



GREATER MEKONG SUBREGION TRANSPORT SECTOR STRATEGY 2030 MIDTERM REVIEW AND UPDATE

FEBRUARY 2026



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6 ADB Avenue, Mandaluyong City, 1550 Metro Manila, Philippines
Tel +63 2 8632 4444; Fax +63 2 8636 2444
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Cover design by Edith Creus. On the cover: The BTS Skytrain tracks, along with a network of elevated highways and pedestrian walkways, help ease traffic along Rama IV Road, one of Bangkok’s busiest commercial and business hubs.

All photos are by ADB—Lester Ledesma (cover page), Ariel Javellana (page 1, images 2–4 on page 6, and images 1–3 on page 24), Deng Jia (image 4 on page 24), and Viet Tuan (page 3).



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Abbreviations

ADB	-	Asian Development Bank
ASEAN	-	Association of Southeast Asian Nations
BCF	-	border-crossing facility
BCP	-	border-crossing point
BRI	-	Belt and Road Initiative
PRC	-	People's Republic of China
CBTA	-	Cross-Border Transport Facilitation Agreement
COVID-19	-	coronavirus disease
EWEC	-	East-West Economic Cooperation
FA-CBRTC	-	Framework Agreement for Cross-Border Railway Transport Connectivity
FRETA	-	Freight Transportation Association
GDP	-	gross domestic product
GHG	-	greenhouse gas
GMRA	-	Greater Mekong Railway Association
GMS	-	Greater Mekong Subregion
GMS 2030	-	Greater Mekong Subregion Program Long-Term Strategic Framework 2030
ICD	-	inland container depot
ICT	-	information and communication technology
JICA	-	Japan International Cooperation Agency
km	-	kilometer
LPI	-	Logistics Performance Index
MOU	-	memorandum of understanding
MYA	-	Myanmar
NDC	-	nationally determined contribution
NEDA	-	Neighboring Countries Economic Development Cooperation Agency
NSEC	-	North-South Economic Corridor
O&M	-	operation and maintenance
PPP	-	public-private partnership
RIF	-	Regional Investment Framework
SEC	-	Southern Economic Corridor
STF	-	Subregional Transport Forum
TA	-	technical assistance
TSS	-	Transport Sector Strategy
TTF	-	transport and trade facilitation

Executive Summary

The Greater Mekong Subregion (GMS) Transport Sector Strategy 2030 (TSS 2030) is a strategic document providing a framework for GMS cooperation in the transport sector for the period 2018–2030. It was endorsed by the GMS countries at the 22nd Ministerial Conference of the GMS Program held in 2017 and underscored by the GMS leaders at their 6th Summit held in 2018.

This report presents the midterm review of TSS 2030 and its update covering the GMS Program's plan of action in the transport sector for the second half of the TSS 2030's implementation period. It builds on past efforts and achievements and provides a road map for cooperation in the GMS transport sector up to 2030, considering the progress in implementing TSS 2030, and evolving issues and challenges.

The transport sector has been at the core of the GMS Program since the program's inception in 1992 and remains central to the GMS Program Long-Term Strategic Framework 2030 (GMS 2030). The TSS 2030 Update carries forward the strategy and program in TSS 2030 to enhance its contribution to the achievement of the GMS vision of a more integrated, prosperous, sustainable, and equitable subregion.

The GMS TSS 2030 Midterm Review

The GMS countries have considerably progressed in developing transport infrastructure, especially road infrastructure and establishing physical links. The GMS economic corridor road transport network has been completed and has further been upgraded and expanded. All cross-border road transport links along the East–West, North–South, and Southern

Economic Corridors have been established. GMS capitals, industrial and commercial centers, and major airports and seaports are now interconnected by road. Cross-border railway links are gradually being established. Remaining issues and challenges need to be addressed to realize the TSS 2030's vision of a seamless, efficient, reliable, and sustainable GMS transport system.

Here are the main findings of the midterm review of TSS 2030:

- TSS 2030 continues to be a sound basis for action during the second half of TSS 2030's implementation period. It remains relevant to the development needs and priorities of the GMS countries and the subregion. It is also well-aligned with the vision and goals articulated in GMS 2030.
- The transport sector has been the dominant sector in the Regional Investment Framework (RIF), consistently accounting for the largest share of the RIF in terms of number and cost of projects—average of 35% and 68.2%, respectively, from the RIF's First Progress Report and Update (2018) to RIF 2027.
- Transport and trade facilitation (TTF) had the least number of projects in the RIF. There was only one TTF project in RIF 2025 and RIF 2027 and none in RIF 2026. The weak attention to TTF initiatives in the RIF, especially in the more recent RIFs, needs to be addressed.
- The subsector allocation of transport projects in the RIF shows the GMS countries' priority toward improving road links with neighboring countries and enhancing the capacity and efficiency of their road transport networks. This also shows the growing importance of railways in complementing

road transport and establishing cross-border railway links. Investments in ports and inland waterways have increased, and logistics projects started to take a more prominent role in the more recent RIFs. The foundations for intermodal and multimodal transport are being established and strengthened.

