

# Challenges and Solutions for GMS Cross-border railway development: insights from TA-9918:

Connecting the Railways of the  
Greater Mekong Subregion, Phase 2

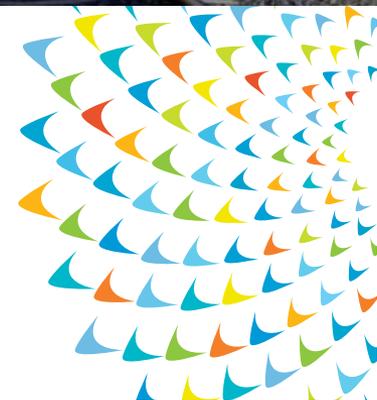
5th Meeting of the Greater

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GMS Subregional Transport Forum (STF-25)

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Mohammad Nazrul Islam, Transport Specialist





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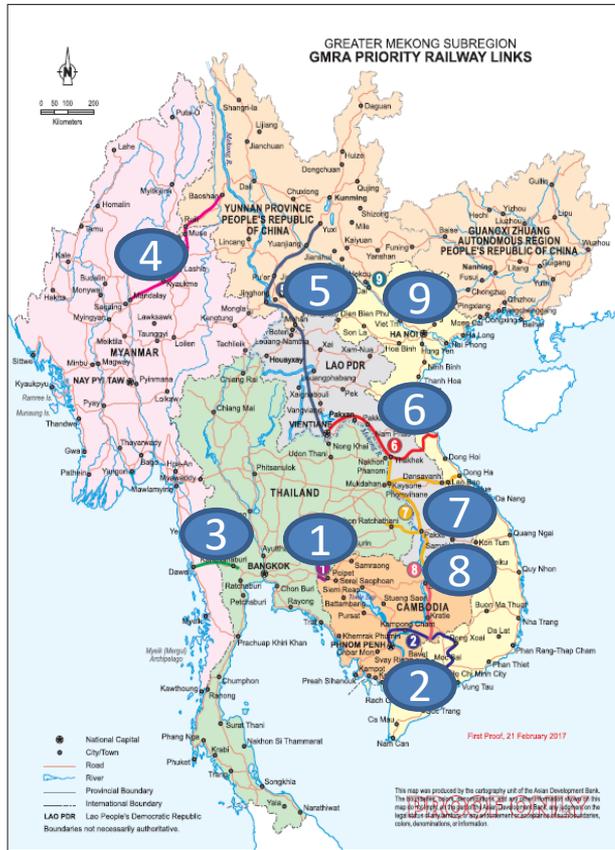
Section	Output name
<b>1</b>	<b>Current status of GMS cross-border railway links</b>
<b>2</b>	<b>Challenges and strategic issues</b>
<b>3</b>	<b>TA-9918 – role and current status</b>
<b>4</b>	<b>Potential solutions arising from TA-9918’s findings (to date):</b>
a.	Optimal network development with appropriate standards and technology
b.	Efficient trade facilitation through the Framework Agreement: for Cross Border Railway Transport Connectivity Agreement (FA-CBRTCA)
c.	Appropriate timing of the development of the institutional arrangements for the Greater Mekong Railway Association
<b>5.</b>	<b>Next Steps</b>



# 1. Status of GMS cross-border railway links

Of the 9 priority rail links endorsed by the Greater Mekong Railway Association (GMRA) board in March 2015:

- 2 are physically complete
- 2 are to be developed under current bilateral MoU
- Of the remaining 5, 3 have been subject to a pre-FS or full FS.



