



INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality

High Speed Railway in China

Workshop on Future Ten-T Corridors Passengers Traffic

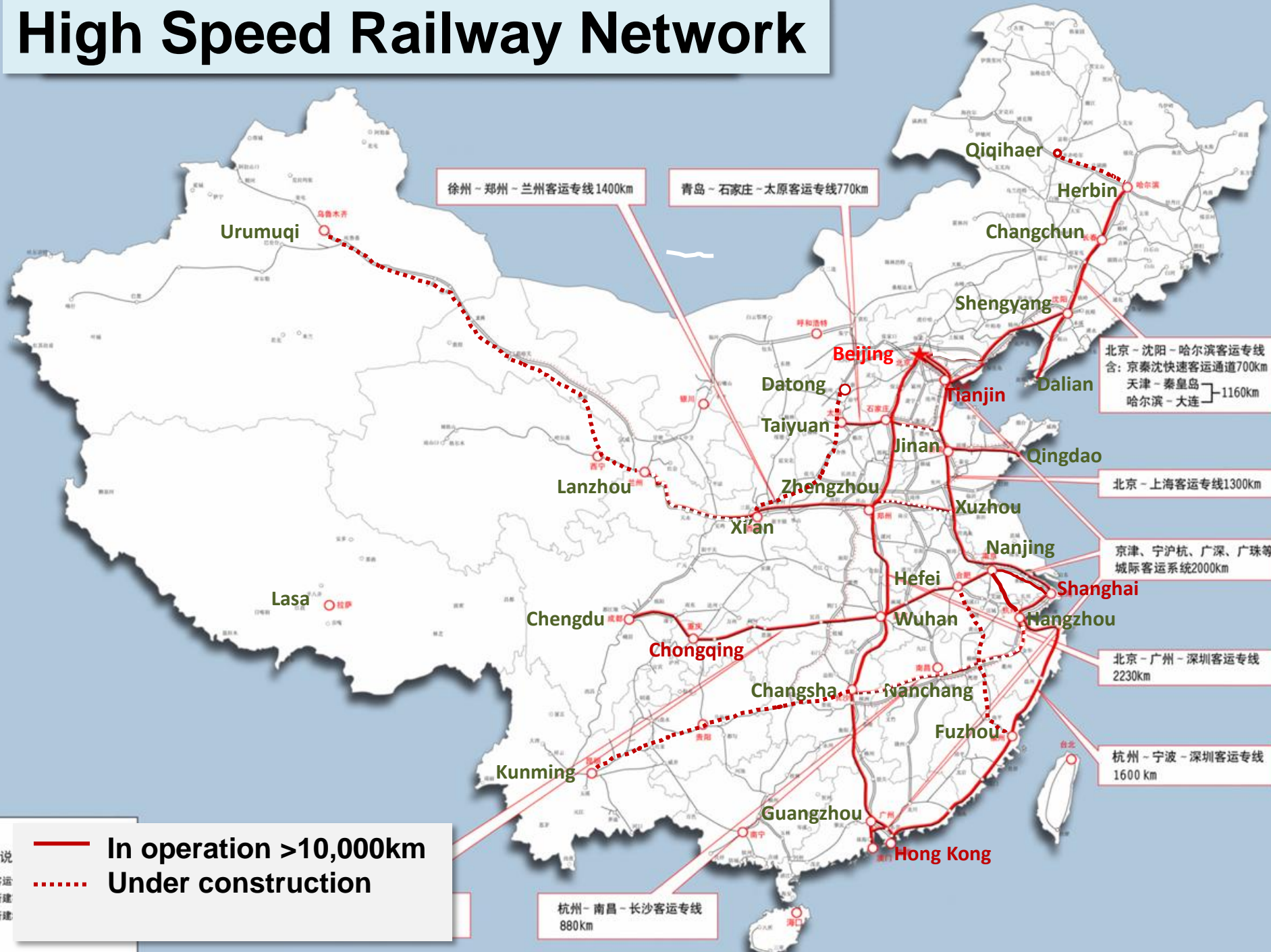
Warsaw, 25 February 2014

KONG Qi

Railway Network of China



High Speed Railway Network



—— In operation >10,000km
- - - - Under construction

说
 平客运
 新建
 新建



1. The Way to High Speed



Six rounds of “speed up” campaigns

- Before 1997, the speed of passenger trains was mostly less than 100km/h, and 120km/h on several main lines.
- From 1997, 6 rounds of upgrades on existing lines were implemented to improve the speed.
- Double track and electrification renovation were extensively carried out.

