Draft Guidelines on High-Speed Rail for ASEAN Member States

Sandeep Raj Jain
Transport Division

ESCAP
Economic and Social Commission for Asia and the Pacific

Outline

1. Developing a wider national and local strategies to fully leverage HSR benefits
2. Air-HSR policy coordination
3. Land acquisition and related legal issues
4. Financing HSR projects
5. Deepen rail digitalization and encourage innovative practices to fully harness HSR benefits
6. Establish a dedicated ASEAN HSR expert group



1. Developing a wider national and local strategies to fully leverage HSR benefits



Fully capturing benefits of HSR for local/urban growth

- ✓Local governments should formulate comprehensive master plan for development of areas surrounding HSR
- ✓Connections with mass transit networks with successful application of TOD policies
- ✓Institutional mechanism for PPP in *station area development*- Japan's experience in development of station building- diversifying business of railway companies
- ✓Collaboration among local governments, transit agencies and private developers
- ✓Multimodal connection planning including walking

1. Developing a wider national and local strategies to fully leverage HSR benefits

Location of HSR station



- ✓Not always straight forward
- ✓Maximize ridership and reduce travel time
- ✓Optimize overall benefits of the stations for adjacent populations through improved access, intermodal integration with existing facilities
- ✓Avoid environmentally sensitive areas
- ✓Use *GIS models* can help optimize station locations to maximize ridership with out increasing travel time and distance significantly

1. Developing a wider national and local strategies to fully leverage HSR benefits



HSR for provincial/regional development

- ✓Several concurrent measures need to be put in place -Japan has over 50 years of experience in using Shinkansen for regional development
- ✓Started such policies as national income doubling plan and Pacific Belt Corridor
- ✓Corridor's essential infrastructure included the high-speed rail and several expressways
- ✓Large investment in heavy and chemical industries along the corridor to enhance competitiveness

HSR for promoting tourism

- ✓Important transport means for inbound tourists
- ✓Good connectivity of HSR with multiple airports, tourism sites and development of related services. Japan is good example

2. Air-HSR policy coordination

European experience clearly alludes to synergies benefiting all stakeholders – passengers, airlines, rail, airport operators and society through such cooperation

Reduced carbon emissions



- ✓Shift in traffic from air to HSR - substitution of short haul flights with efficient HSR alternatives
- ✓Environmental costs of passenger by air is 9 times as compared with HSR
- ✓Short haul flights generate twice as much emissions per seat km than long haul flights
- ✓IEA scenarios indicate that limiting global average temperature below 2C requires substitution of flights up to 1000km with HSR

2. Air-HSR policy coordination

Improve airport accessibility

- ✓Prioritize HSR-Airport connectivity to expand the area served by the airport as well reducing emissions, pollution and congestion due to more use of rail to access airports
- ✓Reduce overall transport costs by obviating need to build new airport and related infrastructure.
- ✓Italy's national airport plan has policy identifying minimum percentage of sustainable access to airport 40 % by 2030 and 55 % by 2035
- ✓Italy also has numerous rail connectivity projects with main Italian airports with investments of more than one billion Euros



3. Land acquisition and related legal issues

- ✓HSR projects face major challenges in acquiring the land leading to protracted legal issues, delays and escalating costs

- ✓Careful consideration during planning stage itself as countries have different legal and regulatory framework on land acquisition



Land trust scheme to address land acquisition challenges

- ✓Trust bank acts as an intermediary between landowners and infrastructure company

- ✓Landowners transfer their land usage rights to infrastructure company and in turn they receive user charges, dividends, and portion of spill over tax revenues as determined by trust bank

4. Financing HSR projects

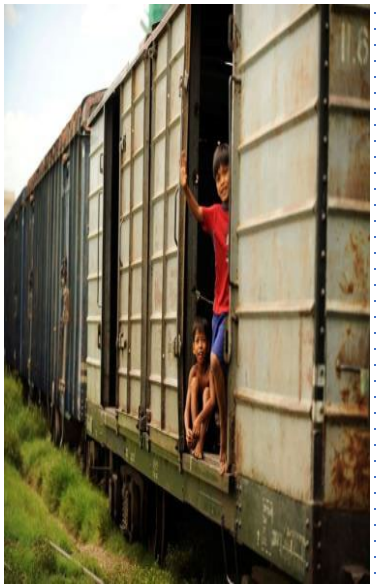
HSR financing can be divided two phases

- ✓Preparation phase- from conception to final decision on undertaking the project- costs are low- mainly involves feasibility study- generally involves government funding

