



MINISTRY OF TRANSPORT
MALAYSIA

CONNECTING MALAYSIA BY RAIL

- The Challenges and Potentials

MOHD SHAHRIMAN BIN SHAFEIN

DIRECTOR GENERAL OF RAIL
MINISTRY OF TRANSPORT MALAYSIA

International Railway Symposium • Sepang, Malaysia • 7 November 2023



www.mot.gov.my

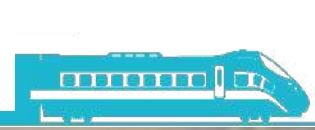


[motmalaysia](https://www.facebook.com/motmalaysia)



[ministryoftransportmy](https://www.instagram.com/ministryoftransportmy)

PRESENTATION OUTLINE



➤ **PART I : THE CHALLENGES**

- Technical
- Structural
- Finance

➤ **PART II : MEGATRENDS**

- The Megatrends
- National Transport Policy

➤ **PART III : THE POTENTIALS**

- Urban Network
- Mainline Network





PART I:
THE
CHALLENGES



GEOGRAPHY

- Malaysia's diverse geography, including dense jungles, mountainous terrain, and numerous water bodies, presents challenges for laying rail tracks and building infrastructure.

AGING INFRA

- Much of Malaysia's existing railway infrastructure is aging and in need of substantial upgrades. This includes tracks, stations, and signaling systems.

LAND

- Acquiring land for new rail developments can be a complex and time-consuming process, involving negotiations with landowners and dealing with potential land use conflicts.

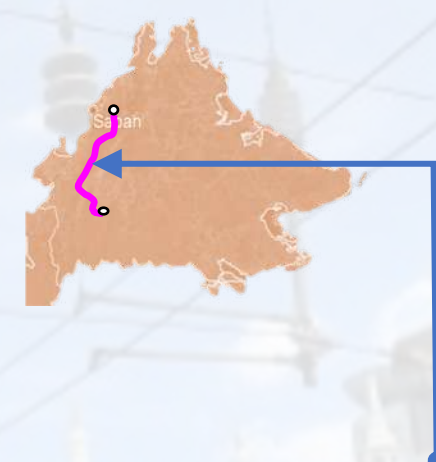
INTEGRATION

- Coordinating railway development with other modes of transportation, such as buses and road networks, is vital for seamless connectivity.

TODAY | GEOGRAPHIC CHALLENGE



TODAY | AGING RAILWAY INFRASTRUCTURE



TODAY | MODE INTEGRATION





MAINLINE RAILWAY MANAGEMENT

Vertical separation
Vs Integration

MULTI-MINISTRIES ROLES & POLICIES

Public
Transport/Automotive
/Road/highways



Economic Viability

- Ensuring the economic viability of rail projects, including a strong business case for private sector involvement, is crucial for long-term sustainability.

Funding and Investment

- Developing and expanding railway networks require substantial financial resources. Securing funding for major projects can be challenging

Fare Structure and Affordability

- Developing a fare structure that is both affordable for passengers and financially sustainable is a challenge.

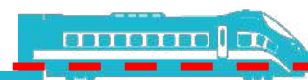
Financial Sustainability

- Optimizing limited financial resources to float the business in long term

PART II :

MEGATRENDS





1960-1990

- Average growth rate = 6.14%
- Major increase in migration rate into KL due to employment opportunities. Employment growth rate was 7.9% per annum
- Mini bus services was a popular mode of public transport

National Economic Policy (1970-1990)

- Poverty eradication regardless of race
- Society restructuring to eliminate the identification of race with economic function

Rapid Industrialisation (1970s-1980s)

- Investments by MNCs in Malaysia especially manufacturing & mining

1991-1997

- Average growth rate = 7.17%
- 1995: Bus services in the city operated by Intrakota & Park May
- 1997: Asian Financial Crisis

1998-2019

- Average growth rate = 3.83 %
- 2006: Manufacturing sector recorded its share of total employment of 20.3%
- 2010: 2.5mil population migrate to urban area (rural to urban & urban to urban)

MEGATRENDS

- URBANISATION** Additional demands on sustainable development
- DIGITALISATION** Advances in real time information and industrial revolutions
- SUSTAINABILITY** Shift towards greener transportation

Registered private vehicle
 1995 6.8mil → 2003 12.2mil

1990 **49.8%**

Malaysia Urban Population

1995 **55.7%**

2019 **77.8%**





1991-1997

30 years →

1998-2019

- Average growth rate = 7.17%
- 1995: Bus services in the city operated by Intrakota & Park May
- 1997: Asian Financial Crisis