No.	Name	Current Status
1.	<b>CAM-THA:</b> <b>Poipet/Aranyaprathet</b>	<b>Completed</b> along with 99% of domestic upgrading to Phnom Penh. Narrow gauge, single track.
2.	<b>CAM-VIE:</b> Snoul/ Loc Ninh	160km shorter link <b>Phnom Penh–Bavet–Moc Bai–HCMC of interest</b> . Standard gauge, single track, high speed.
3.	<b>MYA-THA:</b> <b>Dawei/ Banpunamron</b>	2015 F.S. found link to be a long term possibility.
4.	<b>MYA-PRC:</b> Muse/Ruili	<b>Subject of an MoU (China &amp; Myanmar)</b> . Standard gauge, single track, high speed.
5.	<b>LAO-PRC:</b> Boten/Mohan	<b>Operational in December 2021</b> . Single track, standard gauge, high speed line Vientiane-Kunming.
6.	<b>LAO-VIE:</b> Thakhek/Mu Gia/Vung Ang	KOICA FS completed 2017.
7.	<b>THA-LAO-VIE:</b> <b>Mukdahan/Lao Bao/Dong Ha</b>	Forms part of long term E-W rail corridor as part of the GMS E-W economic corridor. More feasibility assessment needed. Long term possibility.
8.	<b>LAO-CAM:</b> Dong Kralor/ Voun Kam	More feasibility assessment needed. Long term possibility.
9.	<b>VIE-PRC:</b> Hekou/Lao Cai	Hekou–Lao Cai–Hanoi–Hai Phong, double track, standard gauge, high speed line <b>subject of an MoU (China and Viet Nam)</b> .



## 2. Challenges and strategic issues

1. **Potential continued development of two railway technologies in the GMS railway network-**
  - a) modern, electrified, standard gauge, high speed railways along the north-south axis versus
  - b) primary mainly narrow gauge, non electrified railways along the east-west corridors – e.g. Thailand is developing domestic narrow gauge double track railways along the East-West economic corridor (connecting to project 7).
2. **Limited detailed feasibility assessment of some of the longer term railway links (e.g. Projects 7 and 8)**
3. **Inefficient trade facilitation along key corridors now reliant on road transport with a risk that the same will occur with rail hampering demand and viability of new rail investments.**
4. **Optimal timing for development of a permanent legal, intergovernmental GMRA**



### 3. ADB's continued support to connecting the railways of the GMS via TA-9918

TA-9918 supports the Greater Mekong Railway Association (GMRA) to **accelerate the development of cross-border rail connections** in the Greater Mekong Subregion (GMS) through preparing 5 outputs:

Output No.	Output name
1	Preferred organization structure of the Greater Mekong Railway Association
1A	Framework Agreement for the Cross Border Railway Trade Connectivity Agreement
2	Operational Readiness Plan finalized
3	GMS railway network development strategy updated
4	GMS transport demand model updated
5	Bankable railway projects identified

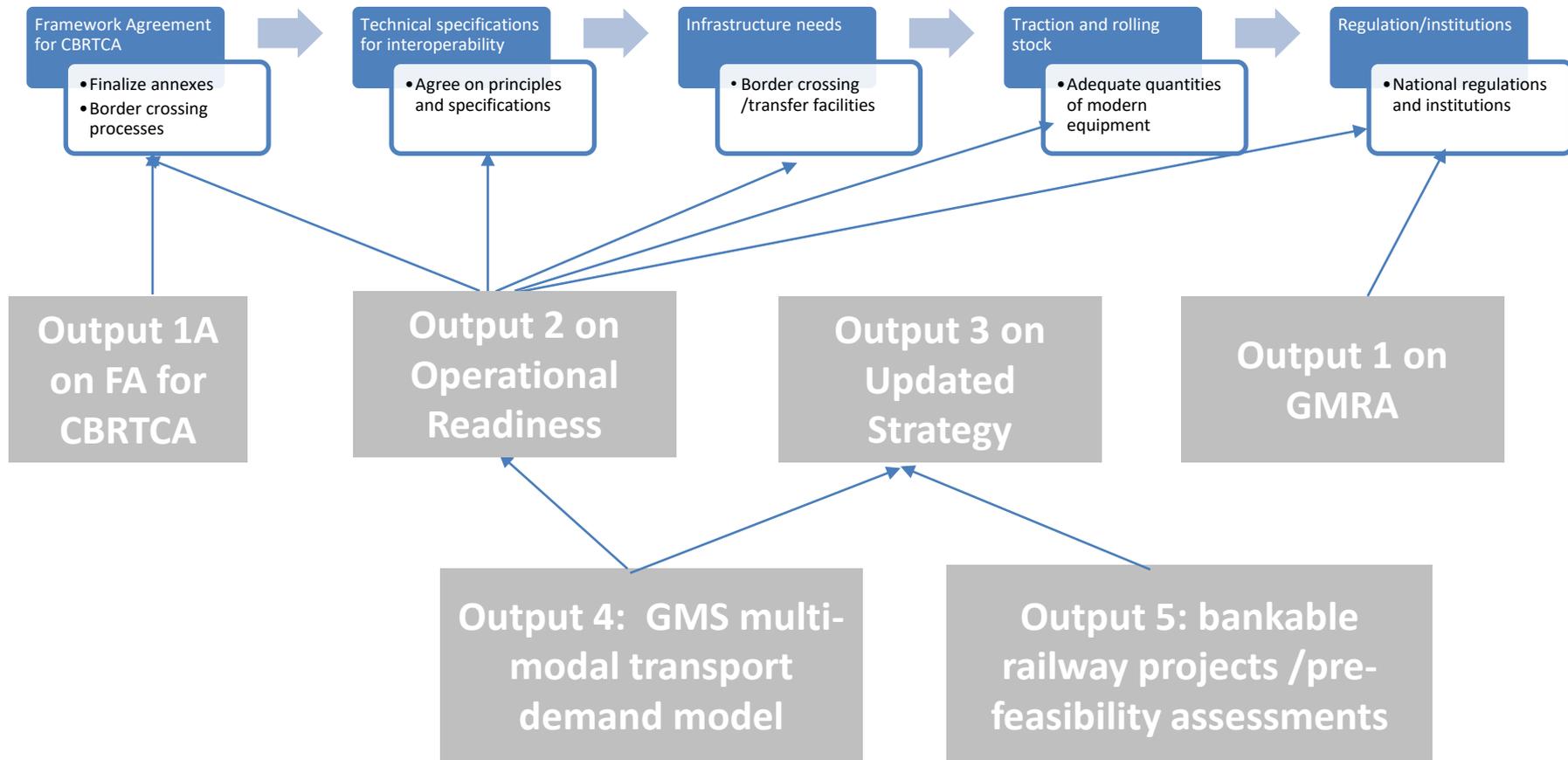
Notes:

