

# China Rail – On the Move

Austrade China

Infrastructure & Design Team



Australian Government  
Australian Trade Commission



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**Luisa Rust**

**Trade Commissioner  
Shanghai**

**Infrastructure and  
Design Team Leader**

# China Rail Development and Achievements.... The fastest, the longest, the highest, the most.....

- Increased Passenger Capacity
- Increase use of electric locomotives
- Computer aided dispatching systems
- Automatic Equipment identifiers
- Passenger dedicated railways



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# Rail Industry Growth – Key Drivers

- China's economic growth feeds growth in rail sector
- Mass urbanisation plans
- Industry development goal for high speed rail manufacturing to be an export industry in the near to medium future.
- Need for fuel efficient mass transit system



**Huang Yongtao**

**Business Development  
Manager**

**Infrastructure & Design  
Team Coordinator**

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**Special Projects Rail**

# China Railway Administration and Operation

- Ministry of Railway
- Railway Bureaus or Railway Group companies
- Railway Stations

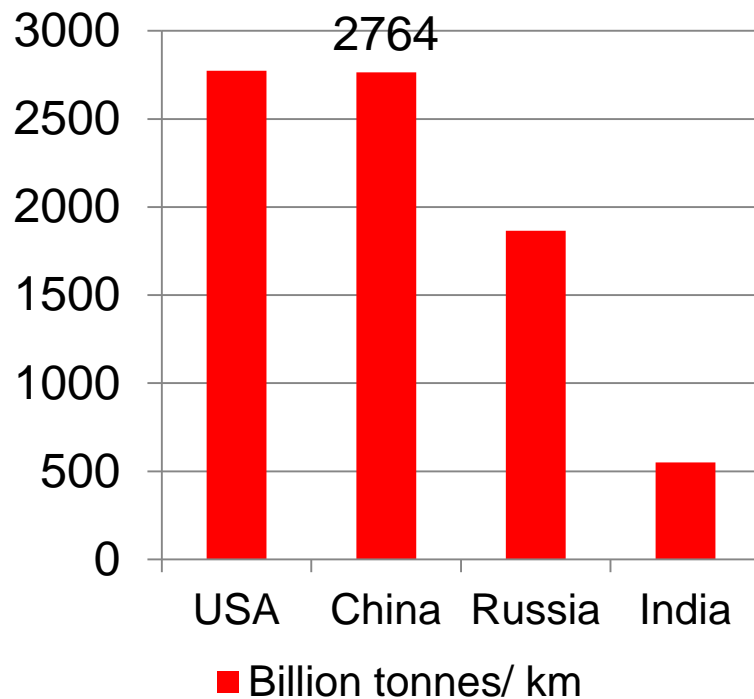


# Chinese Railway Suppliers

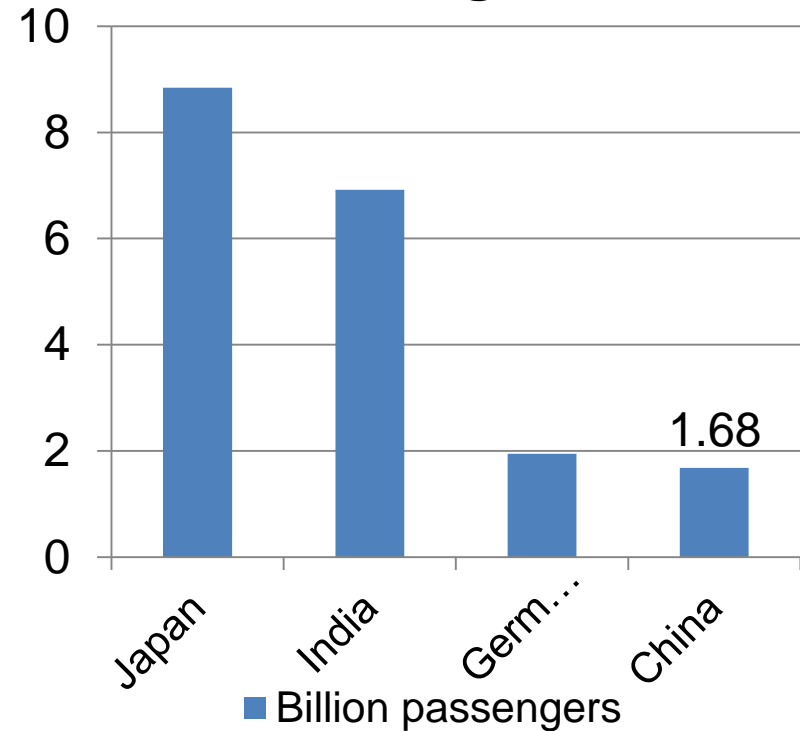


# Railway under 200km

## Freight



## Passengers



**Trains in China carry one-quarter of the world's combined rail freight and passenger traffic, but the nation has just 6% of the world's track.**

Source. UIC 2010



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# Freight is a key economic driver behind China's high-speed rail network program

- A shift in passenger traffic to the new high-speed rail routes has freed up congested older rail lines for freight.
- Coal mines and shippers to switch to cheaper rail transport from costly trucks for heavy cargos.