Development of Locomotives For raising Operation Speed



160km/h DF 9



170km/h SS8



160km/h SS9



140km/h SS5



160km/h DF₁₁



160km/h SS7c

Development of rolling stocks

For Raising Operation Speed



Pioneer 200km/h



DDJ1 200km/h



Xin Shuguang 180km/h



Chuncheng

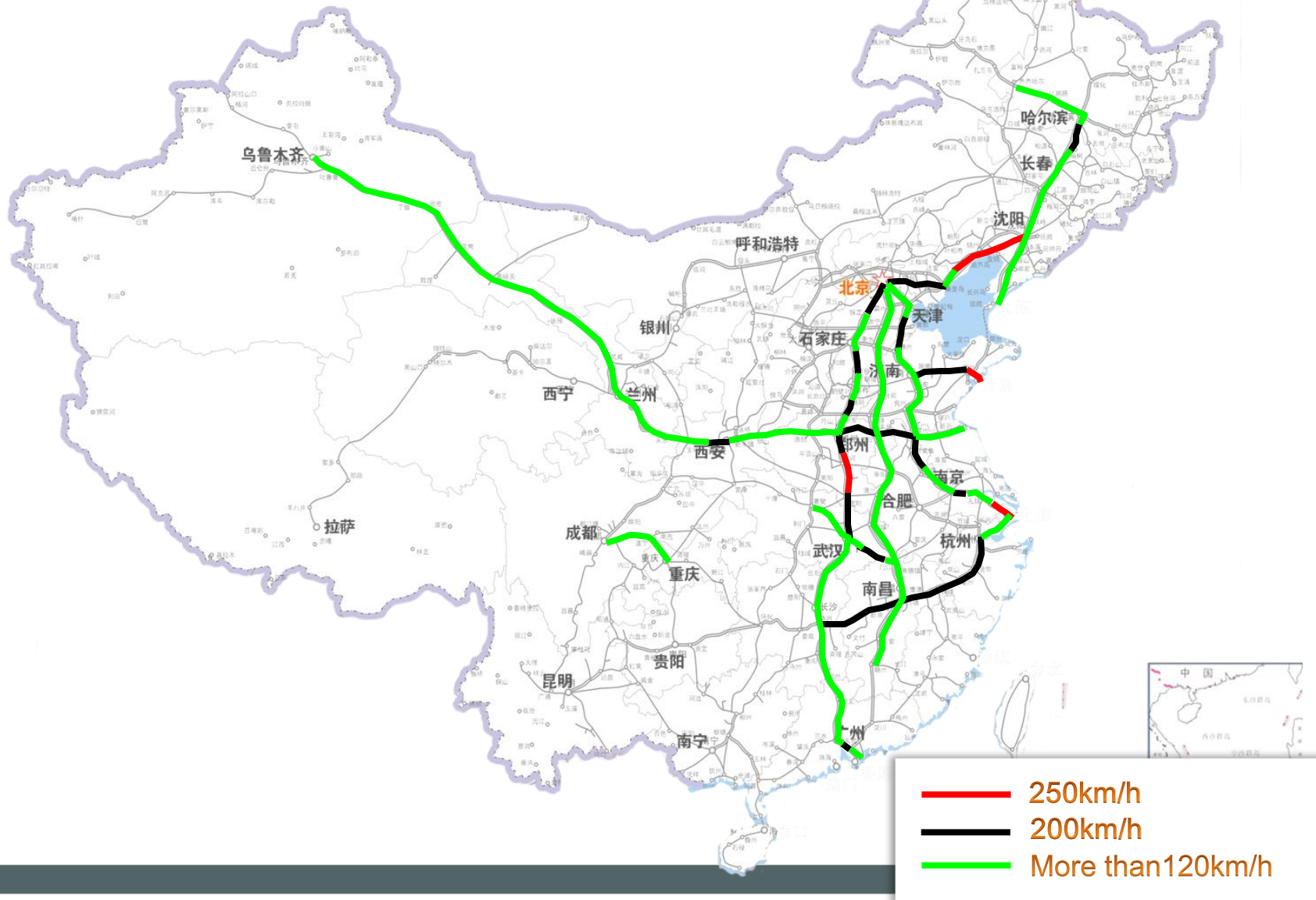


Blue Arrow



Zhongyuan Star 200km/h

The Network after 6 Rounds "Speed Up"



The First High Speed Line

- Start construction from 1999;
- Opened on 12 December 2003
- Length 404.64km
- Test speed 305.9km/h with China Star
- Operation Speed 250km/h
- Travel time from Shenyang to Beijing decrease from 9h10min to 4h30min



