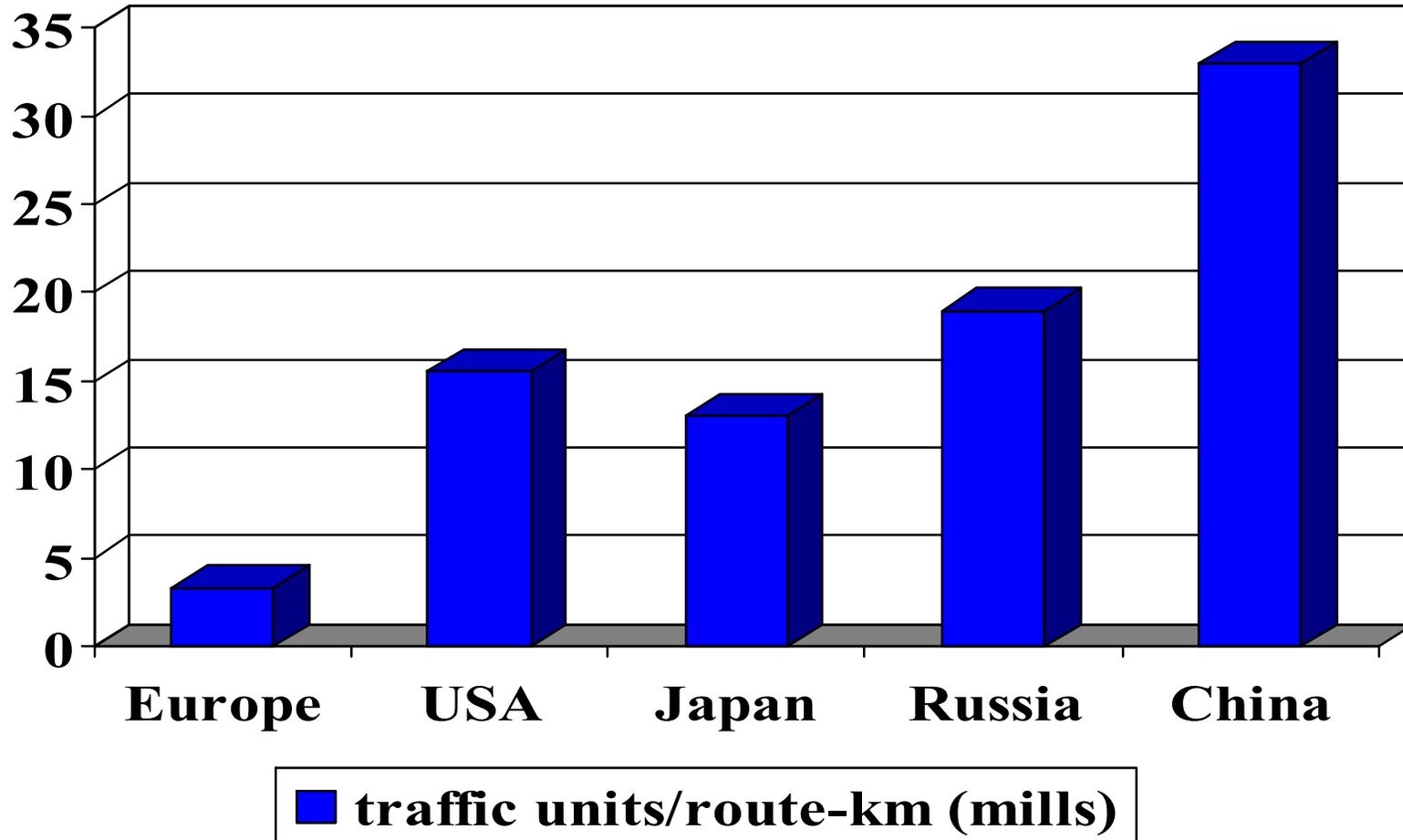
Paul Amos: Strategy and Management Consultant



China's railway: brief history

- ▶ In 1949, China had only 22,000km of poorly maintained and war-damaged railway line, less than 1000km double-tracked and non electrified;
- ▶ Since then, the government has transformed the railway sector into a vital element of China's national transport system and a key contributor to China's extraordinary record of economic growth;
- ▶ Today, China Rail is the second biggest carrier of rail freight and biggest carrier of passenger transport in the world;
- ▶ In aggregate, China Rail has biggest rail traffic task of any national railway system in the world.