- Implementation and financing of priority transport investment projects in the RIF have progressed well. As of the end of 2024, 19 transport investment projects were completed and 30 transport investment projects were ongoing. Twenty-three new projects have been implemented since the launch of TSS 2030 in 2018.
- Completed and ongoing transport investment projects have a combined cost of \$50.9 billion.
- GMS governments, especially the People's Republic of China and Thailand have the largest share of financing of both completed and ongoing transport investment projects.
- The share of private sector financing of GMS transport investment projects increased from nearly negligible in completed projects to 15.7% in ongoing projects. The share of development partner financing of GMS transport investment projects also increased from 4.7% in completed projects to 11% in ongoing projects, with the number of development partners involved also increasing from 2 to 10.
- Completed and ongoing transport investment projects are expected to deliver about 5,000 kilometers (km) of constructed and/or rehabilitated roads; 13 new bridges; 4,415 km of railway; and 8 upgraded ports—further strengthening transport connectivity along the GMS economic corridors.
- GMS countries are gradually moving toward interconnectivity of their national rail networks. Of the nine priority rail links endorsed by the Greater Mekong Railway Association Board in 2015, two have been physically completed, two are being developed, and three of the remaining five have had a prefeasibility or full feasibility study.
- The momentum in Cross-Border Transport Facilitation Agreement (CBTA) implementation created by the Early Harvest mechanism was disrupted by the coronavirus disease (COVID-19)

pandemic in 2020. The “Early Harvest” memorandum of understanding (MOU) expired together with all issued permits. In 2023, borders reopened, and in 2024, the Early Harvest MOU was extended to the end of 2026. Additional routes and border crossings were also added under Protocol 1 of the Extended MOU. More work is needed in implementing the CBTA to realize TTF objectives in the GMS.

- The remaining key issues and challenges that require priority attention in the TSS 2030 update are as follows:
 - Accelerating implementation of the CBTA
 - Promoting cross-border railway links
 - Supporting logistics development and intermodal and multimodal transport
 - Enhancing road safety
 - Pursuing and strengthening green transport initiatives
 - Increasing private sector participation
 - Strengthening the planning and programming of transport projects

GMS TSS 2030 Update

The TSS 2030 update comprises (i) a review of evolving regional and global developments, and (ii) adjustments and amendments in the strategic framework and arrangements for TSS 2030 implementation. The adjustments and amendments include operational priorities in transport subsectors and thematic areas, an action plan, cost and financing, institutional mechanisms for implementation, and monitoring and evaluation.

Evolving Developments

TSS 2030 cited four developments of direct significance to GMS transport sector development at the time of its launching in 2018: reopening of Myanmar; agenda toward full integration into the Association of Southeast Asian Nations (ASEAN) under the ASEAN 2025; Belt and Road Initiative; and a growing number of regional cooperation and integration initiatives. Other trends and developments have emerged, posing challenges to GMS transport sector development. Issues that have direct bearing on

the sector's development are (i) COVID-19 and other pandemic risks; (ii) climate change and sustainable development; (iii) technological advances, especially in digital technology; and (iv) urbanization.

Strategic Framework

Vision. The TSS 2030 vision of a seamless, efficient, reliable and sustainable GMS transport system remains relevant and appropriate to GMS transport development. The vision's realization will contribute substantially toward achieving the GMS 2030 vision of a more integrated, prosperous, sustainable, and equitable subregion. In accord with GMS 2030, the approach toward the TSS 2030 vision will be imbued with the central principles of sustainability, integration, and inclusion and crosscutting themes involving policy dialogue, capacity building, private sector participation, and innovation, including the greater use of digital technology.

Strategic thrusts and initiatives. After identifying the key issues and challenges in the midterm review and considering evolving developments, the TSS 2030 update's strategic thrusts have been refined, as follows:

- Accelerating implementation of CBTA
- Promoting cross-border railway links
- Supporting logistics development and intermodal and multimodal transport
- Enhancing road safety
- Pursuing and strengthening green transport initiatives
- Increasing private sector participation
- Strengthening the planning and programming of transport projects

The first three thrusts are essential in developing a seamless and efficient transport system. In turn, enhancing road safety and pursuing and strengthening green initiatives are necessary to ensure reliability, resiliency, and sustainability of the transport system. Greater private sector participation will help improve the effectiveness and level of interventions across all strategic thrusts. Finally, strengthening the planning, programming, and monitoring of transport projects

will help maximize the contribution of interventions in achieving the TSS 2030 vision. The strategic thrusts and corresponding initiatives of the TSS 2030 update, many of which are public goods, are discussed in more detail in the main text.

Action Plan

Operational priorities of project interventions.

The implementation of an action plan with specific project interventions is needed to achieve the vision and strategic thrusts of the TSS 2030 update. TSS 2030 specified operational priorities in seven transport subsectors and thematic areas around which these project interventions are formulated and implemented: roads; railway; ports and inland waterways; air transport; logistics; transport facilitation; and urban transport. These operational priorities will help identify and prepare the transport projects proposed for inclusion in the RIF.

The operational priorities in TSS 2030 were reviewed to ensure consistency with and responsiveness to the emerging developments and strategic thrusts and initiatives. Most of the operational priorities are still relevant and appropriate, but some need adjustment and refinement to align with the updated strategic thrusts and initiatives. The operational priorities of the TSS 2030 update in the transport subsector and thematic areas are presented in the main text of the TSS 2030 update.

