The 158th Transport Policy Colloquium

Comments on the presentation

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Introduction

- Comment contents

①Transition of construction and administration systems for Bangkok's urban rail systems

The HSR development scheme is compared against the Public-Private Partnership used in developing urban railway in Bangkok.

②Expectations for high- and medium-speed railways in Southeast Asia

Expectations and outlook of future high- and medium-speed railway projects are examined based on the transportation status of the mid-speed railway (Laos-China Railway) that has opened in the continental Southeast Asia.

Bangkok's urban rail systems ①

- Development process of the urban railway: The development plan emerged in the 1970s.

  Construction began in the 1990s. → The first urban railway line opened at the end of 1999.

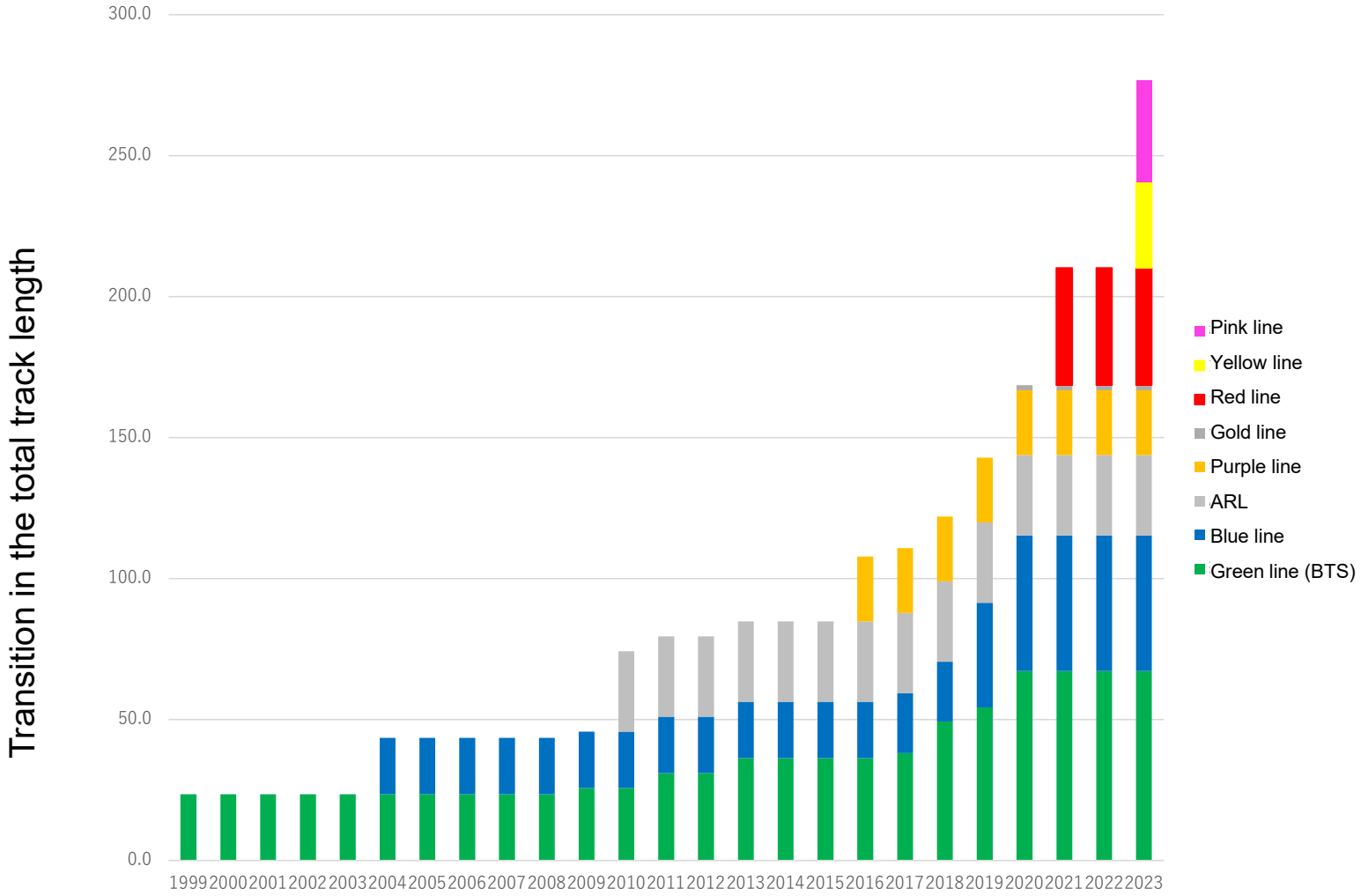
  The development work went into full swing in the 2010s.