说明

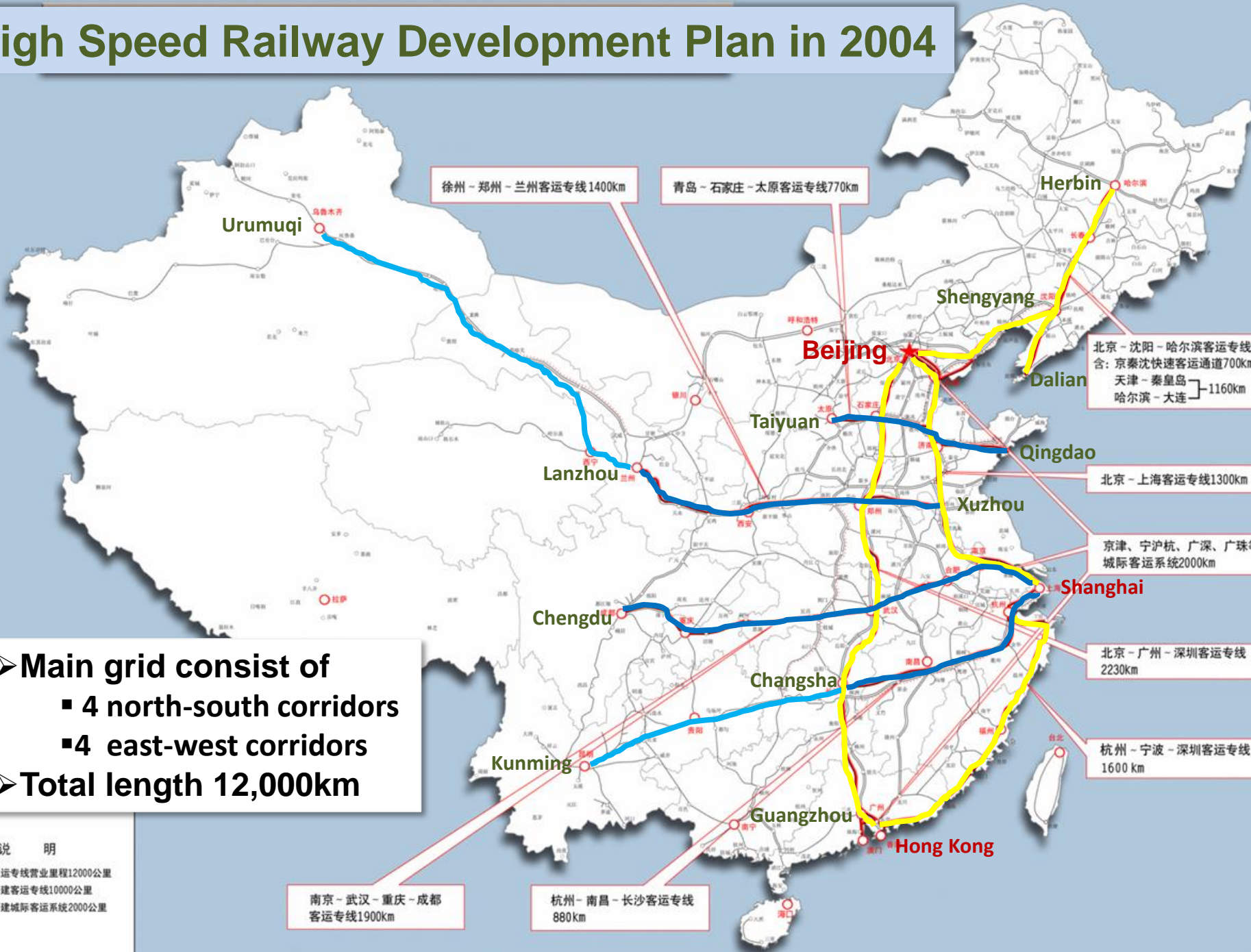
2020年客运专线营业里程1
其中：新建客运专线10000
新建城际客运系统2

中长期客运专线网示意图



2. Go to The High Speed Times

High Speed Railway Development Plan in 2004



徐州 - 郑州 - 兰州客运专线 1400km

青岛 - 石家庄 - 太原客运专线 770km

北京 - 沈阳 - 哈尔滨客运专线
含: 京秦沈快速客运通道 700km
天津 - 秦皇岛 } 1160km
哈尔滨 - 大连 }

北京 - 上海客运专线 1300km

京津、宁沪杭、广深、广珠等
城际客运系统 2000km

北京 - 广州 - 深圳客运专线
2230km

杭州 - 宁波 - 深圳客运专线
1600 km

南京 - 武汉 - 重庆 - 成都
客运专线 1900km

杭州 - 南昌 - 长沙客运专线
880 km

➤ Main grid consist of

- 4 north-south corridors
- 4 east-west corridors

➤ Total length 12,000km

说明
2020年客运专线营业里程12000公里
其中: 新建客运专线10000公里
新建城际客运系统2000公里

The First High Level HSR Line

Beijing-Tianjin HSR Line

- Start construction on 4 July 2005
- Opened on 1 August 2008 before opening of the Beijing Summer Olympic