Pipeline of transport projects. The action plan of the TSS 2030 update consists of the following pipeline of transport projects: (i) ongoing transport investment projects in the RIF (Appendix 3); (ii) proposed projects in RIF 2027 (Appendix 4); and (iii) projects that have not yet been included in the RIF, but which may be proposed for inclusion subject to the existing RIF process and criteria. The last group of projects includes major investment projects with important subregional attributes that have been recently announced and/or initiated by some GMS countries, and project concepts mainly focused on the software aspects of GMS transport development.

Ongoing projects as of the end of 2024 consist of 30 transport investment projects and 5 technical assistance (TA) projects. Proposed transport projects in RIF 2027 comprise 35 projects of which 23 are investment projects and 12 are TA projects.

Cost and Financing

The total cost of ongoing transport investment projects is \$42.3 billion, of which road and bridge projects account for the largest share of 73.3%, followed by railway projects with 13.3%, and ports and inland waterways with 10%, and cross-border facilities with 3.4%.

Proposed investment projects in RIF 2027 require total financing of \$16 billion, with railway projects having the largest share of 70.4%, followed by roads and bridges with 28.3%. Ports and inland waterways, logistics, and air transport have shares below 1%. TA projects in RIF 2027 require financing of \$21 million.

GMS governments contribute a major part of the financing of the ongoing and proposed transport projects, with the private sector taking a more important role. The main sources of financing for ongoing projects are the GMS governments with 73.2%, the private sector with 15.7%, and development partners with 11.1% (including 6% with ADB). All projects in the RIF 2027 have identified potential funding source/s—GMS governments with 66.4%, development partners with 14.2%, the private sector with 10%, and bonds and bank financing with 9.4%.

Institutional Mechanisms and Arrangements for Implementation

The institutional mechanisms and arrangements in the first half of the TSS 2030's implementation period will continue during the remaining period covered by the TSS 2030 update. The ministry of transport or its equivalent in each GMS country will be the principal body that coordinates the implementation of the TSS 2030 update at the national level. At the subregional level, the following GMS-wide institutions will be the main bodies: Subregional Transport Forum, Greater Mekong Railway Association, and Joint Committee and its supporting bodies for implementing the CBTA.

Engagement with the private sector will be conducted through the GMS Business Council and the GMS Freight and Transport Association.

Implementation of the TSS 2030 update will require close coordination among the relevant agencies and between the public and private sectors in the GMS at the subregional and national levels. Coordination with related programs of other regional and subregional initiatives and bodies is also needed, such as with ASEAN, Belt and Road Initiative, Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy, Indonesia–Malaysia–Thailand Growth Triangle, Lancang–Mekong Cooperation, and the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation.

Progress and Results Monitoring

The monitoring of progress and results of the TSS 2030 update will be conducted through the strategy's results framework. The TSS 2030 results framework has been revised to align with the GMS Program Results Framework. The revised framework of TSS 2030, presented in Appendix 6, updates the TSS 2030 results framework to ensure that (i) indicators included in the framework are clear and monitorable, and (ii) the framework can readily be integrated into the overall GMS Program Results Framework.



I. INTRODUCTION

Noi Bai–Lao Cai Highway. This 244-kilometer stretch starts at Noi Bai, Ha Noi, and ends at Lao Cai in northwest Viet Nam near the border with the People’s Republic of China.

Transport lies at the heart of Greater Mekong Subregion (GMS) cooperation. The development of physical infrastructure complemented with policies and procedures for crossing borders and developing trade along key routes have been central to efforts to forge a truly interconnected subregion.¹

The transport sector continues to be at the core of the GMS Program. The GMS Program Long-Term Strategic Framework 2030 (GMS 2030) states that “the transport sector will remain central to GMS 2030.”² This Midterm Review and Update of the Greater Mekong Subregion Transport Sector Strategy 2030 (TSS 2030) carries forward the strategy and program in TSS 2030 to enhance its contribution to the achievement of the GMS vision of a more integrated, prosperous, sustainable, and equitable subregion.

TSS 2030 is a strategic document providing a framework for GMS cooperation in the transport sector.³ It was endorsed by the GMS countries at the 22nd Ministerial Conference of the GMS Economic Cooperation Program held in September 2017. It was then acknowledged and underscored by the GMS leaders at their 6th Summit held in March 2018. TSS 2030 reviews past achievements and lessons learned, identifies important changes in the

internal and external environments that could impact GMS transport development, and sets forth the key elements of the strategy consisting of its long-term vision, strategic thrusts, operational priorities, steps needed to translate the strategy into action, and a mechanism for monitoring progress and results. It covers the period 2018–2030.

This report presents the midterm review of TSS 2030 and its update that covers the GMS Program’s plan of action in the transport sector for the second half of the TSS 2030’s implementation period. It builds on past efforts and achievements and provides a road map for cooperation in the GMS transport sector up to 2030, considering the progress in implementing TSS 2030, and evolving issues and challenges. It was prepared based on (i) summaries of proceedings of GMS summits, ministerial conferences, Subregional Transport Forum (STF), and other related GMS bodies; (ii) assessment of GMS economic corridors

¹ GMS. Transport. <https://www.greatermekong.org/g/transport>.

² Asian Development Bank (ADB). 2019. *Greater Mekong Subregion Program Long-Term Strategic Framework 2030*.

³ ADB. 2018. *GMS Transport Sector Strategy 2030: Toward a Seamless, Efficient, Reliable, and Sustainable GMS Transport System*.

conducted in 2018;⁴ (iii) independent evaluation of the Asian Development Bank's (ADB) contribution to the GMS Program conducted in 2021;⁵ (iv) project information in the GMS Regional Investment Framework (RIF); (v) other relevant studies and reports; and (v) consultation with the ministries of transport of GMS countries and other stakeholders.