- Current urban railway network: 8 systems, 10 lines with the total length of 277km

  Some 1.1 million users per day on average (2019)

  1.8 million daily users recorded at the end of 2023 (December 22)

Bangkok’s urban railway network



Source: Kakizaki [2021] edited

Bangkok's urban rail systems ②

- Diverse systems: Ordinary rail systems – Green, Blue, Purple and Red lines

  Medium-speed railway: Airport Rail Link

  New transit system: Gold line

  Monorail: Yellow and Pink lines

- Diverse administration organizations: Bangkok Metropolitan Administration (BMA) – Green and Gold lines

  Mass Rapid Transit Authority (MRTA) – Blue, Purple, Yellow and Pink lines

  State Railway of Thailand (SRT) – Red line

Launch dates of urban rail systems

Administration	Line	Section	Specifications	Distance (km)	Total distance	Construction commencement	Launch date	Remarks
BMA	Dark Green Line	Khu Khot ～ Wat Phra Sri Mahathat	Ordinary rail (elevated)	8.6	53.2	2016/06/01	2020/12/16	
		Wat Phra Sri Mahathat ～ Kasetsart University	Ordinary rail (elevated)	4.3		2016/06/01	2020/06/05	
		Kasetsart University ～ Ha Yaek Lat Phrao	Ordinary rail (elevated)	3.3		2016/06/01	2019/12/04	
		Ha Yaek Lat Phrao ～ Mo Chit	Ordinary rail (elevated)	1.7		2016/06/01	2019/08/09	
		Mo Chit ～ On Nut	Ordinary rail (elevated)	17.0		1994/03/31	1999/12/05	
		On Nut ～ Bearing	Ordinary rail (elevated)	5.3		2006/09/01	2011/08/12	
		Bearing ～ Samrong	Ordinary rail (elevated)	1.8		2012/03/01	2017/04/03	
		Samrong ～ Kheha Samut Prakan	Ordinary rail (elevated)	11.2		2012/03/01	2018/12/06	
	Light Green Line	National Stadium～Saphan Taksin	Ordinary rail (elevated)	6.5	14.0	1994/03/31	1999/12/05	
		Saphan Taksin～Wongwian Yai	Ordinary rail (elevated)	2.2		2005/11/11	2009/05/15	Full launch on 2009/08/23
		Wongwian Yai～Talat Phlu	Ordinary rail (elevated)	1.5		2010/12/29	2013/02/14	Full launch on 2014/01/06
		Talat Phlu～Bang Wa	Ordinary rail (elevated)	3.8		2010/12/29	2013/12/05	Full launch on 2014/01/06
	Gold Line	Krung Thon Buri～Khlong San	New transit system (AGT)	1.8	1.8	2017/12/30	2020/12/16	
MRTA	Blue Line	Lak Song～Hua Lamphong	Ordinary rail (underground, elevated)	15.9	48.1	2011/04/04	2019/09/30	
		Hua Lamphong～Bang Sue	Ordinary rail (underground)	20.0		1996/10/28	2004/07/03	
		Bang Sue～Tao Poon	Ordinary rail (underground, elevated)	1.2		2009/11/10	2017/08/11	
		Tao Pun～Tha Phra	Ordinary rail (elevated)	11.0		2011/04/04	2020/03/30	
	Purple Line	Tao Pun～Khlong Bang Phai	Ordinary rail (elevated)	23.0	23.0	2009/11/10	2016/08/06	
	Yellow Line	Ha Yaek Lat Phrao ～Samrong	Monorail	30.4	30.4	2018/06/29	2023/06/19	
	Pink Line	Nonthaburi Civic Center～Min Buri	Monorail	36.0	36.0	2018/06/29	2024/01/02	
SRT	Airport Rail Link	Phaya Thai～Suvarnabhumi	Medium-speed rail (elevated)	28.5	28.5	2005/02/19	2010/08/23	
	Dark Red Line	Rangsit～Bang Sue	Ordinary rail (elevated, ground level)	26.3	26.3	2013/04	2021/08/02	Quadruple track and electrical conversion of a conventional line
	Light Red Line	Bang Son～Bang Sue	Ordinary rail (elevated)	2.0	15.3	2009/01/15	2021/08/02	Quadruple track and electrical conversion of a conventional line
		Taling Chan～Bang Son	Ordinary rail (elevated, ground level)	13.3		2009/01/15	2021/08/02	Quadruple track and electrical conversion of a conventional line
Total					276.6			