**The tonnage hauled by China's rail system increased in 2010 by an amount equaling the entire freight carried by the combined rail systems of Britain, France, Germany and Poland**

Source. World Bank

# High Speed Rail Network – over 200km/h



The full high-speed network of 20,000 km will be completed by 2020, despite the recent crash. Half the network has already been completed ahead of schedule.

# Metro/Light Rail Transport



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## ....any fast growing rail industry will have its challenges and China is no exception.....

- Overburdened with transport delays that hinder productivity and incur losses to businesses.
- Adoption International Best Practice
- Regulation & Access to Tenders
- Serious corruption reports

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**..the recent accidents have had a significant impact**



**Following the bullet train crash in July 2011, average speeds have been lowered and some trains recalled but construction is proceeding apace.**

# Recently Completed and Current Projects

Project Name	Value (\$USmn)	Company	Timeframe	Status
Lanzhou – Guangyuan railway	\$490	China Railway Group	Na	Contract awarded in Sept 2009
Batatu-Diandaigou Freight railway	\$725	China Shenhua Energy	Na	Regulatory Approval secured in March 2009
Chongqing light rail	\$851	Na	2009 first phase	OF and JBIC loan approved in March 2009
Shenzhen metro extension	\$878	MTR corporation	Na	BOT contract awarded in 2009
Qinghai-Tibet railway extension	1,160	Na	2008-2010	Under construction
Beijing – Shijiazhuang railway	1,500	China rail group	Na	Contract awarded in July 2010
Zhengzhou Metro Line 1	2,100	Zhengzhou Transit Company	Na	BOC US\$1.3 bn loan granted in June 2009
Nanning light rail system	2,600	Na	2009-2013	Planning stage
Shanghai-Hangzhou Express railway	3,700	Baosteel Group/CRCC	2010	Completed in 2010
Qingdao Metro	4,200	Na	2006-2016	At planning stage
Chengdu-Chongqing high speed railway	5,840	Na	2011	Completed
Nanning – Guangzhou high speed railway	6,000	Na	2008-2013	Under construction