- a. Financed by the People's Republic of China Regional Cooperation and Poverty Reduction Fund
- b. Added as an output during the Inception Stage of the TA given the FA is crucial to operationalization of the GMRA



# 3 (continued). Improved connectivity requires a holistic approach

TA-9918 facilitates improved GMS connectivity through **support to modern infrastructure development, cross border movement facilitation & appropriate institutional arrangements.**

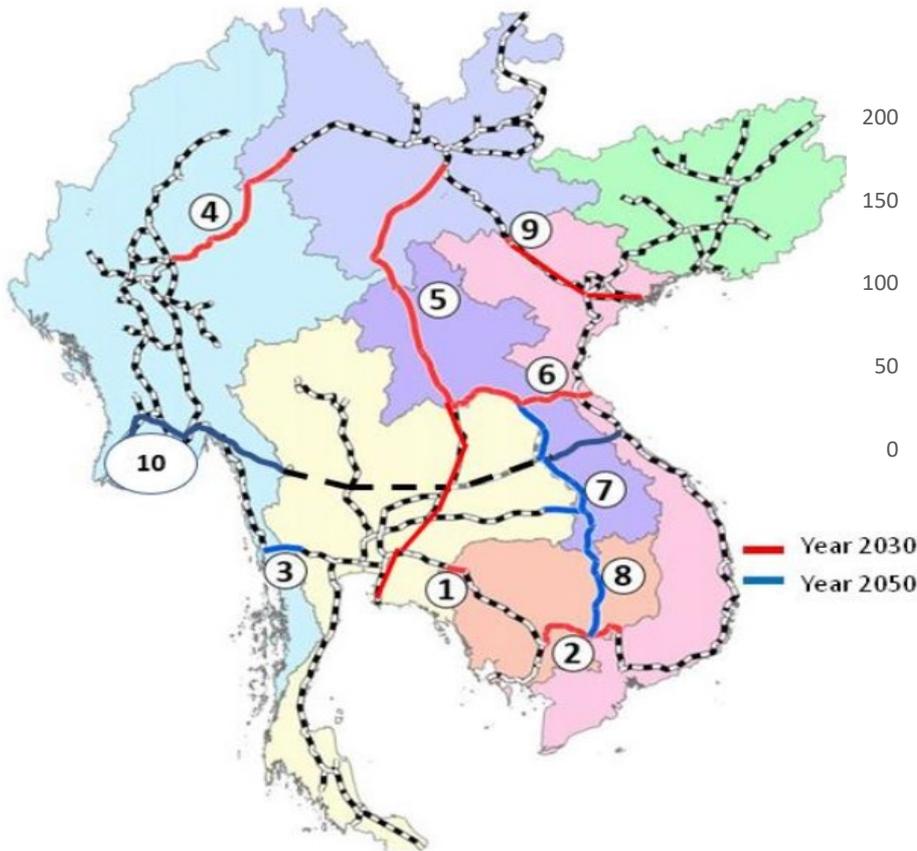




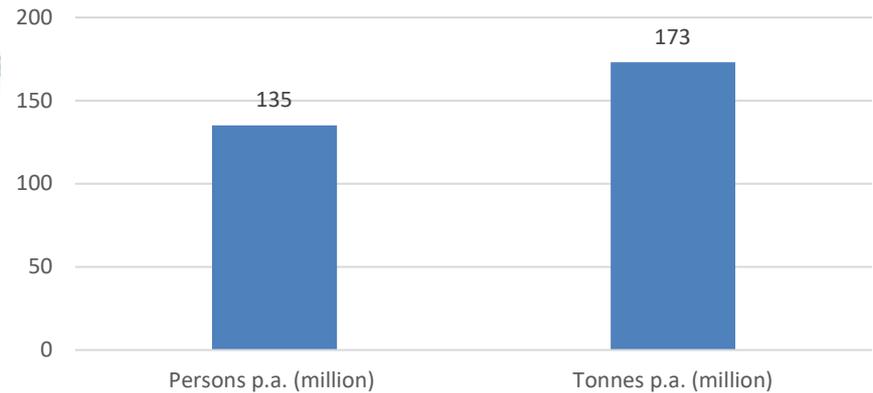
# 4. Potential solutions arising from TA-9918's findings:

## a. Optimal network development & appropriate standards & technology

**TA-9918's demand projections shows the potential of a comprehensive GMS-wide rail network.**



Passenger & Freight Demand Projected for GMS Cross-Border Rail Network in 2050

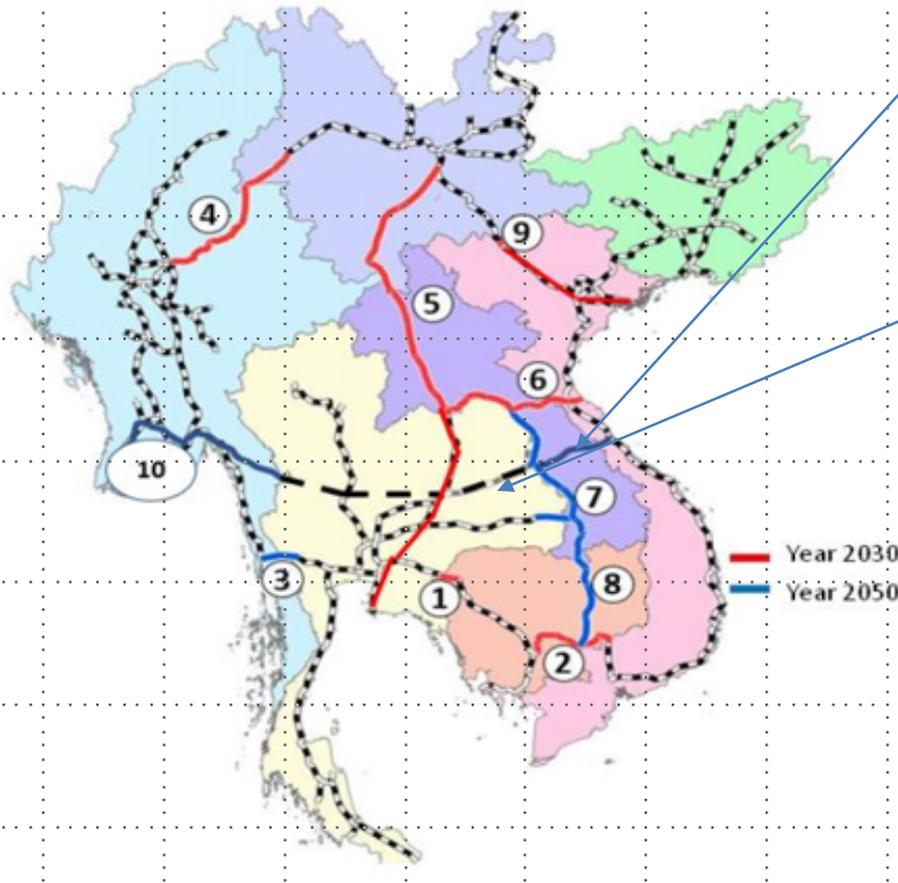


Source: TA-9918.