Note: The distances between Wongwian Yai and Talat Phlu on Light Green Line and between Bang Son and Taling Chan on Light Red Line are estimation only.

Source: Kakizaki [2021] , edited

Bangkok's urban rail systems ③

- Transition of construction and administration methods
  - 1980～1990s: Concession (100% private sector, ground – track separation)
  - 2000s (Thaksin administration): Turn-key, operation on contract (BMA)
    - (post-Thaksin): PPP for gross cost
  - 2010s: PPP for net cost
- Government involvement in urban rail systems:
  - Leaving them to the private sector as much as possible
  - Increased public-sector involvement in the event of failure under private-sector initiative
  - Possibility of greater public-sector involvement in the future?

Construction and administration methods for urban rail systems

Method	Design	Construction entity		Fundraising		Administration entity	Fares	Remarks
		Operation system	Infrastructure	Operation system	Infrastructure			
Direct management by a public corporation	Public	Public	Public	Public	Public	Public	Public	
Operation on contract (O&M contract)	Public	Private	Public	Private	Public	Private	Public	Roughly the same as PPP Gross Cost
Public-Private Partnership gross cost (PPP Gross Cost)	Public	Private	Public	Private	Public	Private →Public	Public	
Public-Private Partnership net cost (PPP Net Cost)	Public (Private)	Private	Public	Private	Public	Private →Public	Private	
Concession (ground – track separation)	Public (Private)	Private	Public	Private	Public	Private →Public	Private	Roughly the same as PPP Net Cost
Turn-key (D & B)	Private	Private	Private	Private	Private	Public	Public	
LConcession (100％ private sector)	Private	Private	Private	Private	Private	Private →Public	Private	
Direct management by a private company	Private	Private	Private	Private	Private	Private	Private	