京津、宁沪杭、广深、广珠等
城际客运系统2000km

北京-广州-深圳客运专线
2230km

杭州-宁波-深圳客运专线
1600 km

Beijing-Tianjin High Speed Line

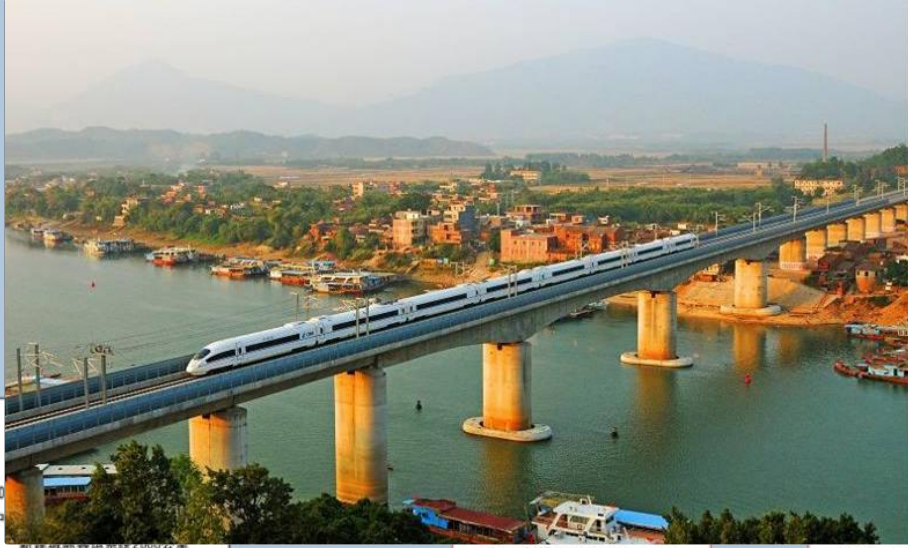
- Line length: 120km
- Operation speed: 350km/h
- Gradient: 20‰
- Stations: 4, Travel time 30min
- 70 Trains per day, 80 Trains in weekend
- 100 Trains per day in holiday



The First More Than 1000km HSR Line Wuhan-Guangzhou Line



- 23.06.2005 start construction
- 26.12.2009 in operation
- Speed 350km/h
- Stations 15
- Length 1068km
- Bridges 684, 468km
- Tunnels 226,177km
- Bridgs+Tunnels 66.7%



The World's Longest High Speed Railway Line

Beijing-Guangzhou Line

- After 3 years of opening of Wuhan-Guangzhou
- 28.09.2012 Zhengzhou-Wuhan in operation.
- 26.12.2012 Beijing-Zhengzhou in operation
- Designed Speed 350km/h
- Whole Length 2,298km
- More than 100 Trains per day



说明
 2020年客运专线营业里程12000公里
 其中: 新建客运专线10000公里
 新建城际客运系统2000公里

The First HSR Line in West China Zhengzhou-Xi'an Line



徐州 - 郑州 - 兰州客运专线 1400km

- Complicate geological area
- 25.09.2005 start construction
- 06.02.2010 in operation
- Length 505km
- Speed 350km/h
- Stations 10