# ..more...

Project Name	Value (\$USmn)	Company	Timeframe		Status		
Beijing – Shanghai high speed railway	33,450	CRCC, China Iron CO, China water Converancy and Hydropower Construction Group and China Traffic Constnution Cooperation	2008-June 2011		Completed		
			Zhongshankou-Xinweiya Bridge (part of Lanzhou Urumqi line)	129.34	China Railway Construction Corporation	May 2011	Under Construction
			JiTuHun Railway Project between cities of Jilin and Hunchun, Jilin province	6,303	Na	2011	\$USmn loan World Bank
Fuzhou – Xiamen high speed railway	Na	Na					
Railway between Economic Zone in Fujian and the Shenzhen Economic Zone	Na	Na	Changsha metro railway line 3 (24 stations)	Na	Na	End 2011	Construction to end 2011
			Changsha metro railway line 4	Na	Na	End 2011	Construction to start end 2011
Trans-Asian railway Mohan port in Yunnan Province to Vientiane (530km)	Na	Yunnan Xiaoxiang Pan Asia Investment	Xian metro railway line 3 (31 stations)	Na	Na	May 2011- 2015	Under construction
			Wuhan metro line 3 first phase (23 stations)	3157	Na	July 2011 – 2015 under construction	Feasibility underway
510 high speed railway Xian to Chengdu	10,600	Project Name	Xiamen urban rail transit project	Na	Na	July 2011	Project viability being assessed
Railway linking Vientiane with Beijing	Na	Lhasa (Tibet) – Urumqi (Xinjiang)	Na	Na	2011	At planning stage	
		Harbin – Dalian High Speed railway	Na	Na	2011	Under construction	
182.3 km railway Dazhun – Shuohuang	2,000	Shiziyang underwater tunnel (10.8km) Guangzhou to Shenzhen	Na	Na	2011	Completed	
Maglev low to medium speed railway line between mentougou and Pingguoyuan	912	Chongqing – Hunan railway line	5,300	Na	2011	Received official approval	
		High speed railway line between Tianjin and Qinhuangdao	Na	Na	2011	Construction stopped due to problems with environmental approvals	
		Railway project (Chingqing, Qianjiang, Zhangjjajie, Changde and Changsha)	Na	Na	2011-2015	Under construction	
		Railway line connecting Dezhou and Dajawa Shandong Province	Na	Na	2011-	Under construction (May 2011)	



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# Foreign Participation in the market

- Co-operation with Chinese partners on engineering consultancy, construction supervision for China railway PDLs.
- Extensive adoption of technology for high-speed passenger and heavy-haul freight transport
- High-speed Electrified Multiple Units (EMUs) & locomotive and rolling stock technology for 200-km/h (or above) passenger transportation
- Track, bridge, tunnel, culvert, traction, power supply, signalling and communication technology, brake, for high-speed rail

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# Australian participation in the market

Manufacturing

Exports/Technology Transfer

- Tunnel cleaning technology
- Train weighing systems technology transfer to several train weighing companies
- Programmable Controllers.
- Train mounted tank parts
- IT solutions

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# Areas for potential cooperation for Australian industry

- Equipment/services in the heavy haul area
- Product and services related to environmental protection/cleantech or improve efficiency
- Safety inspection and safety control technology
- Technology solutions for ticketing or passenger service technology
- Assistance to improve the interface of rail and urban transport systems

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## .....think beyond the traditional export model

- Chinese Export Expansion – Cooperation in Australia and other countries
- China is now filing patent applications for its high-speed railway technologies in regions including the United States, Brazil, Europe, Russia and Japan which is step for tapping overseas markets
- GE and MOR – agreement for collaboration High Speed rails and electric rail in USA

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# Australian Exporters need to consider....

- Fly in Fly out is not appropriate
- Best model is in market JV, WOFE?, Rep Office
- Understand the market
- What is your competitive advantage?
- What are the IP issues?
- Is your company ready for China – resources – Time \$\$



**Lily Chen**  
**Partner Audit**  
**KPMG**

17 Nov 2011

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# Challenges

- Business model, highly regulated
  - Tariff & Capacity
  - Cost
- Current difficulties
  - Narrow financing channel
    - Bank loan & Government investment
    - Stock market
    - Private equity, etc.
  - High speed rail focus
    - Safety concerns
    - Technology concerns
    - Fare of high speed rail

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# Market access and status of Foreign Investment

- Licensing
- Related regulatory
- Current status



Name	Nature	Internal Stockholder	External Stockholder	Main products
Bombardier Sifang (Qingdao) Transportation Ltd	JV	South Sifang Locomotive Co., Ltd.	Bombardier	Passenger train cars and vehicles
Changchun Bombardier Railway Vehicles Co. Ltd.	JV	Changchun Railway Vehicles Co., Ltd.	Bombardier	Subway cars
Traction system often led by Bombardier Jiangsu Co., Ltd.	JV	Changzhou Railcar Propulsion Engineering Research Center	Bombardier	Railcar Propulsion Equipment
Siemens Traction Equipment Ltd., Zhuzhou	JV	Zhuzhou Electric Locomotive Works, Zhuzhou Electric Locomotive Research Institute	Siemens (China) Co., Ltd.	AC drive electric locomotives and diesel locomotives, EMUs and urban rail transit vehicles, AC drive key equipment