China's is also the busiest railway in the world

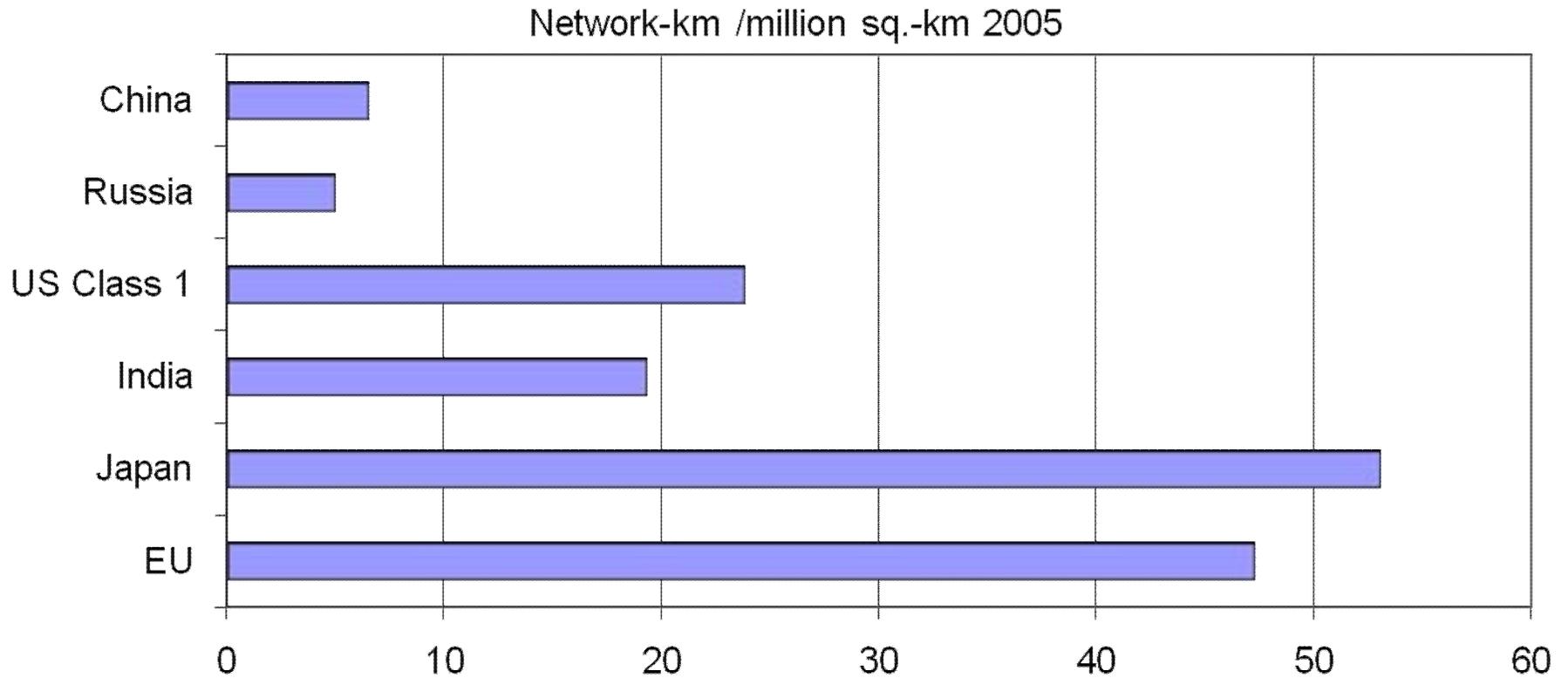


The Chinese rail network is now about 78,000 km (2008)