线
km



Xi'an

Zhengzhou

北京 - 上海客运专线1300km

京津、宁沪杭、广深、广珠等
城际客运系统2000km



说

2020年客运专线
其中：新建客运
新建城际

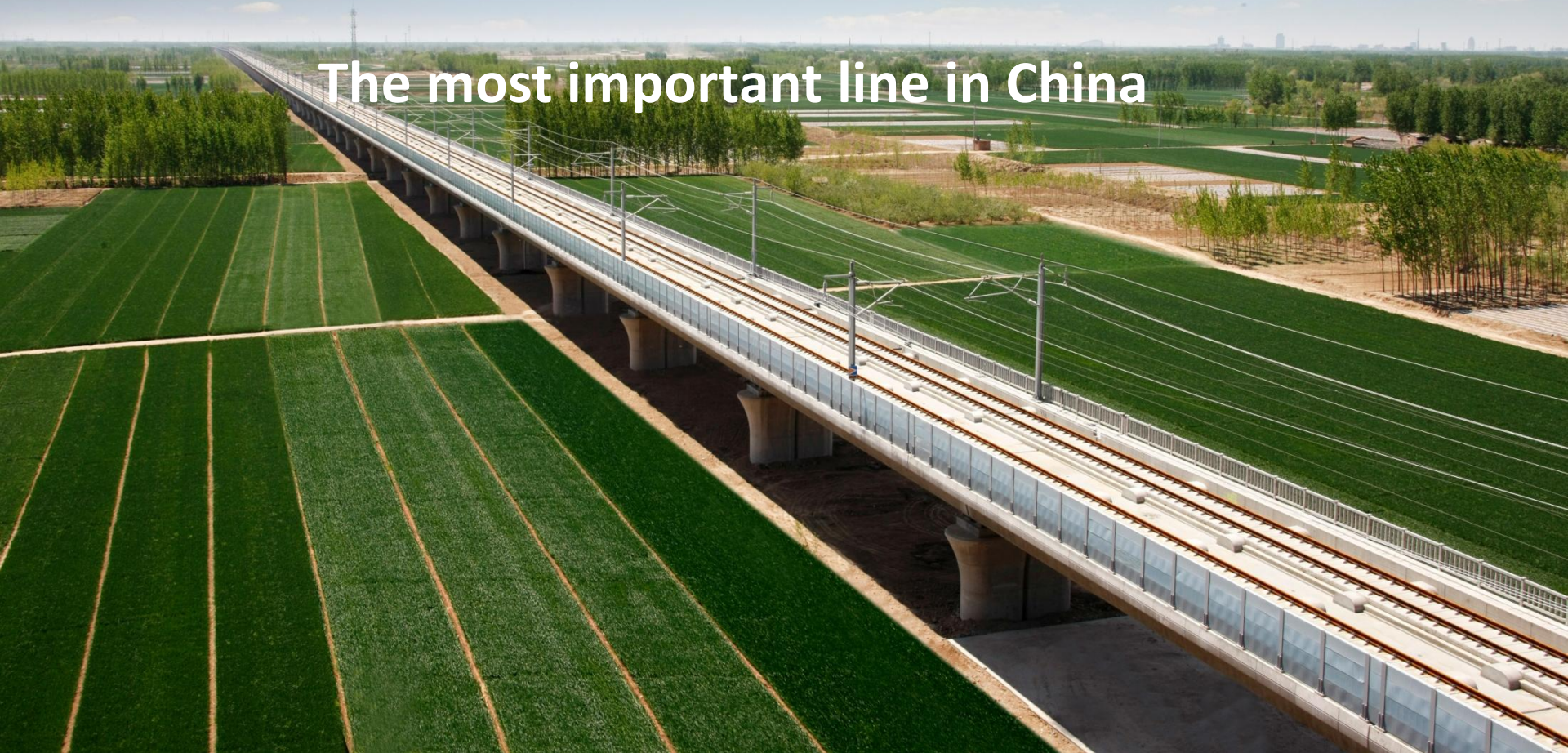


专线

专线

3. Beijing-Shanghai HSR Line

The most important line in China



The Most Important HSR Line

Beijing-Shanghai Line

➤ Cover Area:

- Three Municipality: Beijing, Tianjin, Shanghai
- Four provinces: Hebei, Shandong, Anhui and Jiangsu
- ¼ Population of China
- 40% of GDP