## 4. Potential solutions (continued):

### a. Challenges to optimal network development & appropriate technology



Limited feasibility work completed on projects 7 and 8 that have potentially high cost – *further network analysis to be done under TA-9918*

Thailand is planning railways along the East-West Economic Corridor as double track, diesel, narrow gauge

Two options for project 2: (A) long 257km option via Bat Doeung, Cambodia-Snoul, Vietnam cost \$2bn with mainly domestic demand; (B) short 160km option via Bavet, Cambodia-Moc Bai, Vietnam cost \$1.3bn.

- Option 2A. Has been favoured by Cambodia and Vietnam to date but now both countries are reconsidering benefits of 2B.
- TA-9918's analysis shows similar EIRRs but 2B has much higher cross-border demand than 2A.



## 4. Potential solutions (continued):

### a. Challenges to optimal network development & appropriate technology

1. **There is a wide gap between railway performance in China and that of other GMS railways as indicated below.** Future cross-border railway operations are envisaged to make use of modern higher capacity and speed passenger and freight trains more along the lines of those used in China.

Net tonne-km per:	China	Myanmar	Thailand	Viet Nam
• Locomotive	114.9	16.13	34.76	26.48
• Wagon	4.9	0.32	0.49	0.88
• Full time employee	9.8	0.20	2.04	0.19
Average train payload (tonnes)	2,000	400-800		

Source: Rail statistics from Thailand, Cambodia and Viet Nam railway bodies and China Railway Yearbook

### 2. GMS railways will need investment in:

- Modern control systems and digitalization
- New infrastructure – particularly electrification; and
- New locomotives and rolling stock.

3. **A study on the cost and benefits of railway electrification and use of high-speed rail technology in the GMS should be undertaken before too much investment is made on conventional railway tracks – this is particularly an issue for the east-west (non-Chinese) railways.**



## 4. Potential solutions (continued):

### b. Efficient trade facilitation through the FA-CBRTCA

- **The Lao China Railway connecting China and Lao PDR have with support of the two governments implemented efficient trade facilitation** reducing clearance time to 5 hours (compared to 24 hours by road in part because of high road demand).
- **A regional, multi-lateral approach to trade facilitation by rail is recognized to be needed in future.** Hence, the Working Group\* of the Greater Mekong Railway Administration (GMRA) have reached agreement on almost all the main text of the **Framework Agreement for Cross-Border Railway Transport Connectivity (FA-CBRTC)**.
- **The FA-CBRTC (Output 1A) will be the key convention governing cross-border rail trade and passenger facilitation in future** (GMRA to implement and update).
- **The Framework Agreement is designed to be flexible and amenable to updating** and to simplified procedures depending on the nature of the intergovernmental regulation to be adopted in the future.
- **The Framework Agreement will be eventually be supported by up to 18 Annexes** on specific technical and regulatory aspects.

\* The Working Group consists of members of the lead railway organizations in the GMS countries, as well as, for certain GMRA Countries, selected representatives of other competent authorities (e.g., immigration, commerce/trade, customs, quarantine, health, agriculture, etc



## 4. Potential solutions (continued)

### b. Efficient trade facilitation through the FA-CBRTCA

**To implement the Framework Agreement without delay the following tasks remain:**

- **Completing and ratification of the Framework Agreement** by all GMS Governments and their relevant authorities (i.e., beyond railway and transport).
- **Negotiating and drafting the priority Annexes**, a process that is estimated to require at least two years of continuous negotiations.
- **Addressing and supporting infrastructure and technology needs** to support efficient network operation and cross-border railway movements.
- **A formal, legal, international GMRA that would take several years to bring to fruition** but much can be done before this occurs – see below