Section II provides an overview of TSS 2030 for context. Section III covers the midterm review of TSS 2030 centering on (i) its continued relevance and responsiveness to the needs and priorities of GMS

countries and the subregion, (ii) its performance, (iii) the key issues and challenges it needs to further address, and (iv) the tasks ahead. Section IV presents the TSS 2030 update. It consists of (i) a review of evolving developments that the TSS 2030 update needs to consider; (ii) refinements and amendments in the strategic framework and implementation arrangements which include operational priorities, an action plan, costs and financing, and institutional mechanisms for coordination; and (iii) a revised results framework.

⁴ ADB. 2018. *Assessment of Greater Mekong Subregion Economic Corridors*.

⁵ Independent Evaluation Department. 2021. *ADB Support for the Greater Mekong Subregion Program, 2012–2020: Performance and Results*. ADB.



II. OVERVIEW OF THE GREATER MEKONG SUBREGION TRANSPORT SECTOR STRATEGY 2030

Aerial view of the intersection to Vam Cong Bridge.

This is the third component of the Central Mekong Delta Connectivity Project funded and implemented by ADB since 2013.

Strategic Framework

Vision

The long-term vision of TSS 2030 is a **seamless, efficient, reliable, and sustainable GMS transport system**. Seamless connotes being fully connected and integrated, with travel being unimpeded in the transport network. The transport system also needs to be efficient, to reduce costs, and be reliable and sustainable. Reliability requires high quality transport infrastructure, consistent application of transport and transport-related regulations and standards, and adequate safety regimes. Figure 1 shows the main components of TSS 2030.

Strategic Thrusts

To achieve the long-term vision of TSS 2030, the following strategic thrusts will be pursued:

- (i) completing the GMS transport corridor network and improving links with South Asia and Southeast Asia,
- (ii) facilitating cross-border transport,
- (iii) strengthening intermodal transport links,
- (iv) promoting the development of logistics,
- (v) improving road asset management, and
- (vi) enhancing road safety.

The spatial focus of these strategic thrusts/objectives will primarily be on the GMS transport corridor network and within that, the GMS economic corridor network.

Operational Priorities

To ensure that the strategic thrusts of TSS 2030 are reflected in GMS transport programs and projects, operational priorities are specified to guide the identification and prioritization of GMS transport and transport-related projects in the GMS RIF. These operational priorities, presented in more detail in Box 1, cover the following transport subsectors and thematic areas:

- (i) Roads
- (ii) Railway
- (iii) Ports and inland waterways
- (iv) Air transport
- (v) Urban transport
- (vi) Transport facilitation
- (vii) Logistics

Crosscutting Concerns

Although GMS transport development has brought many benefits, its negative consequences need to be addressed. These include displacement of local communities and ethnic minorities, spread of communicable diseases, trafficking of women and children and illegal trade, increasing land prices, increasing incidence of accidents, deforestation and loss of biodiversity, and environmental degradation. Environmental concerns in the GMS include not

Figure 1: Major Components of the Greater Mekong Subregion Transport Sector Strategy 2030



GMS = Greater Mekong Subregion, M&E = monitoring and evaluation.

Source: ADB. 2018. *GMS Transport Sector Strategy 2030: Toward a Seamless, Efficient, Reliable, and Sustainable GMS Transport System*.

only the negative impact of infrastructure projects, but also the issues that affect the subregion's overall sustainability, such as the effects of climate change.

Strategy Implementation

Investment Programming and Financing

To operationalize TSS 2030, its strategic priorities will be translated into an action program consisting of transport projects that will be a component of the GMS RIF. Projects in the transport sector in the 2022 RIF require a total of \$65.8 billion financing,

of which there is a funding gap of \$15.2 billion. The main sources of finance for GMS transport projects will continue to be the participating governments, and multilateral and bilateral development institutions.

Institutional Arrangements and Mechanisms

Implementation of TSS 2030 will require close coordination among the relevant government agencies and between the public and private sectors in the GMS. The GMS-wide institutions involved in transport cooperation are the STF, the Greater Mekong Railway Association (GMRA),

Box 1: Operational Priorities of the Greater Mekong Subregion Transport Sector Strategy 2030

Roads: (i) Upgrading sections requiring improvement in the original alignment of the East–West Economic Corridor (EWEC) in Myanmar and on the Southern Economic Corridor in Cambodia; (ii) Upgrading the new routes in EWEC and North–South Economic Corridor in the Lao People’s Democratic Republic and Myanmar; (iii) Enhancing links to key transport interchange nodes like ports, airports, and rail stations; (iv) Improving links between secondary roads and main corridor routes; (v) Establishing effective approaches to road asset management and financing; (vi) Implementing mechanisms for strengthening the implementation and coordination of road safety measures; and (vii) Establishing a platform for data collection and performance monitoring.

Railway: (i) Sustaining the operation of the Greater Mekong Railway Association; (ii) Completing the missing railway links to interconnect the subregion; (iii) Upgrading and expanding the capacity of existing railway lines; (iv) Renewing and replacing rolling stock; (v) Modernizing systems for train operation, user service, and management support; (vi) Improving asset management capacity; and (vii) Enhancing cross-border rail transport.