- Average growth rate = 3.83 %
- 2006: Manufacturing sector recorded its share of total employment of 20.3%
- 2010: 2.5mil population migrate to urban area (rural to urban & urban to urban)



Registered private vehicle
 1995 6.8mil → 2003 12.2mil

MEGATRENDS	
URBANISATION	Additional demands on sustainable development
DIGITALISATION	Advances in real time information and industrial revolutions
SUSTAINABILITY	Shift towards greener transportation

Malaysia Urban Population

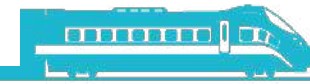


What Has Changed:

- ✓ Cashless Ticketing
- ✓ More network added - connected nodes
- ✓ More TODs

What Has NOT Changed:

- ✓ "Seamless Journey"?
- ✓ Main Line Industry Structure
- ✓ Participation of local companies in system
- ✓ Same old tech for system
- ✓ Still heavily supported by gov



Trend 1: Growing and increasingly ageing population

Trend 2: Increasing urbanisation

Trend 3: Advances in real time information and digitalisation

Trend 4: Expansion of e-commerce market

Trend 5: Shift towards environmentally sustainable transport

Trend 6: Move towards bigger vessels, consolidation and containerisation

Trend 7: Increasing passenger travel and impact of Low Cost Carriers

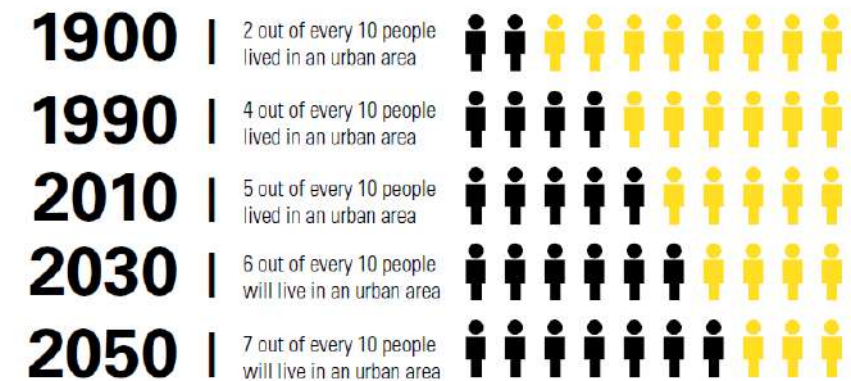
Trend 8: Proliferation of new technology



- 1. Megacities** :The growth of these megacities will lead to unprecedented urban sprawl, new slums and a growing gap between the rich and poor. 90% of population growth is expected to occur in the cities of the developing world.
- 2. Demographic change** : Demographic and economic shift will result in a new global order.
- 3. Climate Change** : Changes in temperature, more intense storm activity and sea level rises may affect transport infrastructure design, operation and maintenance. Increased flooding from heavy precipitation and storm surges could disrupt rail travel as well as freight operations
- 4. Smart and integrated mobility** : Big data and the Internet of Things will pave the way for truly integrated and inter-modal transport solutions. Passengers will expect certainty in terms of time, so reliable and accurate real-time information will be key.

- 5. Technology**: Advances in nanotechnology may lead to new materials that are lighter, stronger, smarter and greener. Swarm robotics is another area for future transport and infrastructure projects.
- 6. Energy and resources**: Constraints on available resources, and high and volatile prices, may limit economic growth. Global consumption of resources will nearly triple to 140 billion tons per year by 2050.