- ✓Construction phase- requires high investment- involves land acquisition, relocation of existing utilities- mostly government funds but private sector can come in if it is made attractive them

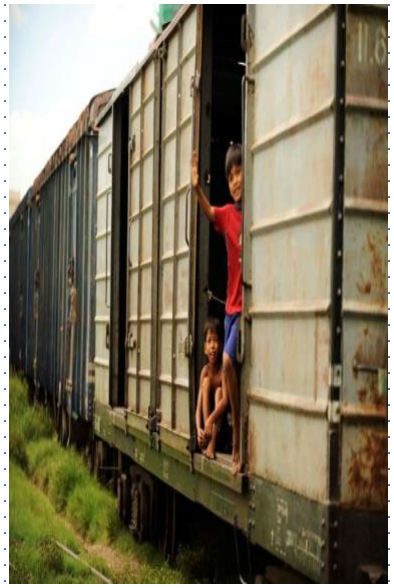
- ✓Example, HSL between Netherlands and Belgium- design, build, finance and maintain with separation of operations

- ✓**Infrastructure PPP** (SP1 and Dutch Government) Dutch Government pay annual performance fee for availability of infrastructure for 25 years. **Operations PPP** SP2 and Dutch Government where SP2 to pay for exclusive rights to operate trains on the line



4. Financing HSR projects

- ✓China-Lao railway USD 5.9 billion - 60% debt (3.54) – 40 % equity (2.36)
- ✓Managed by Lao-China railway company (LCRC) in which 2.36 billion equity is 70 percent by three Chinese owned companies (1.63 billion) and 30 percent by Lao National Railway State Enterprise (0.73 billion)
- ✓Lao equity financed by 0.48 billion by loan from China Exim bank and 0.25 billion to be paid by Loa in annual installments)



- ✓Jakarta-Bandung high speed line 5.29 billion – 75 % debt (USD3.96b) and 25 % equity (USD1.33b) – the line is managed by a Consortium of Indonesian and Chinese companies through an SPV (KCIC)
- ✓The equity component is USD 1.32 billion with Indonesian companies holding USD 800 million and remaining USD 520 million by Chinese.
- ✓The debt component of USD 3.97 billion is financed by China Development Bank through a loan agreement with KCIC

4. Financing HSR projects

- ✓Thailand is also building HSR between Bangkok and Nong Khai its border with Lao PDR in two phases with cost around USD 9.2 billion. The financing is mostly done by Thai government

- ✓Due to exorbitant cost of these projects, they need funding from internal as well from other sources.



- ✓Multiple considerations while financing from external sources that are interrelated and should be examined comprehensively before undertaking the project
  - ➢managing external debt
  - ➢access to technology
  - ➢environmental concerns

- ✓Discuss these issues internally with wide range stakeholders and build broad based consensus so that the project delivers wider economic impacts

5. Deepen rail digitalization and encourage innovative practices to fully harness HSR benefits



- ✓Digitalization is key part of passenger experience in HSR and includes such areas as e-ticketing, e-booking, multimodal ticketing and other innovative offerings through digital platforms
- ✓Digitalization is also needed in rail operations including digital capacity management through timetable redesign and common signaling system
- ✓AMS need to cooperate to deepen rail digitalization that can provide multiple benefits to HSR as well as convention rail

6. Establish a dedicated ASEAN HSR expert group



- ✓ASEAN countries are in various stages of developing high speed rail networks. Indonesia, Lao PDR ,Thailand, Viet Nam and Cambodia
- ✓Given the enormous costs these project entails, it would be worthwhile for AMS to cooperate on developing HSR. Such cooperation can range from **tightknit** to a **looser** one deepening on the ambition of AMS
- ✓Closer cooperation can entail developing an **ASEAN Master Plan on High-Speed Rail** that can among others elaborate for cooperation on such areas as network development, coordinated infrastructure development, operations and maintenance, standard setting as well as financing strategies.
- ✓Less strong form of cooperation could include sharing experiences; learning from each other; capacity development and other such areas as considered appropriate by AMS

Thank you for your attention

http://www.unescap.org/our-work/transport