Ports and Inland Waterways: (i) Developing and/or increasing the capacity of major deep seaports, (ii) Promoting the use of coastal shipping and inland waterways for domestic and international trade by providing and improving support facilities and services, (iii) Improving landside seaport access, and (iv) Improving port policies and regulations.

Air Transport: (i) Developing and/or improving secondary airports, (ii) Expanding existing international airports, and (iii) Developing new international airports.

Urban Transport: (i) Constructing circumferential and bypass roads around major urban centers along the corridors, and (ii) Adopting mechanisms for coordinating transport programs and projects with the development plans of major cities and towns along the economic corridors

Transport Facilitation: (i) Facilitating the extension of traffic and transport rights along the Greater Mekong Subregion economic corridors; (ii) Upgrading border-crossing facilities; (iii) Improving border management; (iv) Enhancing institutional mechanisms for implementing transport facilitation measures at the central and local levels; (v) Strengthening the interface between transport facilitation and trade facilitation (TTF) initiatives; and (vi) Conducting capacity building programs to raise awareness, knowledge, and skills of central, local, and border officials in TTF.

Logistics: (i) Improving road–rail–port connectivity; (ii) Establishing inland dry ports with road and rail interface; (iii) Establishing direct feeder service between ports and inland container depots (ICDs), and integrating ICDs into the rail network; (iv) Promoting the logistics industry through deregulation and increased foreign participation; (v) Encouraging investment in logistics hubs, ICDs, inland dry ports, and cold storage facilities; (vi) Improving the interface between the public and private sectors in logistics development, including through the strengthening of the Freight and Transport Association; (vii) Promoting human resource development programs to support GMS logistics development; (viii) Increasing use of information and communication technology in logistics management; (ix) Streamlining terminal and port operations.

Source: ADB. 2018. *GMS Transport Sector Strategy 2030: Toward a Seamless, Efficient, Reliable, and Sustainable GMS Transport System*.

and the Joint Committee and its supporting bodies for implementing the Cross-Border Transport Facilitation Agreement (CBTA). Engagement with the private sector is conducted through the GMS Business Council for GMS-wide concerns and in the transport sector, through the GMS Freight Transport Association (FRETA).

Monitoring and Evaluation

Monitoring progress in implementing TSS 2030 requires tracking indicators and milestones at three levels: (i) impact (e.g., increased cross-border trade); (ii) outcomes (e.g., reduced time and cost of travel); and (iii) outputs (e.g., kilometers of roads upgraded, or railway lines constructed). TSS 2030 includes a results framework consisting of performance indicators for impact, outcomes, and outputs.



III. GREATER MEKONG SUBREGION TRANSPORT SECTOR STRATEGY 2030 MIDTERM REVIEW

Key transport infrastructure in the Greater Mekong Subregion. Major bridges and strategic ports support trade, mobility, and economic integration in the subregion.

Relevance

Significant national, regional, and global developments have occurred since the TSS 2030 launch in 2018. The coronavirus disease (COVID-19) pandemic has had a profound impact on social and economic development in the GMS countries. Nevertheless, TSS 2030 remains relevant and responsive to the development needs and priorities of the GMS countries and the subregion. The vision, strategic thrusts, and operational priorities of TSS 2030 continue to reflect the perspectives of the GMS countries on the development of the GMS transport system. At the same time, TSS 2030 is well-aligned with the vision and goals articulated in GMS 2030. Thus, TSS 2030 continues to be a sound basis for action during the second half of TSS 2030's implementation period, although there is a need for some fine-tuning, including in its focus and emphasis.

The national socioeconomic development plans and policies of the GMS countries, and their transport sector development and/or master plans all show

the supporting role that TSS 2030 plays in the development of the transport sector.⁶ Regional cooperation and integration has been a common theme in the development plans and policies of GMS countries, of which connectivity has played a critical role. To enhance the sector's contribution to national development goals, transport sector development plans of the GMS countries include continuing efforts to increase the efficiency and capacity of the road transport network, logistics development, intermodal and multimodal transport development, urban transport development, climate-resilient and sustainable development, and road safety and asset management. The strategic thrusts and operational priorities of TSS 2030 support actions that help address these concerns.⁷

The strategic framework of TSS 2030 is aligned with the GMS 2030. Appendix 1 compares key provisions of GMS 2030 concerning connectivity (transport) with the corresponding stipulations in TSS 2030. It shows that TSS 2030 is consistent with and fully supports the goals of GMS 2030, with the two GMS strategic

⁶ For example, Comprehensive Master Plan on Cambodia Intermodal Transport and Logistics System 2023–2033; The 14th Five-Year Plan of the People's Republic of China—Fostering High-Quality Development (Observations and Suggestions No. 2021-01) (adb.org); Lao People's Democratic Republic (Lao PDR) 9th Five-Year National Socio-Economic Development Plan (2021–2025), and 10th National Socio-Economic Development Plan (NSED) (2026–2030). Forthcoming; Thailand's Transport Infrastructure Development Strategy 2015–2022 Slide 1 (thaitransport.org); and Viet Nam Socio-economic Development Plan for 2021–2025.