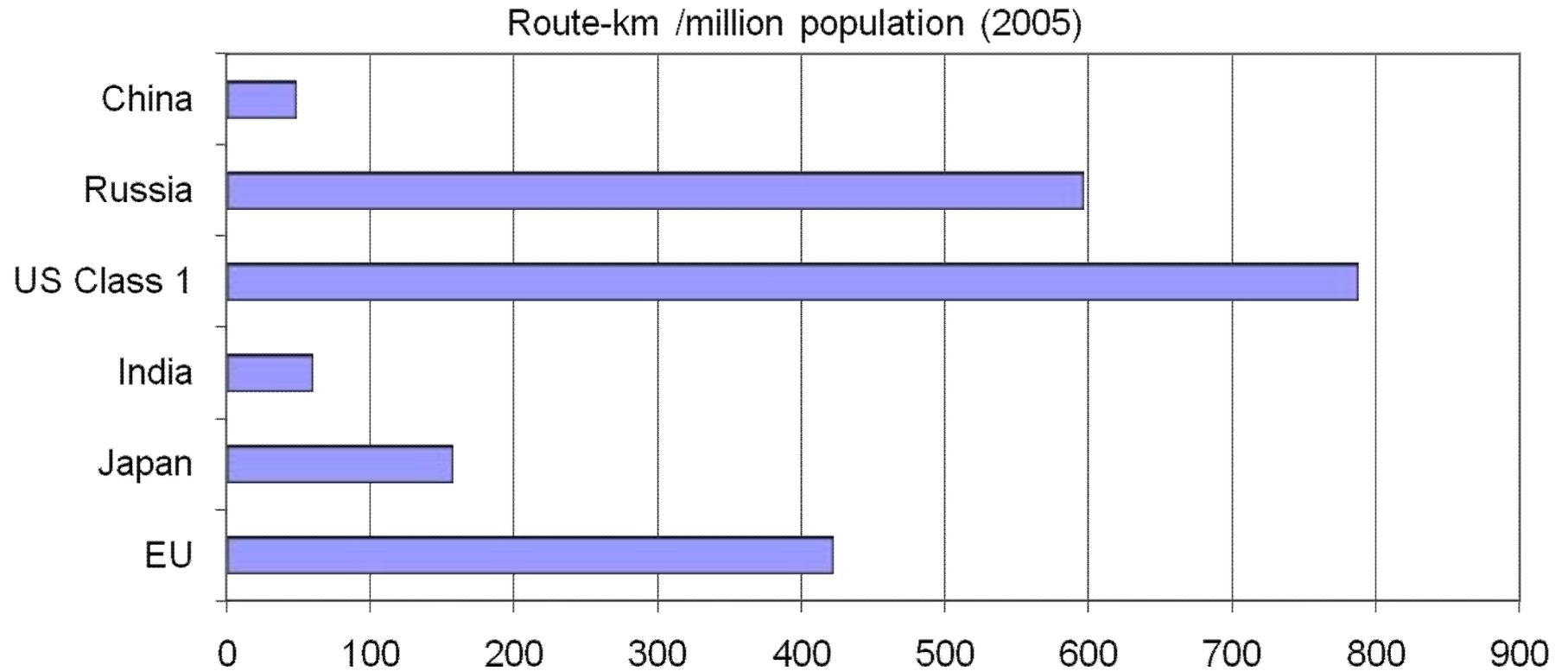


On an area basis, the network is relatively sparse





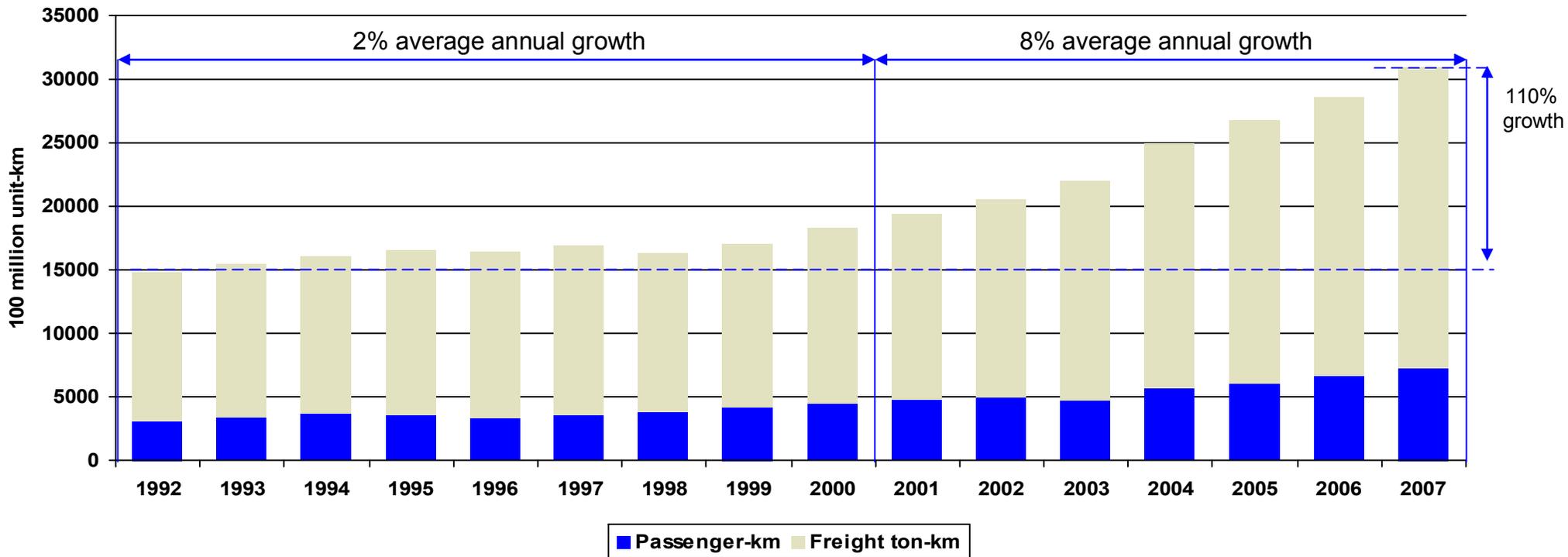
On a per capita basis it is even less dense...





Since 1992, traffic on the Chinese railway network has increased by more than 110 percent, with growth of around 8 percent annually for both passenger and freight since 1999.