Source: Compiled by the author

Transition of construction and administration methods for urban rail systems

Administration	Line	Specifications	Distance (km)	Construction commencement (Year of plan)	Launch year	Construction and administration method	Remarks
ETA	Urban Rail Stage 1 Line	Light rail (elevated)	49.0	(1974)		Direct management by a public corporation	Cancelled
ETA	Urban Rail Stage 1 Line	Light rail (elevated)	59.0	(1982)		Concession (100% private sector)	Bidding failure
ETA	Urban Rail Stage 1 Primary Line	Light rail (elevated)	34.0	(1986)		Concession (75% private sector)	Concession cancelled (1992)
SRT	Hopewell Plan	Ordinary rail (elevated)	60.0	1993		Concession (100% private sector)	Concession cancelled (1997)
MRTA	MRT Stage 1 Line	Ordinary rail (elevated)	20.0	(1992)		Direct management by a public corporation	Cancelled
MRTA	MRT Stage 1 Line	Ordinary rail (elevated)	20.0	(1993)		Concession (100% private sector)	Comcession cancelled (1995)
BMA	Green Line (BTS)	Ordinary rail (elevated)	23.5	1994	1999	Concession (100% private sector)	
MRTA	Blue Line	Ordinary rail (underground)	20.0	1996	2004	Concession (Ground-track separation)	
BMA	Green Line (BTS) extension (Stage 1 west side)	Ordinary rail (elevated)	2.2	2005	2009	Operation on contract	
SRT	Airport Rail Link	Medium-speed rail (elevated)	28.5	2005	2010	Turn-key	
BMA	Green Line (BTS) extension (Stage 1 South side)	Ordinary rail (elevated)	5.3	2006	2011	Operation on contract	
MRTA	Purple Line	Ordinary rail (elevated)	23.0	2009	2016	PPP Gross Cost	
MRTA	Blue Line extension	Ordinary rail (underground, elevated)	1.2	2009	2017	PPP Net Cost	
SRT	Red Line (southern line)	Ordinary rail (elevated, ground level)	15.3	2009	2021	Direct management by a public corporation	
BMA	Green Line (BTS) extension Stage 1 west side)	Ordinary rail (elevated)	5.3	2010	2013	Operation on contract	
MRTA	Blue Line extension	Ordinary rail (underground, elevated)	26.9	2011	2019-2020	PPP Net Cost	
BMA	Green Line (BTS) extension (Stage 2 south side)	Ordinary rail (elevated)	13.0	2012	2017-2018	Operation on contract	Transferred from MRTA
SRT	Red Line (northern line)	Ordinary rail (elevated, ground level)	26.3	2013	2021	Direct management by a public corporation	
BMA	Green Line (BTS) extension (Stage 2 north side)	Ordinary rail (elevated)	26.5	2016	2019-2020	Operation on contract	Transferred from MRTA
BMA	Gold Line	New transit system (AGT)	1.8	2017	2020	Operation on contract	Private company funding the construction cost
MRTA	Yellow Line	Monorail	30.4	2018	2023	PPP Net Cost	
MRTA	Pink Line	Monorail	36.0	2018	2023	PPP Net Cost	
Total							

Source: Kakizaki[2014]、Kakizaki [2021] edited

Expectations for high- and medium-speed rail systems①

- Transportation status of Laos-China Railway

  Passenger transportation: Initially 2 return limited-express services (including one service only to Luang Prabang)

  Adding one return ordinary train service (03/2022)

  Starting international train service (04/2023)

  3 return limited-express services (adding Muang Xay)

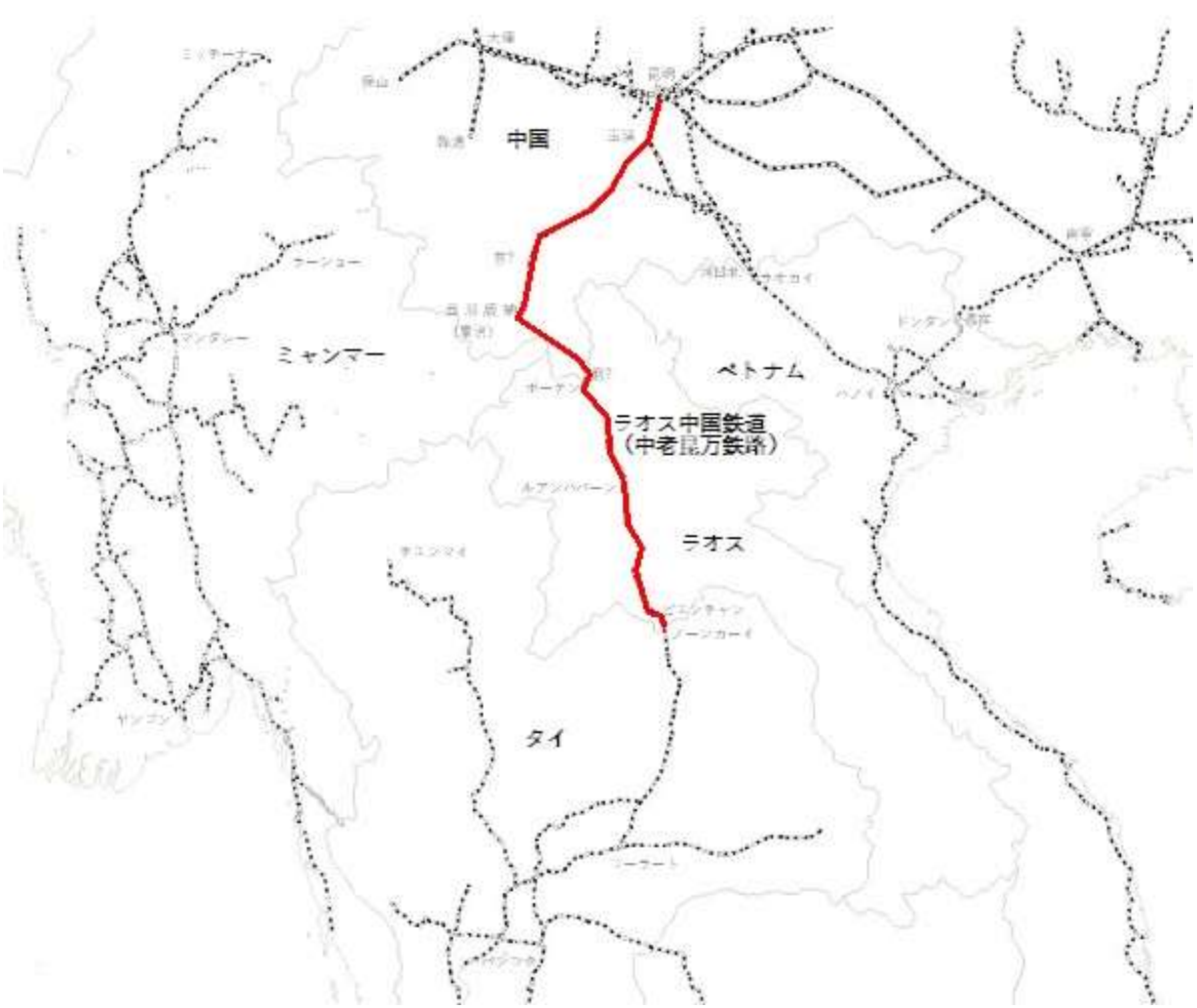
  Cargo transportation: Around 5 – 6 return services a day?