➤ Length: 1,318km/h

➤ Speed: 350km/h

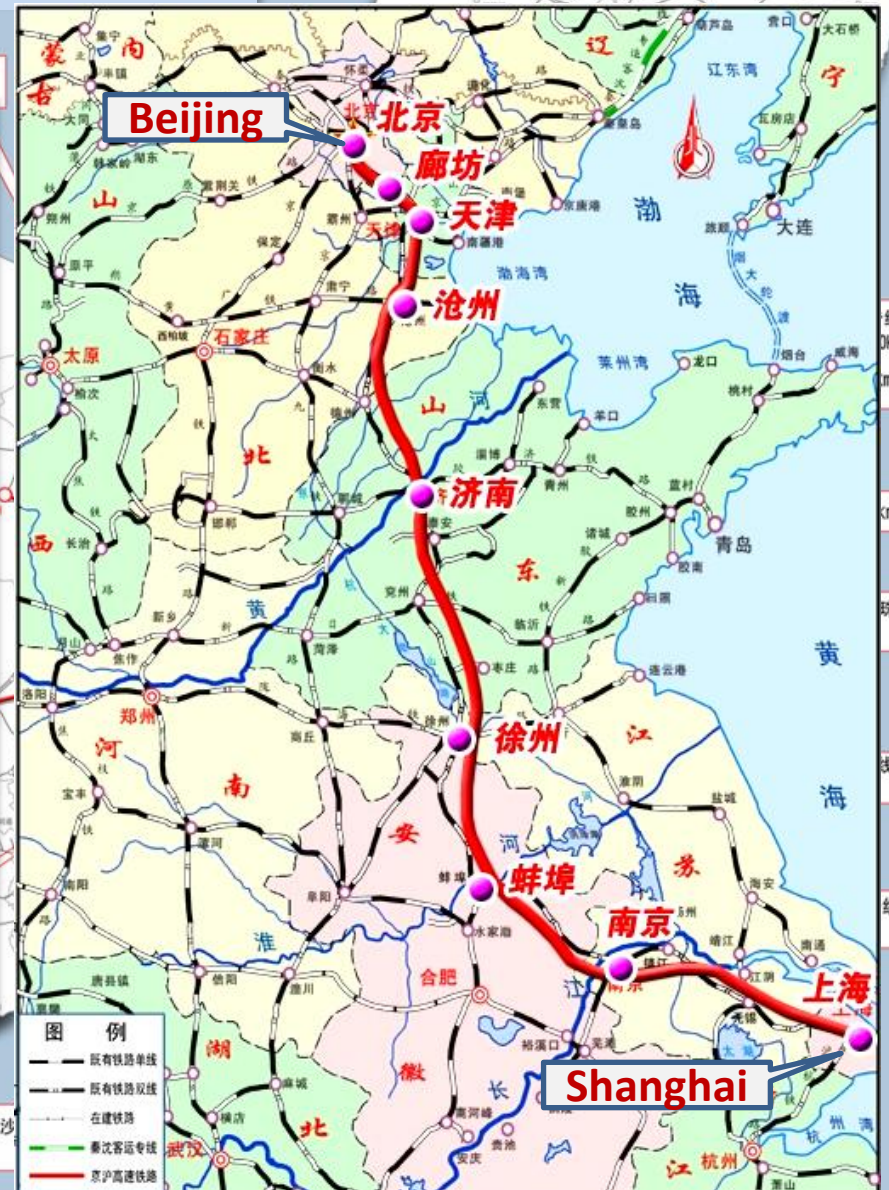
➤ Stations: 23

➤ Opened on 30.06.2011

徐州-郑州-兰州客运专线 1400km

南京-武汉-重庆-成都
客运专线 1900km

杭州-南昌-长沙
880km



说明

2020年客运专线营业里程12000公里
其中:新建客运专线10000公里
新建城际客运系统2000公里

Infrastructure

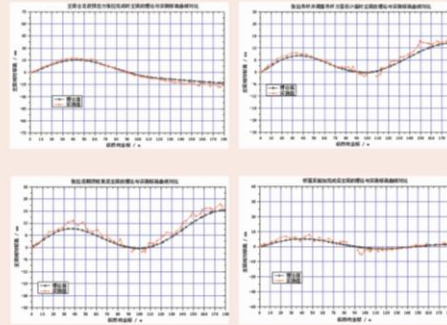
Bridges: 288

1059.7km , 80.4%



Infrastructure

Special Structure Bridges



Infrastructure

The Nangjing Yangzte River Bridge

Length 14.79km

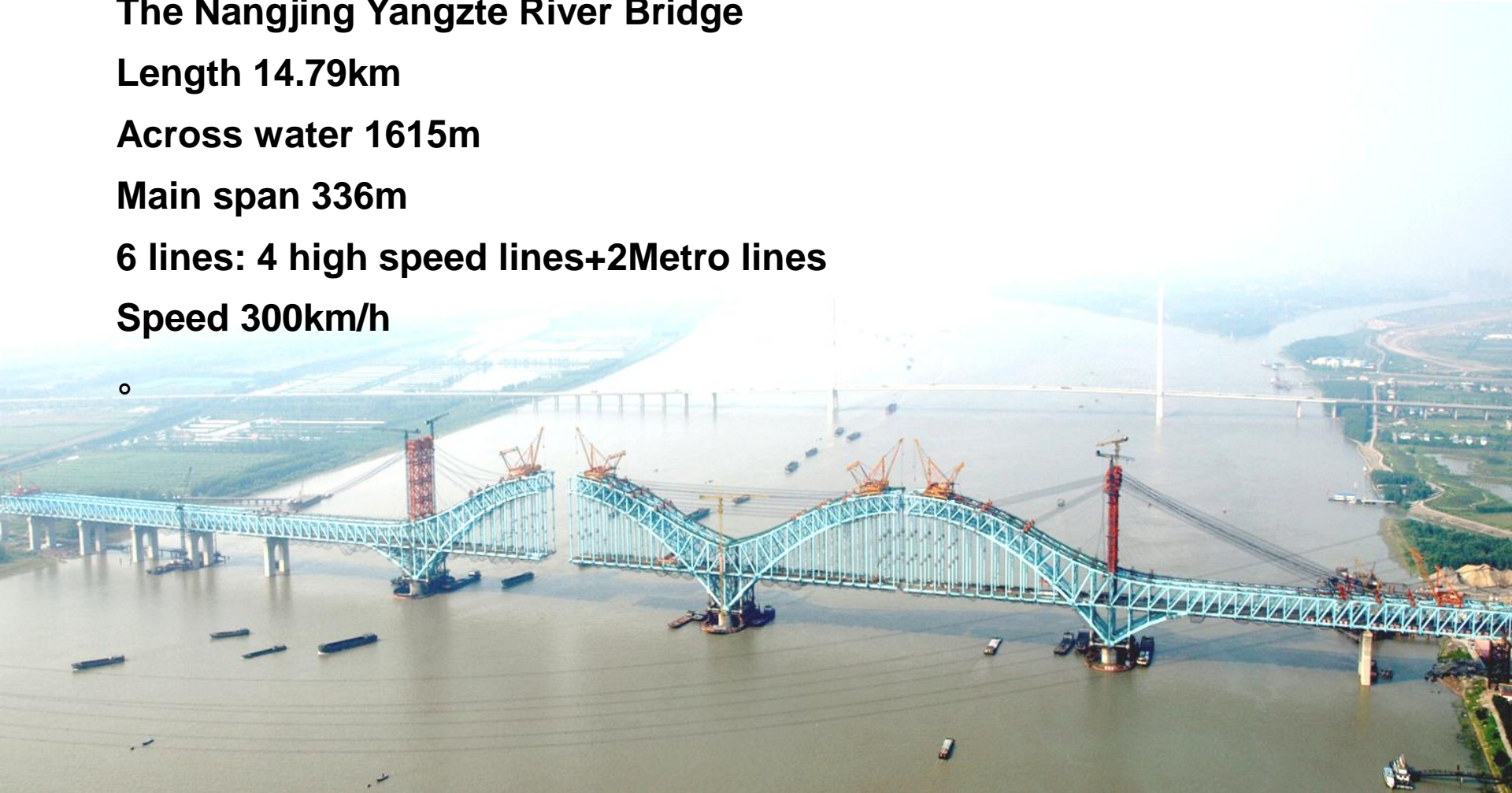