Name	Nature	Internal Stockholder	External Stockholder	Main products
Shanghai ALSTOM Transport Co., Ltd.	Associate	Shanghai Rail Traffic Equipment Development Co., Ltd.	French company Alstom	Rail vehicles
XI'AN ALSTOM YONGJI Electric Equipment Co. Ltd	Associate	China North Vehicle Group Yongji Electric Factory	French company Alstom	Traction motors, fan motors and auxiliary transformer pump
Alstom Qingdao Railway Equipment Co., Ltd	Associate	CNR Institute of Qingdao four vehicles	French company Alstom	v DISPEN™ absorber

Name	Nature	Internal Stockholder	External Stockholder	Main products
Dalian Toshiba Locomotive Electric Equipment Co.,Ltd.	JV	CNR Dalian Locomotive and Rolling Stock Works	Japan's Toshiba Corp.	Railway locomotives (electric locomotives and diesel locomotives) and urban, inter-city transport vehicles with electrical products
Hitachi Yonge Electric Equipment(xi'an) Co.,Ltd	JV	Yongji North vehicle electrical appliances limited liability company	Hitachi, Ltd., Hitachi (China) Co., Ltd.	Urban rail transit vehicles and railway vehicle electrical system
ZhuZHOU SHILING Transportation Equipment Co., Ltd	JV	CSR ZHUZHOU ELECTRIC LOCOMOTIVE CO.,LTD	Japan's Mitsubishi Electric Corporation, Mitsubishi Electric (China) Co., Ltd.	Urban rail transit equipment, electrical products



**Bruce Griffiths**  
**Rail Advocate**

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# Business strategies for the China market

- Opportunities are not simply 100% export but a strategy to access the largest growing market or a stepping stone into a global supply chain through:
  - Strategic intelligence
  - Technology exchange
  - Product innovations
- A small piece of a significant international supply chain is more valuable than a large piece of a small domestic supply chain.

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# Global Business Strategies

- Opportunity to access global supply chains.
- Increased competitiveness with a manufacturing base in China that provides revenue for Australia through IP (retaining design, technology and high end skills) whilst meeting international customer needs.
- **Futuris International Example**
  - Design in Australia
  - Manufacture some components in China through a JV arrangement
  - Assemble in customers facility in North America.
- **Sigma Coach Air Example**
  - Chinese buyer is seeking technologies and globally recognised, high quality products to meet specific standards for their international customers.

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# Australian Rail Supplier Mission to China

**Date: 5<sup>th</sup> – 16<sup>th</sup> March**

**Visiting: Beijing, Shanghai and Hong Kong**

**Application deadline: January 20<sup>th</sup>**

**Mission includes: site visits, access to key industry players, networking and seminars**

## •Outcomes

- give our suppliers better understanding and information for their export market strategies
- this mission should be transformational for the firms involved and for the greater rail supply community

## •The mission **objectives** would be for Australian rail suppliers to:

- Investigate business development opportunities
- Opportunity to develop international partnerships
- Better understand the Chinese and our own competitive advantage
- Be exposed to best practice and benchmark our own operations
- Identify new technologies and innovations

**•Supported by Austrade, DIISR, ICN, Enterprise Connect, CSIRO and ARIC and state governments.**

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# Visit Program Includes:

Ministry of Rail

CNR Locomotive Works

CNR High Speed Train

IFE-Victall Railway Vehicle Door Systems

Qingdao Sifang Rolling Stock Research Institute

Ultimate Corporation

Bradken

Knorr Bremse Pudong Plant - KPS System

Zhuzhou Lince group

CSR Works Zhuzhou

Mitsubishi Heavy Industry (HK) Ltd for Macau Light Rail Project

MTR



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**Thank you**