Railway Connectivity Practice and Outlook



National Railway Administration of China



Contents

01 Overview

02 Challenges

03 Outlook



PART 01

Overview

Overview

Trans–Asian railway

The Trans-Asian Railway Network Agreement is an agreement signed on 10 November 2006, by seventeen Asian nations as part of a United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) effort to build a transcontinental railway network between Europe and Pacific ports. **China-Laos railway is an important part of Trans-Asian railway.**



Overview

China-Laos Railway





China-Laos Railway is a **landmark project of China-Laos friendship**. Total length: 1035 km, with a designed speed of 160 km/h.

As an important part of the Trans-Asian Railway central line, China-Laos Railway positively impact on the construction of the Trans-Asian Railway East West Line.

In the first quarter of this year, the China-Laos railway sent more than 5.74 million passengers and transported more than 1.38 million tons of goods, which has strongly promoted economic and trade cooperation between China and ASEAN countries, and the role of the international golden channel has become increasingly prominent.

China-Laos Railway will be part of the Trans-Asian railway channel link China, Laos, Thailand, Malaysia and Singapore.

China-Laos Railway experience





For regional economic integration:

- Promote trade and investment growth
- Strengthen industrial cooperation and supply chain integration

For social and cultural exchange and integration:

- Promote mutual visit and tourism
- Enhance cultural exchange and cooperation

China-Laos Railway experience





- **Strong support** from the governments of China and Laos.
- Selection of economical & green **design solution**
- **Unified standards** for design, construction, inspection, operation and maintenance
- Technical experts **team building** via training

Overview China railway

As of 2023,

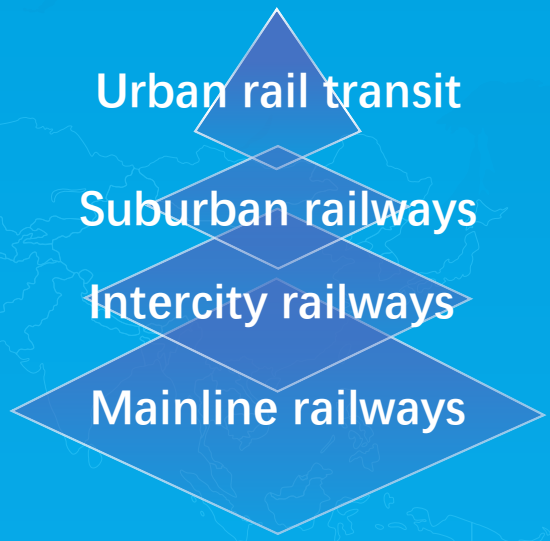
- China’ s mainline railway operating mileage reached 159,000 km, including 45,000 km of high-speed rail
- China's city rail transit mileage was over 10,000 km, reached to 306 lines, covering 55 cities
- Intercity railway and suburban railway are developing according to railway planning in China

Overview Integration of “the four network”

At present, China is promoting the integration of mainline railways, Intercity railways, suburban railways, urban rail transit in some region, such as Guangdong province.

We found there are lots of difference between four railway network, for example, different train control system like CTCS and CBTC, different types of train like the lengths, different power supply mode.

It’s similar situation for the railway between different countries in Asia.



Integration of
“the four networks”



PART 02

Challengs

Challenges

- **Political and economic :** There may be policy differences between countries and regions. In addition, railway connectivity projects require huge investment, and how to raise funds is also a big challenge.
- **Technical standards and compatibility:** Railway systems in different countries and regions may adopt different technical standards, such as gauge, signal system, train load,power supply system.
- **Operation management and coordination:** Railway connectivity involves many railway companies, which need close coordination and cooperation to ensure the smooth operation of railway.
- **Security and risk:** The operation of transnational railways involves the movement of people and the transportation of goods across national borders. How to ensure the safe and stable operation of railways is an important challenge.



PART 03

Outlook

Outlook

- The advantages of green, low-carbon and resource-intensive railways will bring new development opportunities to the world's railways.
- The world's railways are ushering in a new trend of sustainable development with high-quality infrastructure connectivity, high-standard coordination of technology and equipment, and efficient operation and management



Outlook

Research the technical and management issues that constrain connectivity:

- Technical solutions for connectivity，For example：
  - Rolling stock adapted to different track gauges, such as variable gauge trains
  - Compatible train control system for different countries

Outlook

- **Develop unified specifications for interoperability and third-party certification,** including but not limited to:
  - Infrastructure;
  - Traction power supply;
  - Communication & signaling;
  - Locomotive and passenger rolling stock.

Outlook

Establish coordination and cooperation mechanisms among different countries and regions, including:

- security check
- train operation dispatching command,
- billing for the railways of different countries
- Simplified border crossing procedures

Thanks, and best regards!