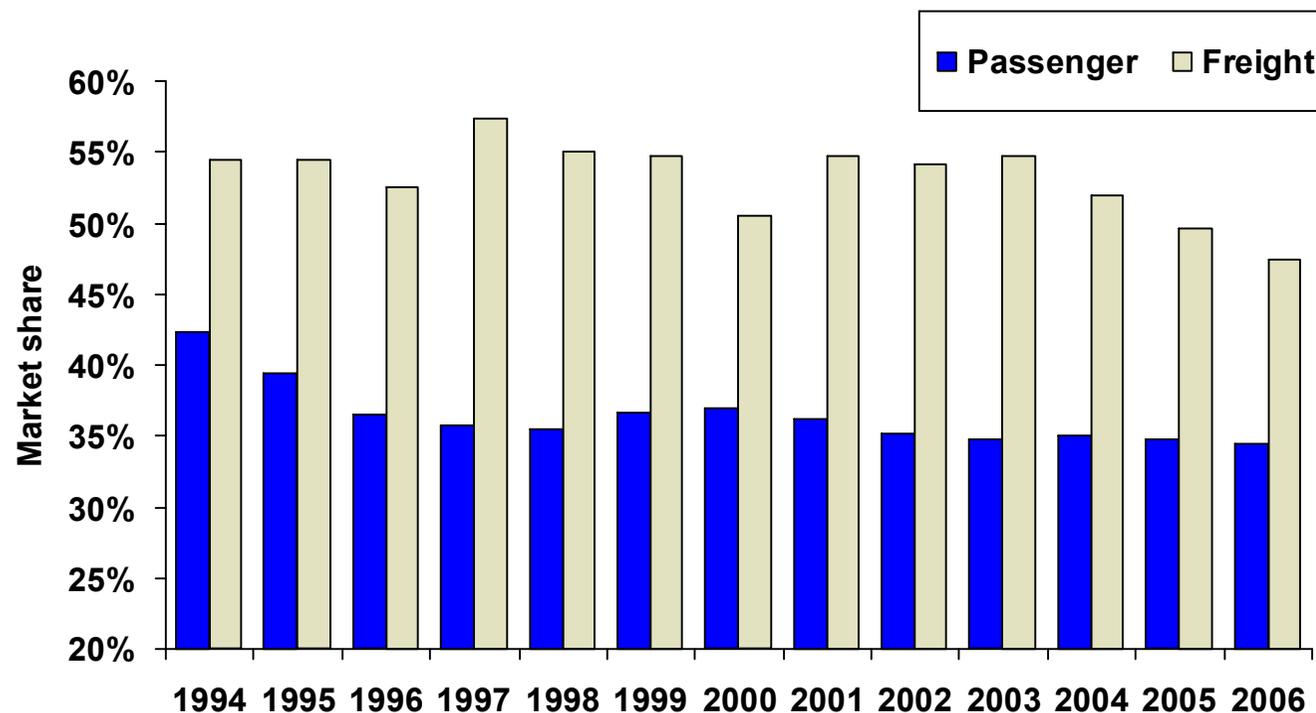
Total Traffic on China Railway Network



Source: China Statistical Yearbook 2007



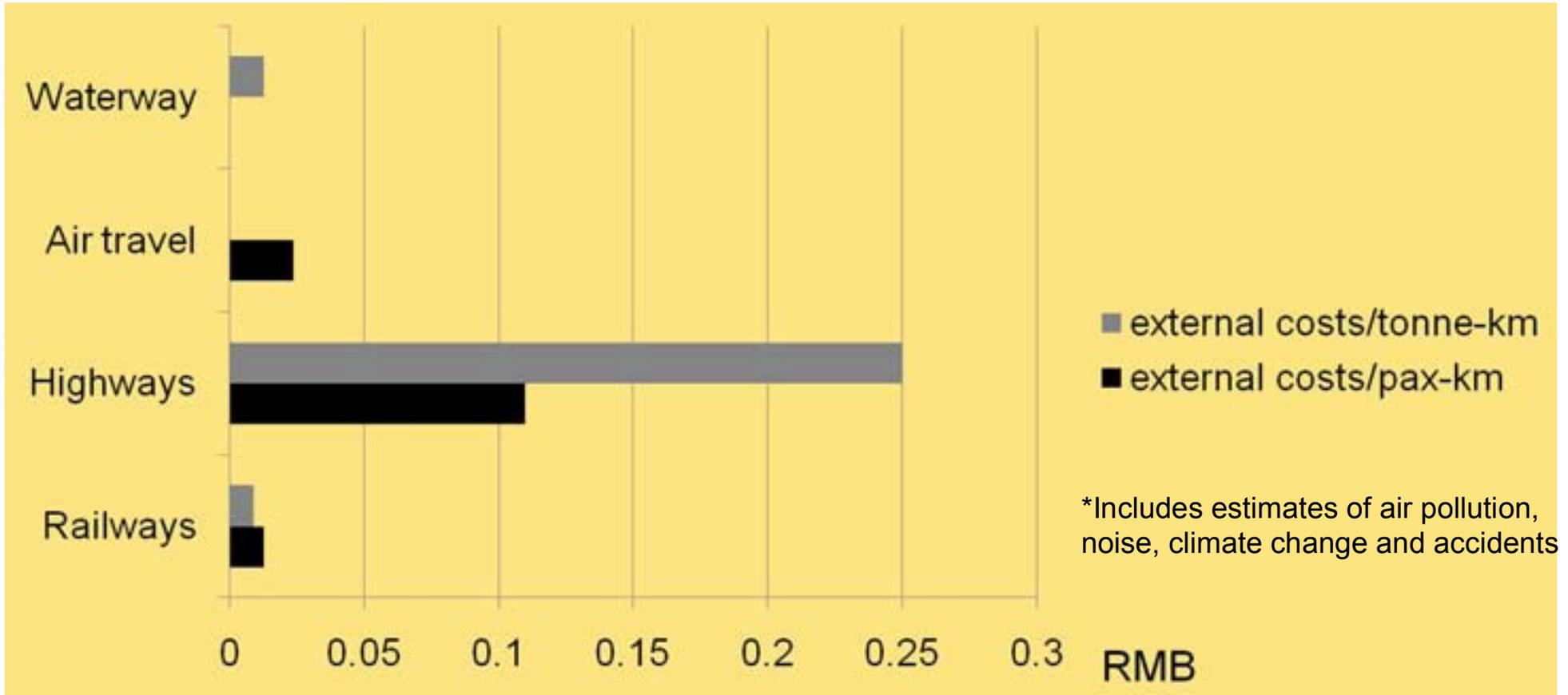
Despite increasing traffic, the railways' share of the national transport task has declined over the past 12 years, partly due to capacity constraints on key lines



Source: China Statistical Yearbook 2007



Declining modal share has a downside - railways in China have much lower external costs* than other modes

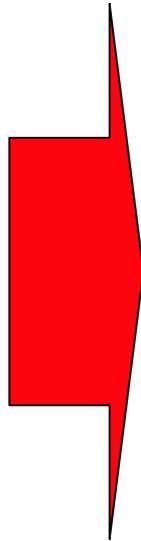


Source: University of Leeds for MOR/WB



So China Rail and its policy-makers face two enormous challenges which are mirrored in the Bank's program