⁷ The national plans, programs, and projects in the transport sector presented by GMS country delegations at the 24th Meeting of the GMS Subregional Transport Forum showed the congruence between the goals and priorities of the GMS countries in the transport sector and those articulated in the GMS 2030 and TSS 2030.

documents having a common vision and approach to the long-term development of the GMS transport system. For instance, GMS 2030 states that the vision of a seamless, efficient, reliable, and sustainable GMS transport system will be realized by shifting to an intermodal approach, maximizing transport connectivity gains by facilitating the cross-border movement of people and goods, developing efficient logistics, and fostering closer linkages with the private sector. These approaches are fully integrated in TSS 2030's strategic thrusts and operational priorities.

Performance

The GMS countries' success in achieving the goals of TSS 2030 is assessed by their progress in implementing the projects and interventions intended to achieve those goals. This section begins with this assessment then identifies the major outstanding issues and challenges and the remaining tasks under TSS 2030.

Implementation of Projects in the RIF

Progress of transport projects in the RIF. The RIFs provide the information to help assess the first half of the TSS 2030 implementation. Indicators of overall progress are drawn from the RIFs, beginning with *RIF 2022: First Progress Report and Update (2018)* which included the initial implementation period of TSS 2030.⁸ Major changes in the RIFs' project proposal process, project criteria, and format of reporting were introduced in RIF 2023–2025 (RIF 2025), which was endorsed by the GMS ministers in December 2022. The changes were made to develop a realistic and implementable pipeline of projects in support of the strategic objectives of GMS 2030, and to increase the pipeline's attractiveness to development partners and the private sector. The new RIF series is a three-year rolling pipeline of projects. Starting with RIF 2025, it is rolled over to the following year and extended by 1 year, with the necessary adjustments in the pipeline.

The RIF 2022 series and the new rolling RIF are not comparable due to the changes made in 2022. Tracking trends in their major components over time provides insights into the overall progress of implementing TSS 2030. Table 1 shows indicators of transport investment projects from *RIF 2022: First Progress Report and Update (first update)* to *RIF 2022: Fourth Progress Report and Update (fourth update)*. The table also presents the same information in the new RIF series, except for the status of implementation. The following observations can be made from Table 1:

- (i) The transport sector consistently had the highest share in terms of number and cost of projects in the RIF 2022 series, averaging 56.4% in terms of number and 86.4% in terms of costs. The sector remained the largest sector in the RIF even after the number of transport projects in the third progress report and update was reduced from 87 to 69 due to the dropping of several transport projects which had not progressed.
- (ii) In the new RIF series, the share of transport projects in terms of number fell from more than one-half to 27% in RIF 2025 and further down to 20% in RIF 2025–2027 (RIF 2027), with agriculture overtaking the transport sector in the RIF 2027. However, in terms of cost, the transport sector continued to dominate, with its share in the total increasing from an average of 44% in RIF 2023 and RIF 2025 to 64.3% in RIF 2027. This substantial increase in RIF 2027 was due to the inclusion of a high-speed railway connectivity project in Thailand with an estimated cost of \$9.6 billion.
- (iii) Resource mobilization for the financing for transport projects in the RIF 2022 series improved, with the share of projects with available financing increasing from about one-half in the first update to three-fourths of the total in the fourth update. There are no comparable figures in the new RIF series to those in the RIF 2022 series. Instead, "potential

⁸ The *Regional Investment Framework 2022 (RIF 2022)* is the medium-term pipeline of GMS projects, which consolidated the previous RIFs from 2013–2022 and the Revised RIF Implementation Plan (RIF-IP 2014–2020). The RIF 2022—First Progress Report and Update (2018) contained updates to RIF 2022 during the 2018 cycle. The second, third, and fourth progress reports and updates contained updates to RIF 2022 during the 2019, 2020, and 2021 cycles, respectively.

Table 1: Indicators of Progress of Transport Investment Projects in the Regional Investment Framework

RIF Edition	Total Number	Share in Total RIF (%)	Total Cost (\$ billion)	Share in Total RIF (%)	Status of Financing		Status of Implementation ^a		
					With	Without	Proposed	Ongoing	Completed
RIF 2022: First Progress Report and Update (2018)	85	57.8	70.3	87.2	50.5% \$46.97B	49.5% \$23.3B	46	35	4
RIF 2022: Second Progress Report and Update (2019)	87	56.1	77.7	84.3	60% \$55B	40% \$37B	43	36	8
RIF 2022: Third Progress Report and Update (2020)	69	55.2	66.1	84.9	71% \$55.6B	29% \$22.7B	24	34	11
RIF 2022: Fourth Progress Report and Update (2021)	68	56.6	65.8	85.2	76% \$59B	24% \$18.6B	22	35	11
RIF 2025 (2023–2025)	30	27.0	5.3	47.9	Potential funding source identified for all except one project.		n.a.	n.a.	n.a.
RIF 2026 (2024–2026)	34	26.5	7.2	40.4			n.a.	n.a.	n.a.
RIF 2027 (2025–2027)	35	20.0	16.0	64.3			n.a.	n.a.	n.a.

B = billion, n.a. = data not available, RIF = regional investment framework.

^a Investment projects for the RIF 2022 series. Investment and TA projects for the new RIF series.

Source: Regional Investment Framework for various years.

funding source” is shown for each project with some entries indicating the amount of financing from the funding source.