- Cumulative transportation volume (in 2 years since launch): 3.74 million passengers

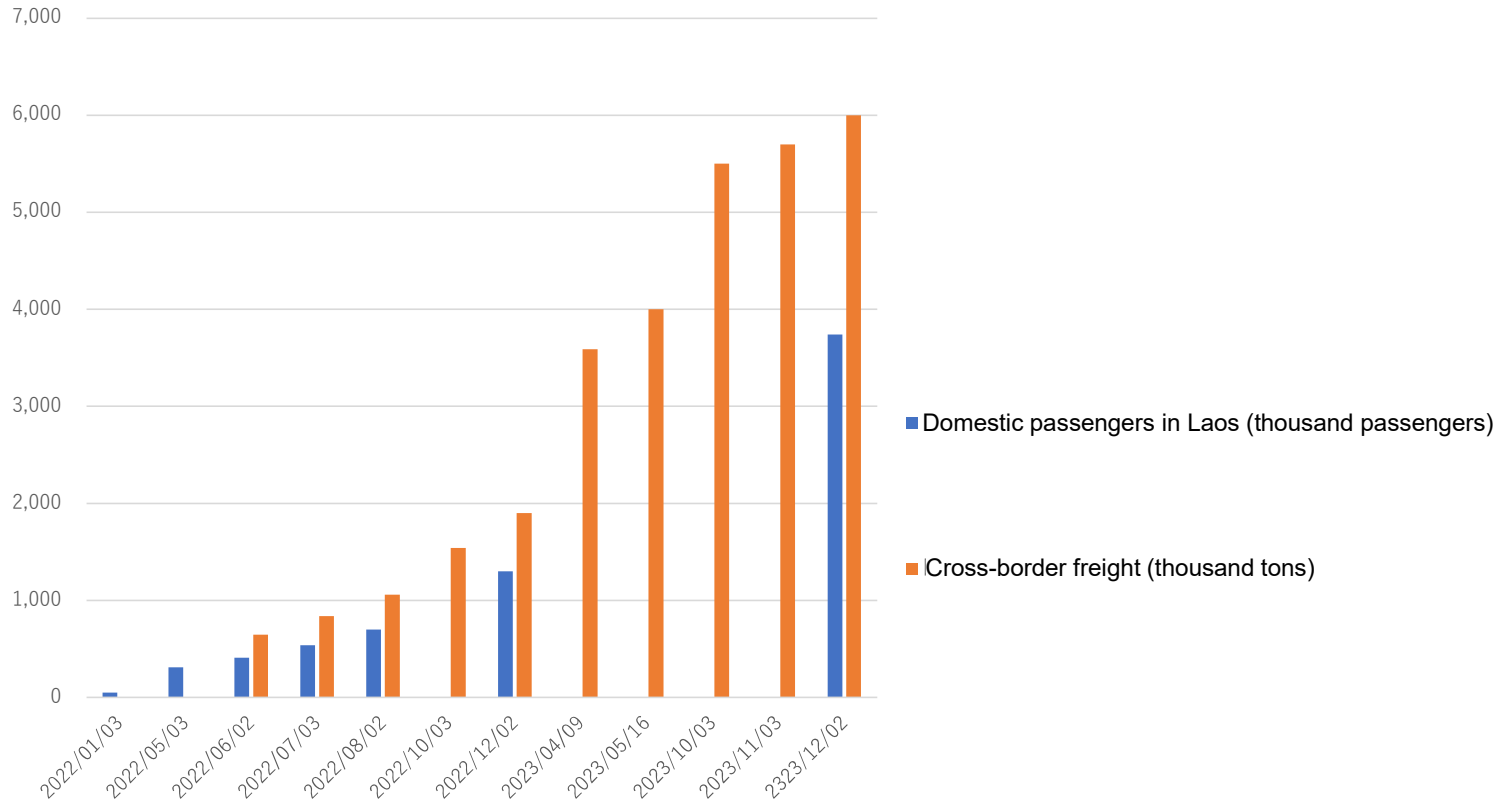
  6 million tons of cargos (international)