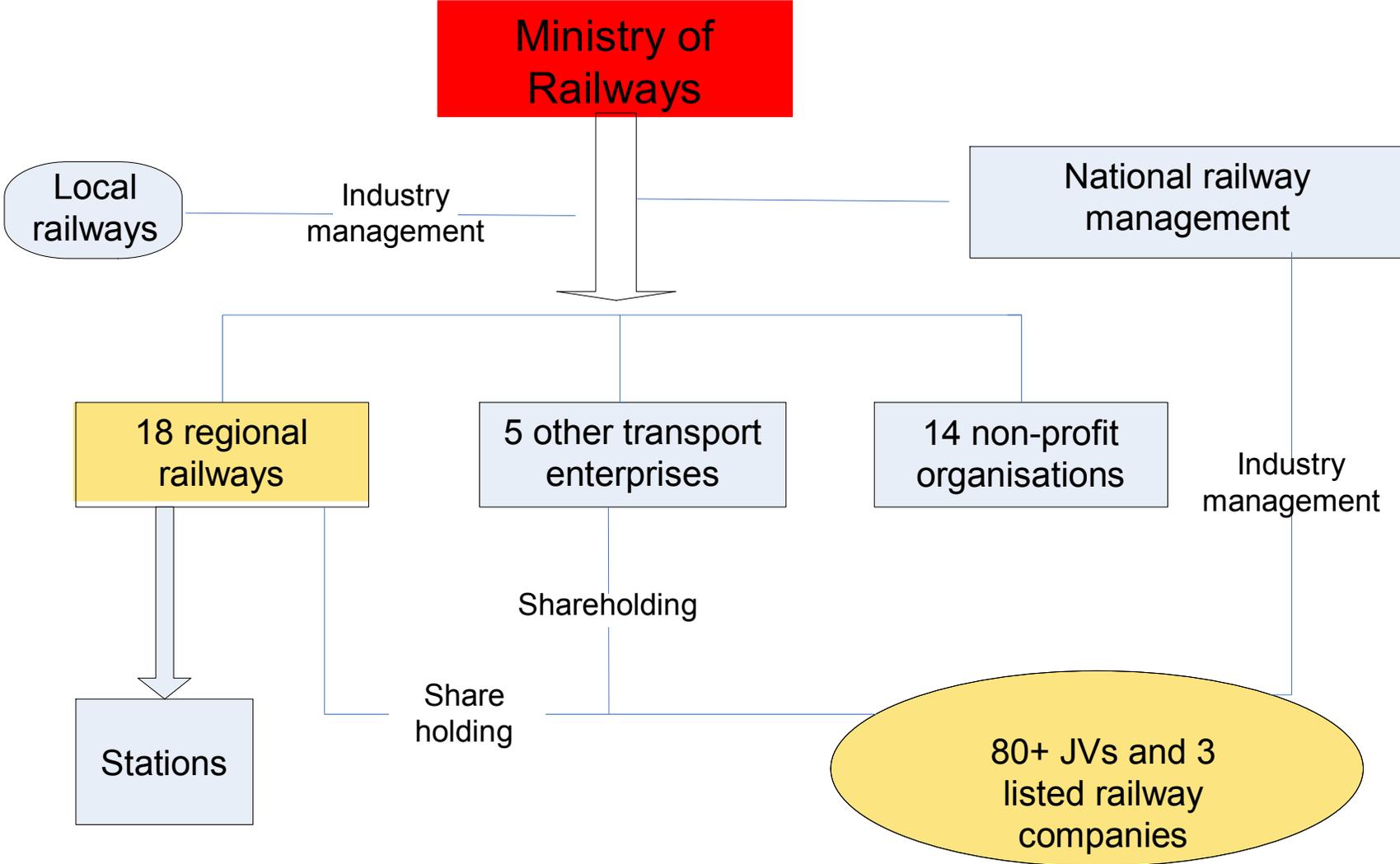
Key challenges for MOR and WB engagement



- ▶ How to deliver long-term infrastructure improvements – the biggest railway development program in the world since C19th
- ▶ How the industry can adapt to become more responsive to the needs of customers in China's socialist market economy.

The World Bank pursues a twin-track approach to this engagement, separating project delivery from policy dialogue

The railway sector is administered by the Ministry of Railways – and services are delivered by a conglomeration of entities that MOR administers and regulates and for the most part owns...





The MOR has imposed key industry reforms over the last twenty years, for example, since 1990:

- Total staffing, from nearly 4 million to 2.2 million, railway labour productivity since 1990 up by nearly 300 percent, through incremental adjustments;
- Numerous ancillary supply businesses and other institutions divested:
- Asset Operation Liability System (AOLS) has imposed financial incentives on railway managers since 1999;
- The sub-regional layer of management was abolished in 2005, which has simplified the administrative structure, created more accountable regional management, and paved the way for higher resource utilization (e.g. locomotives);
- Freight tariff surcharge implemented in 1990 to create a 'ring-fenced' Railway Construction Fund, administered by MOF and only disbursed for new railway capital investment.



MOR has also driven technology and operational progress in railway services, for example since 1990:

- Multiple track-km, up 97%
- Weight of rail 60kg plus, from 26% to 90%
- Continuously welded rail, 25% to 72%
- Electrified route-km, 11% to 30%
- Typical diesel locomotive 2,500 kW to 3,600 kW
- Typical electric locomotives, 4,800kW to 9,600 k
- Average load of freight train up 32%
- Average commercial speed of passenger trains, up 50%

These and many other improvements have created a more cost-efficient railway while adding both to traffic capacity and service levels.



Nevertheless, growing demand has continued to impose conflicting pressures in the allocation of capacity

- The Government often imposes operating priorities on China Rail, particularly allocating capacity to coal trains to keep power stations supplied at periods of high electricity need
- There are long waiting times for freight wagons, that have some of the highest utilization rates in the world: but extra wagons would not solve the problem without extra infrastructure capacity
- CR has so far been unable to offer high quality container rail services to inland areas, partly because of use of train paths by the bulk freights and passenger services
- Peaks in passenger demand at holiday times require intensive operation of extra passenger services, causing temporary interruption of some freight flows



To prevent the rail system being a bottleneck to development, the Government approved the Mid and Long-Term Development Plan (MLTDP) in 2004, revised in 2007