- (iv) The rate of implementation of transport investment projects in the RIF 2022 series have also improved.⁹ Around 50% of projects were reported as either ongoing or completed in the first and second updates. This increased to around two-thirds of the total in the third and fourth updates. However, this was partly due to the reduction in the total number of projects. The number of ongoing projects remained at 34–36, while the number of completed projects increased from four in the first update to 11 in the fourth update.¹⁰

Table 2 shows the same information contained in Table 1 for transport and trade facilitation (TTF) projects in the RIF. The following observations can be made from this table:

- (i) In the RIF 2022 series, TTF had the least number of projects among the sectors or thematic areas with 12 in the first update and eight in the third and fourth updates. This translates to an 8% share in the total number of projects in the RIF in the first update to an average of 4% in the last three updates. In terms of estimated costs, the percentage share of TTF projects averaged only around

⁹ The rate of implementation is the number of completed and ongoing projects as a percentage of the total number of projects.

¹⁰ The COVID-19 pandemic caused some delays in project implementation in some areas due to travel restrictions and health protocols. However, overall project implementation generally remained on track.

Table 2: Indicators of Progress of Transport and Trade Facilitation Projects in the Regional Investment Framework

RIF Edition	Total Number	Share in Total		Share in Total RIF (%)	Status of Financing		Status of Implementation		
		RIF (%)	Total Cost (\$ million)		With	Without	Proposed	Ongoing	Completed
RIF 2022: First Progress Report and Update (2018)	12	8.1	75.5	<0.1%	6	6	6	5	1
RIF 2022: Second Progress Report and Update (2019)	11	4.3	126.0	0.13%	8	3	6	3	2
RIF 2022: Third Progress Report and Update (2020)	8 of 210	3.8	95.9	0.12%	7	2	2	4	2
RIF 2022: Fourth Progress Report and Update (2021)	8 of 205	3.9	93.0	0.12%	8	0	1	3	3
RIF 2025 (2023–2025)	1	0.9	0.50	—	No specific funding source identified.		n.a.	n.a.	n.a.
RIF 2026 (2024–2026)	0						n.a.	n.a.	n.a.
RIF 2027 (2025–027)	1	0.5	0.24	—			n.a.	n.a.	n.a.

— = the number is too small, almost negligible, n.a. = data not available, RIF = regional investment framework.
Source: Regional Investment Framework for various years.

0.1%. The financing of TTF projects improved from just one-half with available financing in the first update to all having available financing in the fourth update. Similarly, implementation progressed from one-half of the projects being ongoing or completed in the first update to 85% ongoing or completed in the fourth update.

- (ii) In the new RIF series, the situation of TTF projects in the RIF deteriorated, with only one each in RIF 2025 and RIF 2027, and none in RIF 2026.¹¹ This weak attention to TTF projects in the RIF is a cause for concern, considering the GMS Program's emphasis on the facilitation of the cross-border movement of people and goods in the GMS.

Subsector composition of transport investment projects in the RIF. Table 3 shows the number of transport projects in the RIF broken down into the following subsectors: roads and bridges; railway; ports and inland waterways; air transport; urban transport; cross-border facilities; and logistics. Roads and bridges (including road safety and road asset management) predominate, followed by railways, ports and inland waterways. There was no air transport project in the RIF 2022 series, but there were five in the new RIF series. There was only one urban transport project in the RIF 2022 series, and two in the new RIFs. Five to eight projects for improving cross-border facilities were included in the RIF 2022 series, and none in the new

¹¹ These are the “Transboundary Cooperation Mechanism on Cross-border E-commerce, Logistics, Entrepreneur Network, University Talent Training and Development Project” estimated to cost \$0.5 million in RIF 2026, and “Construction of Fencing and Gates of Kenglat Border Trade Office Project” estimated to cost \$0.24 million in RIF 2027.

Table 3: Subsector Composition of Transport Investment Projects in the Regional Investment Framework

RIFs	Roads and Bridges	Railways	Ports and Inland Waterways	Air Transport	Urban Transport	Cross-border Facilities	Logistics	Total
First Update	53	12	12	0	0	6	2	85
Second Update	55	13	9	0	0	8	2	87
Third Update	48	8	8	0	0	5	0	69
Fourth Update	45	8	8	0	1	6	0	68
RIF 2025	14	6	2	0	1	0	7	30
RIF 2026	17	5	2	1	1	0	6	34
RIF 2027	18	5	1	4	0	0	6	35

RIF = regional investment framework.

Source: Regional Investment Framework for various years.

RIF series. There were two logistics projects in the first and second updates, and none in the last two updates. On the other hand, six to seven logistics projects were included in the new RIF series.

The subsector allocation of transport projects in the RIFs reflects the GMS countries' priority toward improving road links with neighboring countries and increasing the capacity and efficiency of respective road transport networks. They also manifest the increased importance GMS countries attached to the development of railways in complementing the road transport network and interconnecting the subregional railway system. Investments in ports and inland waterways have increased. Moreover, logistics projects started to take a more prominent role in the more recent RIF periods. The move toward intermodal and eventually multimodal transport is a logical next step. The lack of urban transport projects in the transport sector in the RIF does not imply that they play a minor role in GMS development, because some urban transport components are integrated in corridor towns development projects in the RIF.¹²

Completed and ongoing GMS transport investment projects in the RIF. TSS 2030 listed 23 completed and 9 ongoing transport investment projects as of 2017. As of the end of 2024, 19 transport investment projects

were completed, while 30 were ongoing—7 of which were carried over from the TSS 2030 list. This means that the implementation of 23 new projects has started since the launching of TSS 2030 in 2018. Appendix 2 presents the list of completed transport investment projects, while Appendix 3 shows the list of ongoing transport investment projects from 2018 to 2024. These numbers indicate good progress in preparing, obtaining financing, and commencing implementation of transport investment projects during the first half of the TSS 2030 period. It is consistent with the improving trends in financing and project implementation in the RIF 2022 series.