Urbanisation



Source: <http://catalystreview.net/>

Source: ARUP's Report on "Future rail 2050", 2019



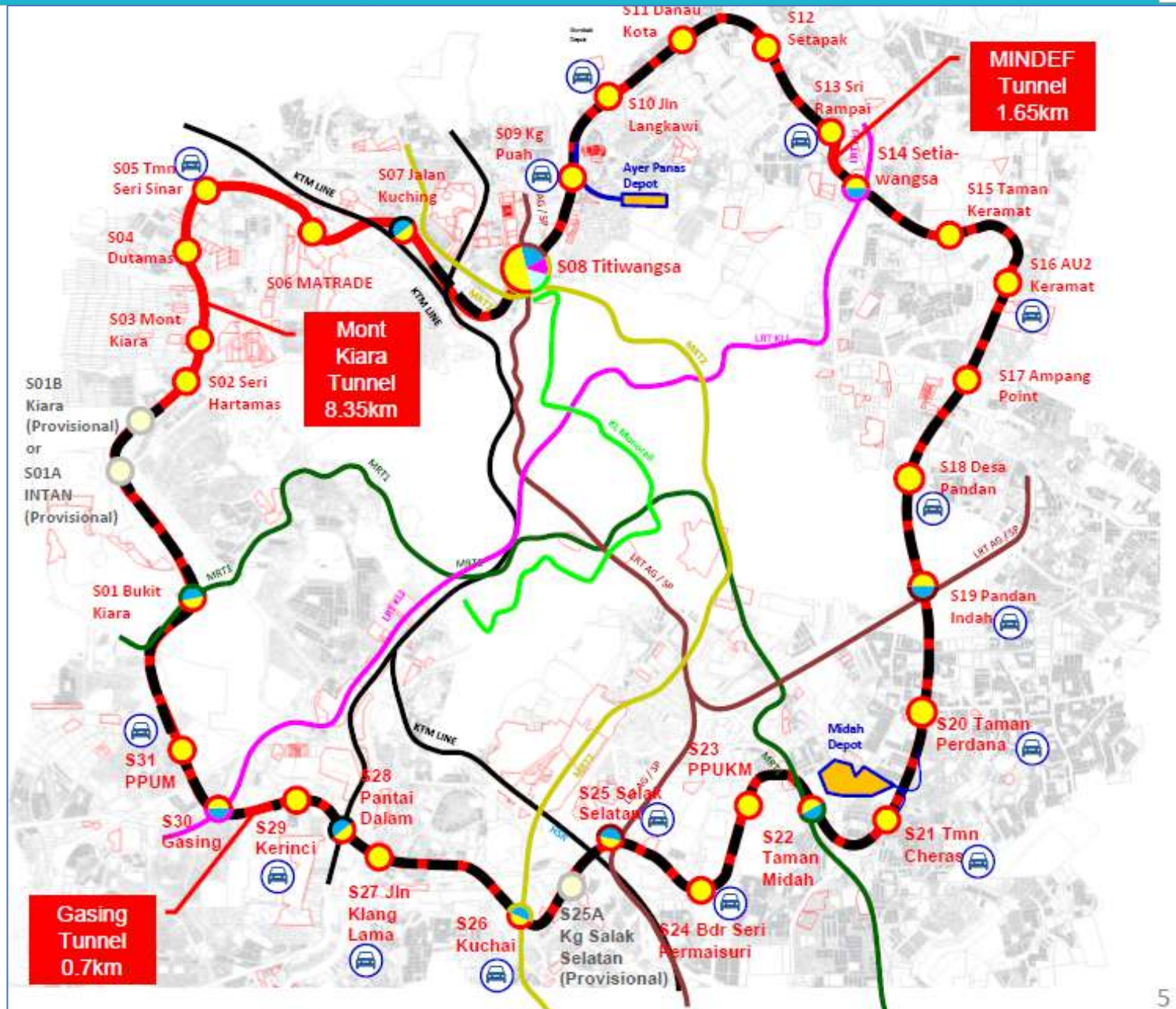
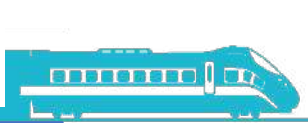
PART III :
THE
POTENTIALS -
LOOKING AHEAD