Across water 1615m

Main span 336m

6 lines: 4 high speed lines+2Metro lines

Speed 300km/h

o



Infrastructure

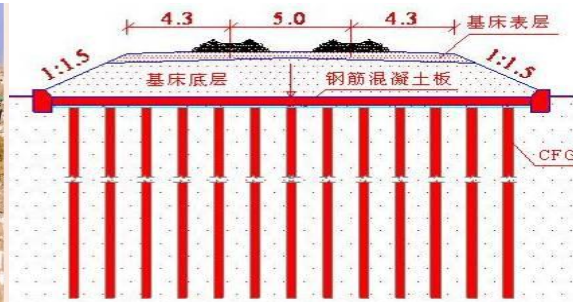
Tunnels: 22, 15.8km



Infrastructure

Roadbed in construction

Measures for protecting from foundation settlement



Infrastructure

Slab Track



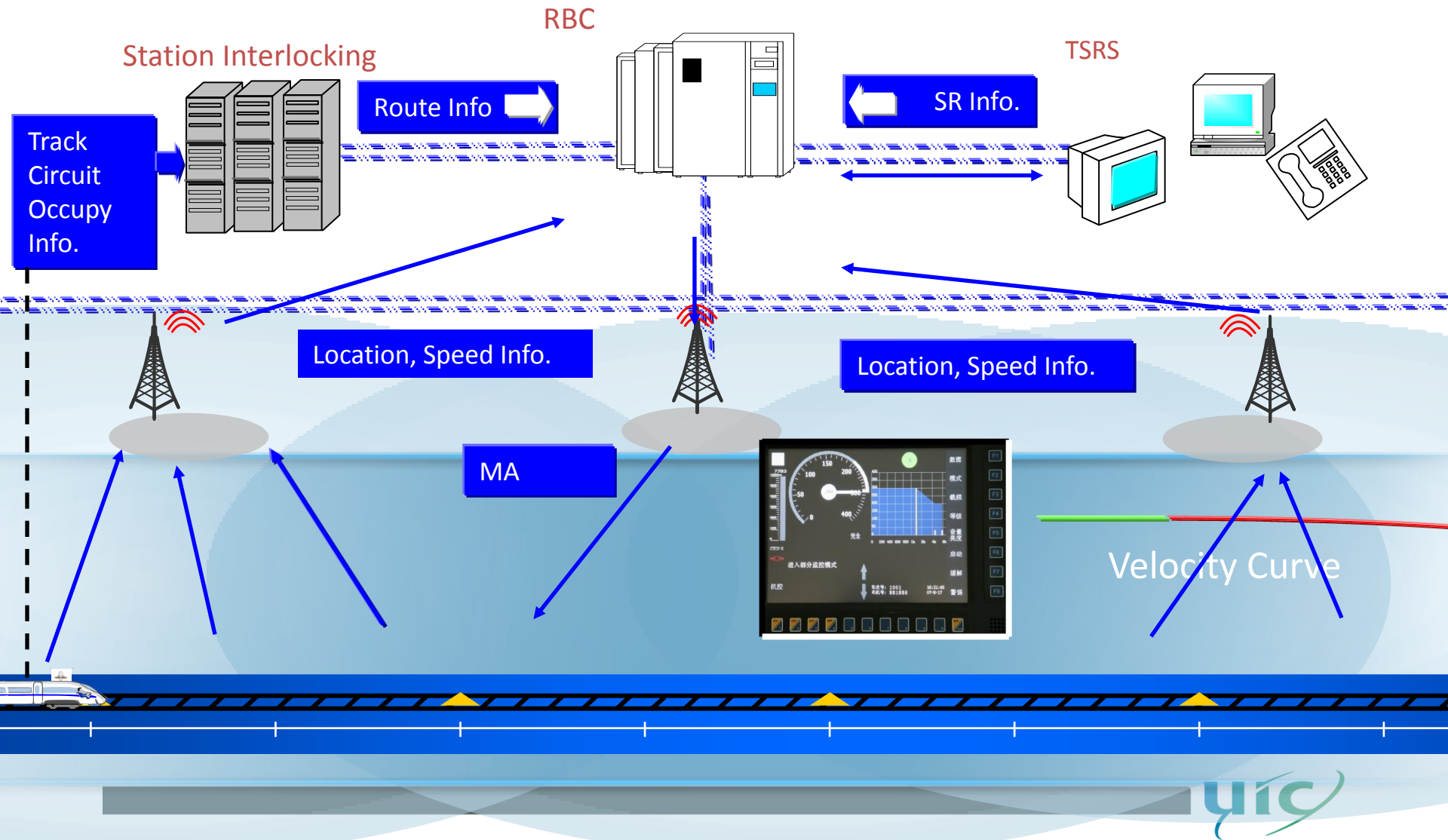
Electrification



刚性定位



Tran Control System: CTC3-3



Rolling Stocks

The First Generation



The New Generation Rolling Stocks