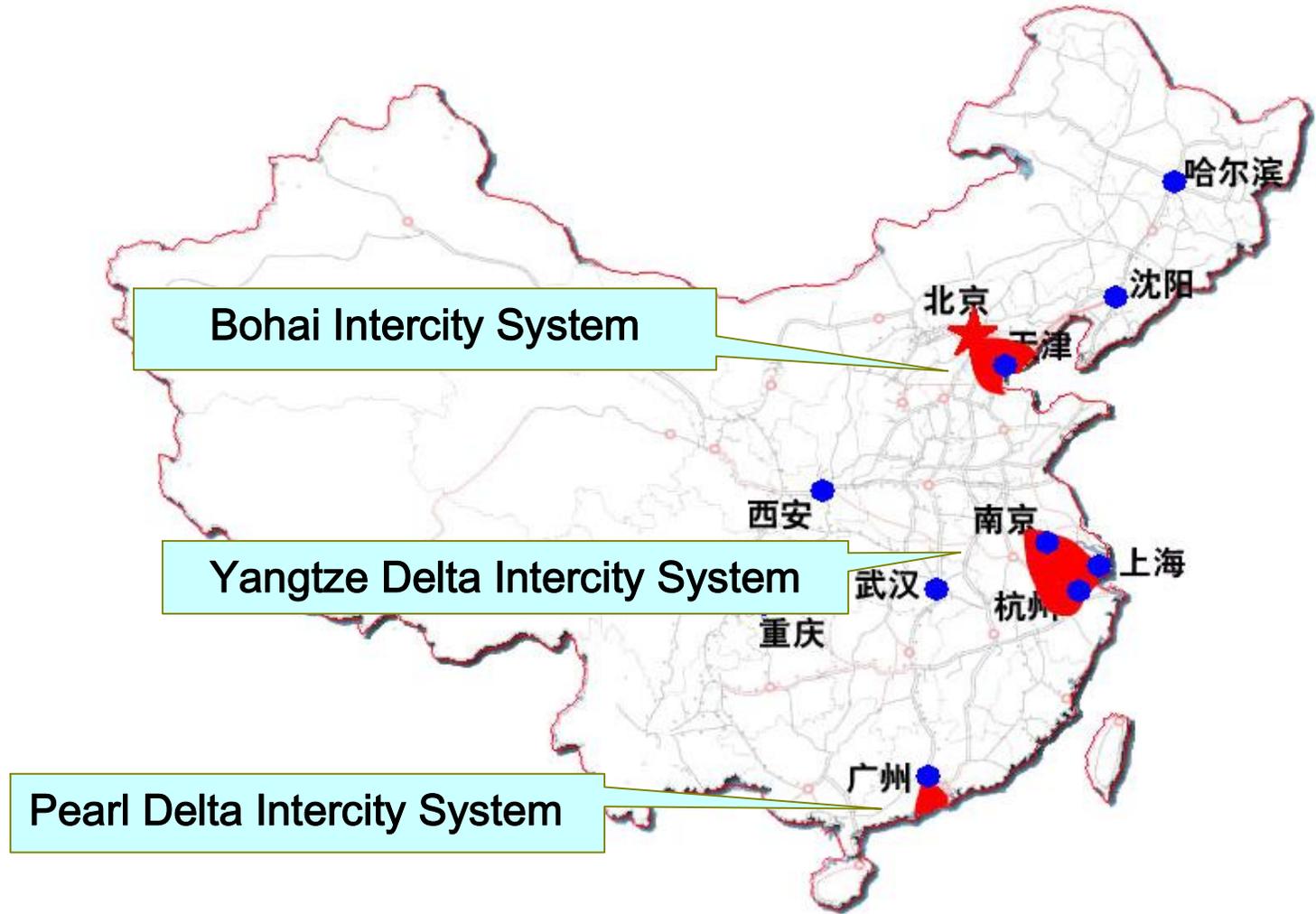
	End 2007	2010	2020
Route-km	77,966	92,000	120,000
Double-track km	27,031	41,400	60,000
Electric track km	25,466	40,000	72,000
High speed passenger-dedicated line km	405	5,000	12,000

Under China's new economic stimulus package this plan is being significantly accelerated: >150 major projects are currently in progress

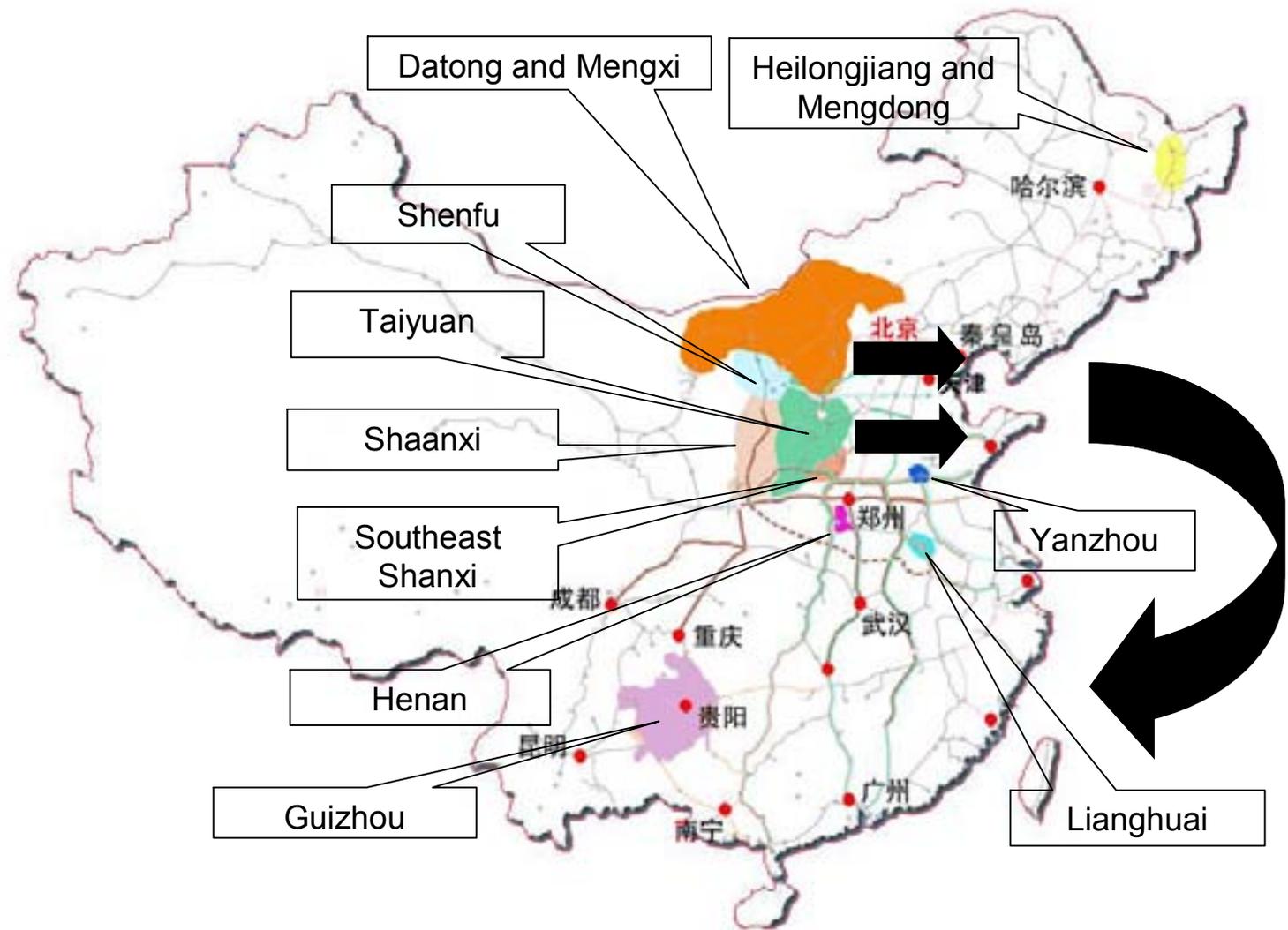
The MLTDP planned network of high-speed dedicated passenger lines in 2020.