FUTURE |
**Road-sharing
Vehicle To
Roam The
Cities**



FUTURE | Mass Rapid Transit (MRT) 3 – Circle Line





BINTULU PORT



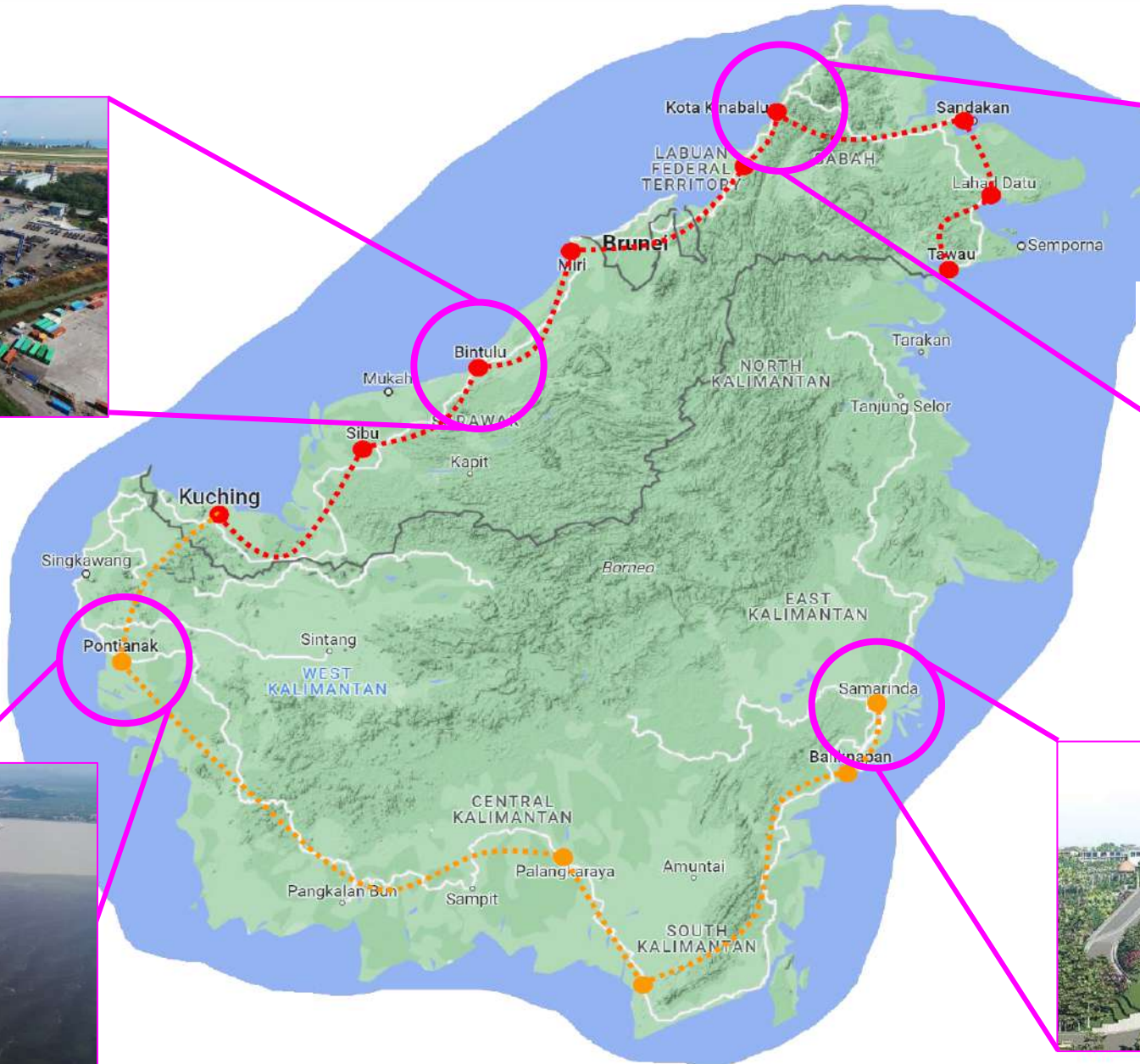
SEPANGGAR PORT



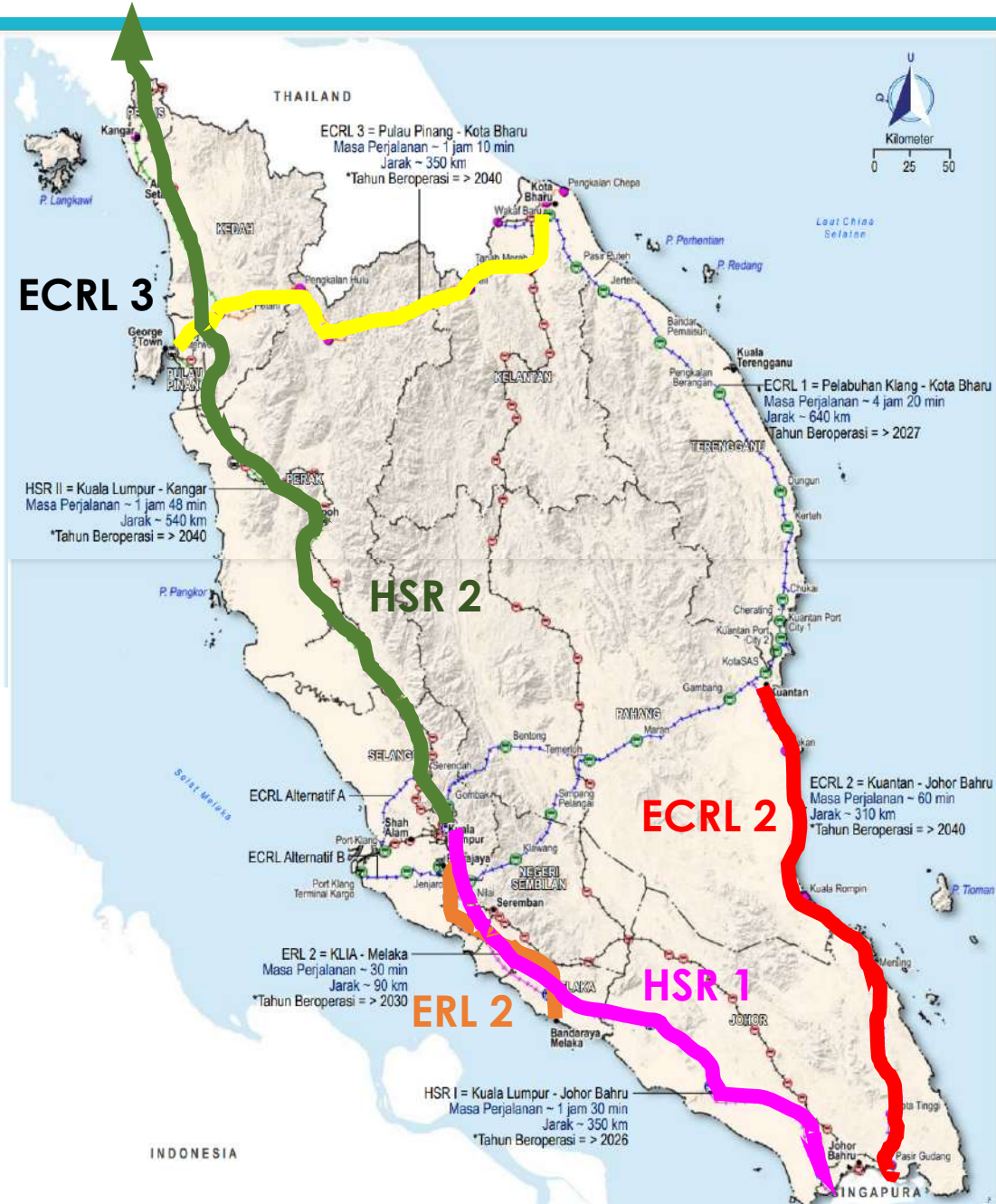
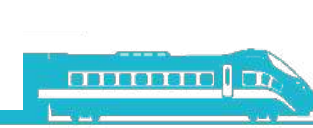
KIJING PORT





NUSANTARA



FUTURE | Future Outlook Of Malaysian Railway (2030-2050)



A. ECRL 2 (Kuantan – Johor Bahru) 

B. ECRL 3 (Kota Bharu-Pulau Pinang) 

C. ERL 2 (KLIA-Melaka) 

D. HSR 1 (KL-Singapura) 

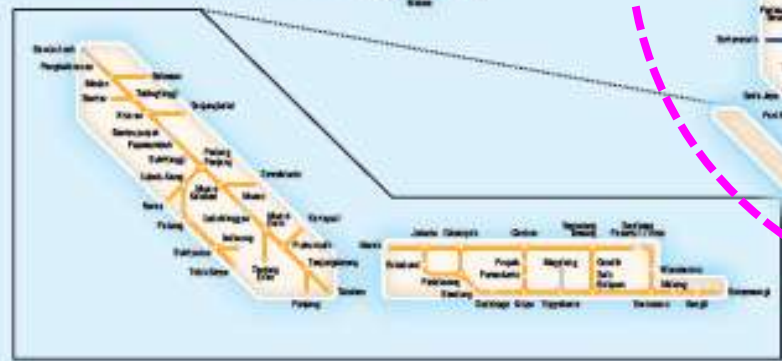
E. HSR 2 (KL-Padang besar-Bangkok) 

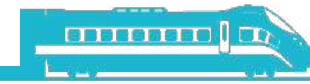


Trans-Asian Railway Network



- Key to lines:**
- 1,000 mm gauge
 - 1,067 mm gauge
 - 1,435 mm gauge
 - 1,475 mm gauge
 - 1,520 mm gauge
 - East gauge
 - Missing link
 - Ferry link
- Key to symbols:**
- End of line
 - City/station
 - Station with break of gauge
 - Station at junction
 - Border post
 - Station at border
 - End of line at border
 - UN Country (ISO 3166 code)





THE DREAM : Rail As The Preferred Choice Of Mode

- ✓ Robust Business Model – structurally sound, sustainable
- ✓ Connected
- ✓ Accessible
- ✓ Reliable (timeliness)
- ✓ Seamless journey/Interoperable
- ✓ Affordable
- ✓ Travel time O-D – 90 min max between conurbation
- ✓ Reliable & Safe



THANK YOU

MOHD SHAHRIMAN SHAFEIN

Director General of Rail
Land Transport Division,
Ministry of Transport Malaysia

shahriman@mot.gov.my