## 4. Potential solutions (continued):

### c. Appropriate timing of further development of the Greater Mekong Railway Association

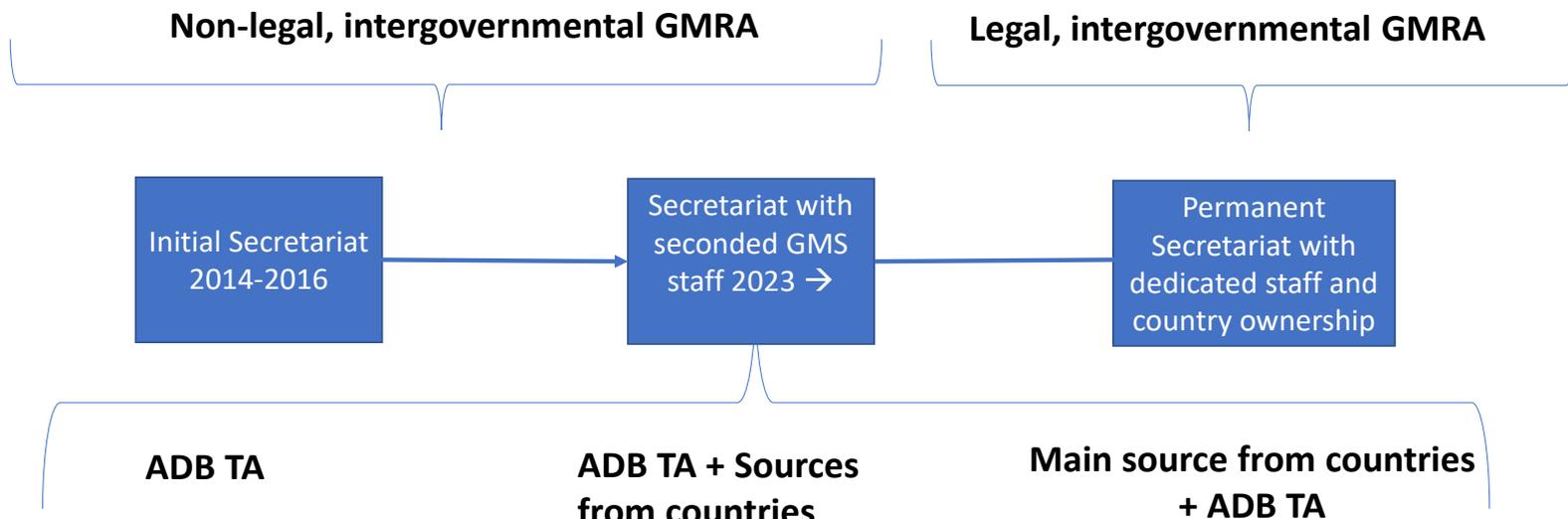
- Goal: *To ensure that all GMS countries are connected to a GMS rail network.*
- Currently, the **GMRA is set up as a non-legal intergovernmental forum under the GMS Program** through a Memorandum of Understanding among all 6 GMS countries.
- GMRA is presently **without dedicated staff, secure funding and formal operating conventions.**
- ADB currently serves as the Secretariat.



## 4. Potential solutions (continued):

### c. Timing of further development of the GMRA

- All countries agree that the **GMRA should be established as a legal, international organization in the medium term, but some countries wish to wait until a more extensive GMS railway network is developed.**
- **However, TA-9918's view is that early establishment of the legal, intergovernmental GMRA with greater capacity is critical to GMS railway development** – since it would facilitate the implementation of the FA-CBRTCA thus enhancing demand, adoption of common standards & technologies, and so enhance the viability of new cross-border railway links.
- **Waiting to establish the legal, intergovernmental GMRA risks undue delay in developing the GMS cross-border railway network.**





## 5. Next Steps

- **ADB's TA-9918 will continue to support finalization of the:**
  - **Updated roadmap for the establishment of a GMRA and Secretariat with greater country involvement (by September 2022)**
  - **Final draft of the Framework Agreement for Cross-Border Railway Transport Connectivity (June 2022)**
  - **Rail Operational Readiness Plan (September 2022)**
  - **An updated GMS cross-border rail network strategy including pre-feasibility study of alignment options for projects 2A and 2B and network analysis of projects 7 and 8 (September 2022).**



**Thank you**



# Appendix: TA-9918 builds on Previous ADB Support

TA No.	Name of TA and Approval Year
9123	Connecting the Railways of the Greater Mekong Subregion, Phase 1 (2016)
8748	Framework for Cross-Border Railway Transport Connectivity Agreement (CBRTCA) (2017)
8529	Support for the Establishment of the Greater Mekong Railway Association (2013)
7678	Planning the GMS Railway Coordination Office (2010)
7255	GMS Railway Strategy Study (2009)