The three MLTDP regional intercity systems to be built



MLTDP improvements to the coal network





MLTDP also plans new lines in poorer western China

By 2020,

- 16,000 km of new lines will be constructed
- A western railway network will be created of around 40,000 km.

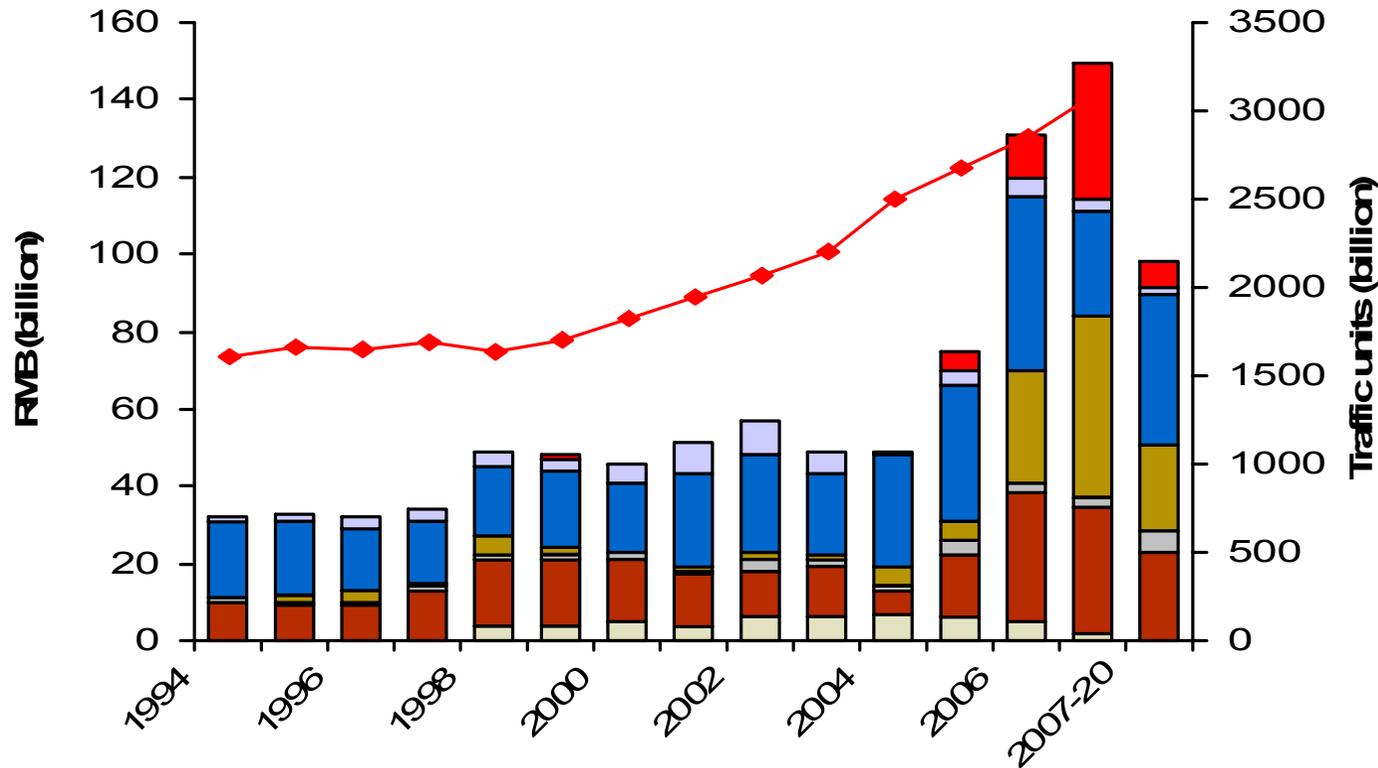
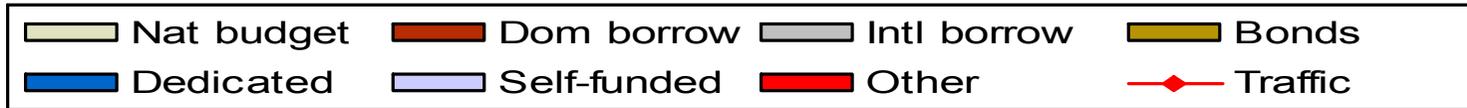