- **CRH380A; CRH380AL**
- **Speed: 380km/h**
- **Produced by CSR Sifang**



The New Generation Rolling Stocks

- **CRH380B, CRH380BL**
- **Speed 380km/h**
- **Produced by CNR Changchun and Tangshan**



Rolling Stocks

Comprehensive Inspection Train

CIT001
Max. Speed 250

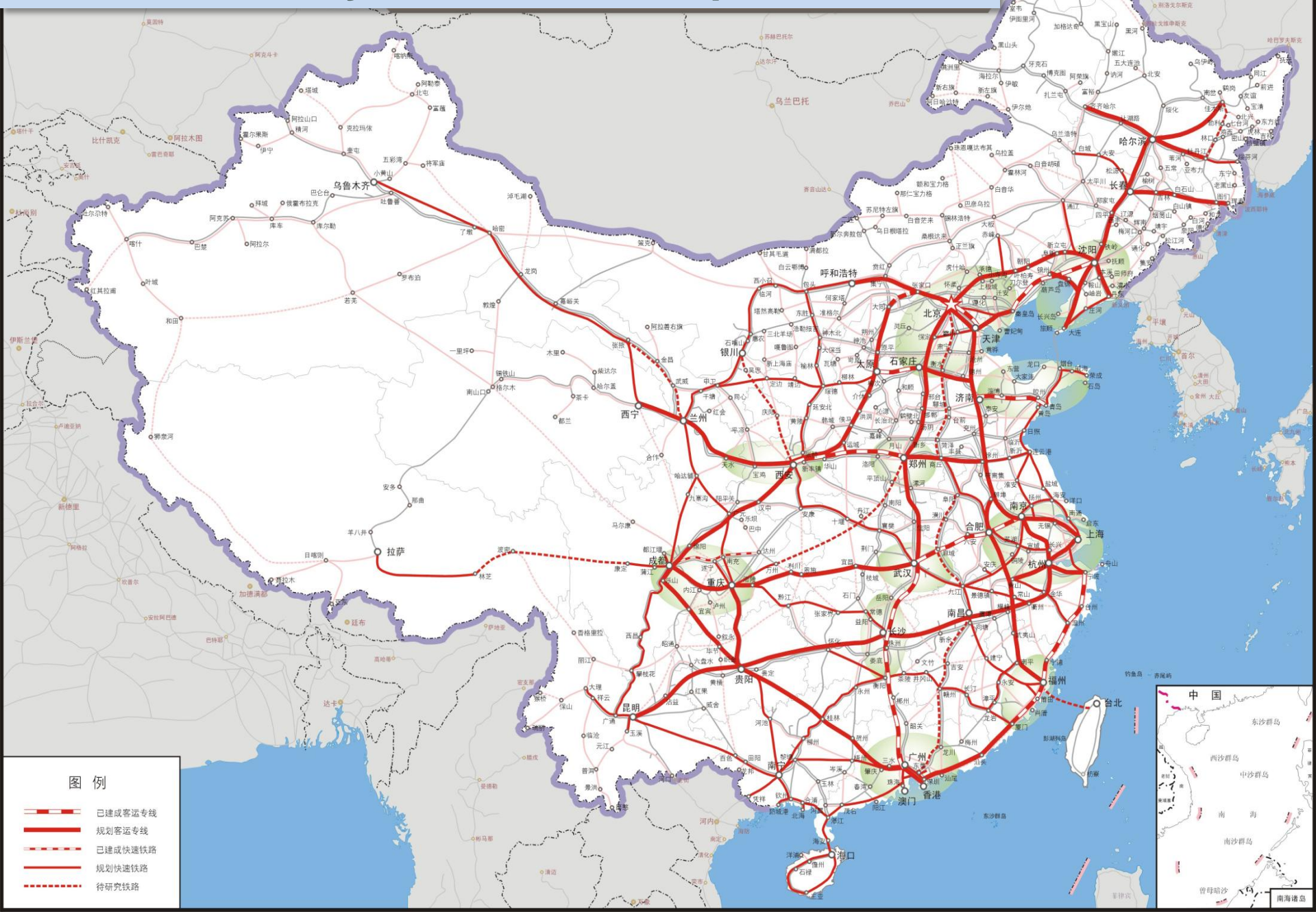


CIT400A Max. Speed 400km/h



CIT400B Max. Speed 400km/h

The Fast Railway Network Development Plan



■ ■ ■ *Thank you for your kind attention*

KONG Qi

Kong@UIC.org