Laos-China Railway

Figure 1: Railway network of the Greater Mekong area (2022)



Transition in cumulative transportation volume



Source: Baidu Baike “Laos-China Railway”
(https://baike.baidu.com/item/%E4%B8%AD%E8%80%81%E6%98%86%E4%B8%87%E9%93%81%E8%B7%AF/59245951#reference-131, accessed Dec 26, 2023)

Expectations for high- and medium-speed rail systems ②

- Freight transportation between Thailand and China
  - Developing an inland port (Dry Port) at Thanaleng
  - Developing a service line from Vientiane South Station (7/2022)
  - →Enabling container reloading between Thailand's meter gauge trains and China's standard gauge trains
  - Operating a direct train service between Kunming and Bangkok (2/2023, 55 hours)
  - Operating a direct train service between Moscow and Bangkok (11-12/2023, 22 days)

Expectations for high- and medium-speed rail systems ③

- Expectations for international freight transportation

  Thailand's HSR plan (Bangkok - Nong Khai)

  Switch from medium-speed to high-speed rail (3/2016)

  Reloading freight to a conventional line at Nong Khai (Nata)

  →If it becomes connected to Laos-China Railway, there will inevitably be calls for direct freight train services at the standard gauge.

Expectations for high- and medium-speed rail systems ④

- Future of the medium- and high-speed railway in the continental Southeast Asia

  Greater emphasis on freight transportation over passenger transportation → Medium-speed rather than high-speed rails

  Emphasis on “connectivity” → It is more realistic to use China’s railway system.

- Potential for Japan’s Shinkansen system

  Possible application in passenger transportation, which does not need to consider “connectivity”

  (Routes similar to Don Mueang–Suvarnabhumi–U-Tapao HSR)

  →Low expectation in the continental Southeast Asia; Possibility in island region (Philippines)

  Strong potential in the case of India’s HSR network due to the perspective of “connectivity”

Questions to the presentation

- This report examined five projects in Southeast and South Asia. If seen in a broader perspective, what elements would present universality or uniqueness of these projects?

- The approach of combining railway development / administration with station area development (land development) is important in terms of improving project profitability. What are challenges in this approach?

- The report highlights several directions that Japan should follow in the future. What do you think are Japan's strengths?

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