MLTDP proposed railway Container Network, including some double-stack lines



- Construct 18 container hubs and 40 satellite terminals.
- Upgrade existing corridors to allow 16,000 km of double-stack container transport.
- Total traffic is planned at 400 million tonnes (say 40 million TEU) by 2020, about 8 times the volume in 2003

Investment in new infrastructure has increased by over 100% since 2004 but this effort needs to be sustained

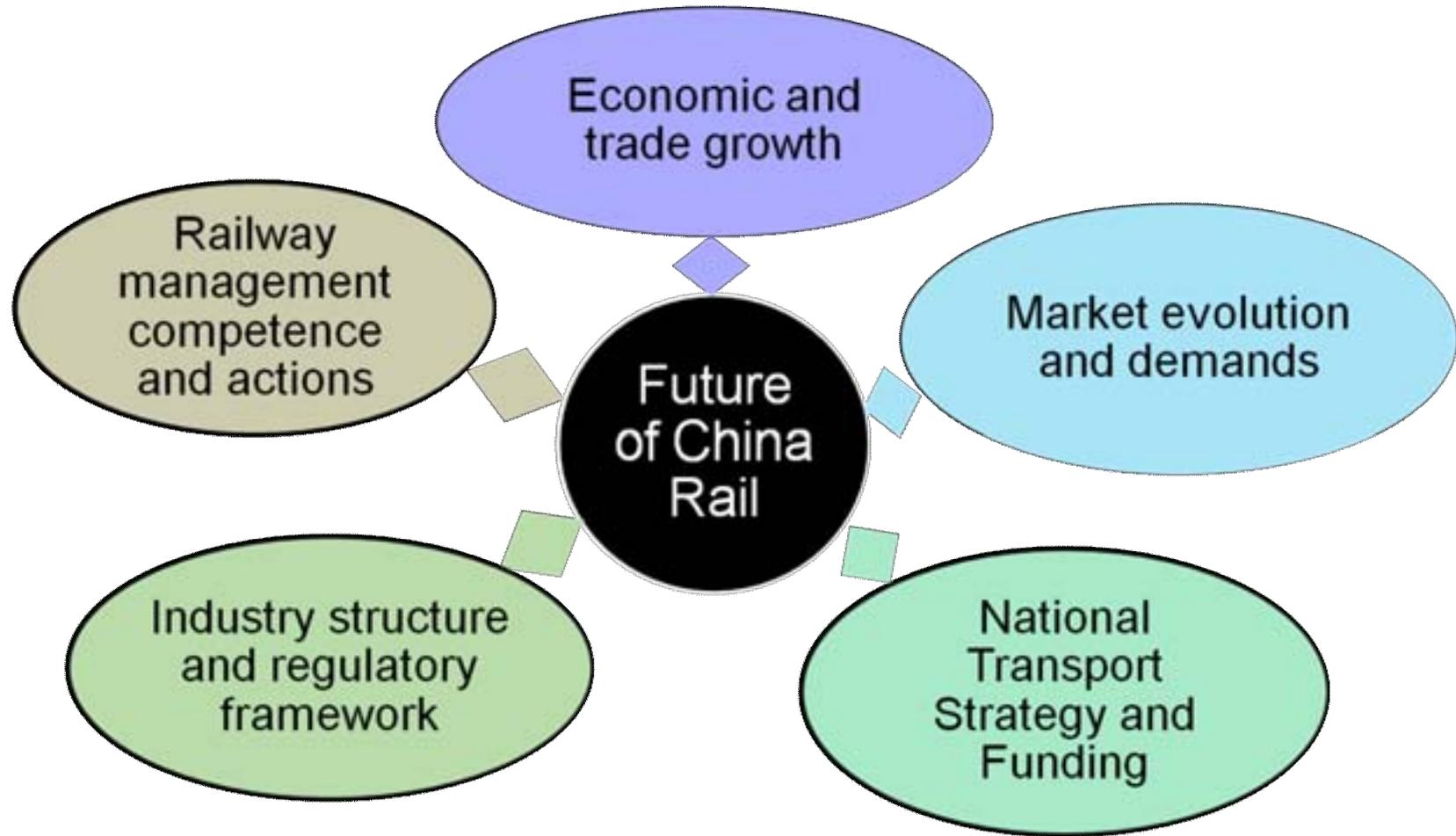


The existing institutional structure has encouraged joint ventures with provinces and other SOEs, but is not likely to attract significant private risk capital.



- ▶ With some exceptions, the MOR remains the dominant owner, operator and regulator of the railway infrastructure and transport industry
- ▶ New private investment will not be encouraged by this set-up if the investors, who can only enter the industry via MOR, also may have to compete with MOR or may present projects that MOR may prefer to allocate to its own operator (China Rail)
- ▶ Using a sporting analogy, it would be difficult to attract new teams into a football tournament if the biggest existing team also:
 - designs the playing field
 - makes the rules
 - and referees the game !!

The future success of the railway sector in China will depend on five main challenges.....





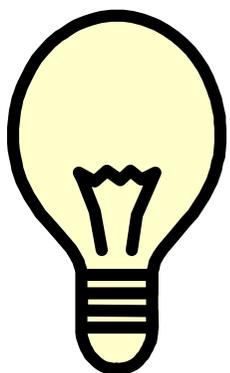
The World Bank in China continues to work with Ministry of Railways and NDRC on these many challenges...

- ▶ 6 new railway projects agreed or under preparation since 2000 with combined WB lending of USD 1.5 billion.

- ▶ 7 AAA projects including topics as diverse as:
 - Specification of new traffic management information systems
 - Advice on non-traditional financing sources
 - Advice on handling multiple operators
 - Social costs of railways and other modes
 - A new integrated transport promotion law
 - Railway infrastructure investment policies in other countries
 - Market-based railway pricing policies and structures



Thank you for your attention



Questions and discussions