Some examples of major completed projects are the Poipet Border-Bridge/Aranyaprathet Project in Cambodia; the Lao–China Railway Project in the Lao PDR; the Mae–Sot–Myawaddy Border Crossing and Infrastructure Improvement Project in Myanmar and Thailand; the Thanaleng–Nong Khai Railway Extension Project in the Lao PDR and Thailand; and the GMS Southern Coastal Corridor Project in Viet Nam. Examples of major ongoing projects are the Phnom Penh–Sihanoukville Expressway Project in Cambodia; the Dali–Ruili Railway and the Yuxi–Mohan Railway Projects in the PRC; the National Railway Improvement Project in Thailand; and the GMS Ha Noi–Lang Son Expressway Project in Viet Nam.

¹² For example, the Houei Sai River Port Project is a component of the Second GMS Corridor Towns Project (Lao PDR) in the RIF's urban development sector.

Table 4 presents key features of the completed and ongoing transport investment projects reported in this TSS 2030 update. A total of 49 transport investments projects have either been completed or are ongoing, of which a great majority consist of road and bridge projects (37), followed by railway projects (7), port projects (4), border-crossing improvement projects (1), and a project on road safety. Completed and ongoing transport investment projects have a combined cost estimate of \$50.9 billion with around one-fourth being accounted for by completed transport investment projects.

GMS governments, especially the PRC and Thailand accounted for the largest share of financing of both completed and ongoing transport investment projects. For completed projects, no development partner other than ADB and the Neighboring Countries Economic Development Cooperation Agency (NEDA) of Thailand were involved in financing, and the private sector made a small contribution. For ongoing projects, the private sector is financing 15.7% of the total required—a major change from its nearly negligible share in the financing of completed projects. Ten development partners, including ADB and NEDA are financing 11.1 % of the total financing requirement of ongoing projects.

The expected outputs of completed transport investment projects consist of 1,385 kilometers (km) of roads constructed and/or rehabilitated; four bridges constructed; 421.5 km of railway built; two ports upgraded; and one road safety project implemented, while those of ongoing projects consist of 3,500 km of roads constructed and/or rehabilitated; 9 bridges constructed; 3,994 km of railway built; six ports upgraded; and one border-crossing facility upgraded. If all the expected outputs are delivered successfully upon completion of all ongoing projects, completed and ongoing projects would result in nearly 5,000 km of roads being constructed and/or rehabilitated; 13 new bridges built; 4,415 km of railway built and/or upgraded; and 8 ports upgraded. They will further strengthen road transport connectivity along the GMS economic corridors by expanding capacity and increasing the efficiency along the main economic corridor routes. They will also bring the GMS countries closer to interconnecting the railway system of GMS countries and moving toward a subregional railway network, as well as developing a multimodal transport system.

Table 4: Key Features of Completed and Ongoing Greater Mekong Subregion Transport Investment Projects

Key Features	Completed Projects	Ongoing Projects
Number	19	30
Composition (subsectors)	15 road and bridge projects, 3 railway projects, 1 port project	22 road and bridge projects, 4 railway projects, 3 port projects, 1 border-crossing improvement project
Cost of projects	\$8.6 billion	\$42.3 billion
Sources of financing (%)	GMS governments, 95.2%; ADB/NEDA, 4.7%; private sector, 0.1%	GMS governments, 73.2%; private sector, 15.7%; 10 development partners; ADB, 11.1 %
Expected outputs	1,385 km of roads constructed and/or rehabilitated, and 4 bridges constructed; 421.5 km of railway built; 2 ports upgraded; 1 bus/truck driving test center established.	3,500 km of roads constructed and/or rehabilitated and 9 bridges constructed; 3,994 km of railway built; 6 ports upgraded; 1 border-crossing facility upgraded

ADB = Asian Development Bank, GMS = Greater Mekong Subregion, km = kilometer, NEDA = Neighboring Countries Economic Development Cooperation Agency of Thailand.

Source: Regional Investment Framework for various years.

Progress in Railway Development

The railways in the GMS countries have historically been developed independently of each other, with each national railway having its own technical standards, regulations, and procedures. The GMS countries took the initial step to develop an integrated railway system in the subregion by adopting a strategic framework for connecting the GMS railways in 2010.¹³ This strategic framework provided an initial agenda and approach for achieving interconnection and interoperability of the GMS railway system, identified priority initiatives, and proposed a platform for further dialogue and coordination to translate the strategy into action. Subsequently, the GMRA was established in 2012 to ensure that all GMS countries are connected to a rail system and to promote efficient, safe, and environmentally sustainable rail transport of goods and people within and beyond the GMS. Due to the increasing volume of subregional trade, sharp rise and volatility in fuel costs, and the urgent need for climate change mitigation and adaptation, the GMS countries accelerated their plans for upgrading and expanding their national railway networks and establishing railway links with neighboring countries.¹⁴ Along this line, the GMS countries identified and agreed upon nine missing cross-border railway links in 2015 to enhance railway connectivity in the subregion.¹⁵

GMS railway connectivity has improved since then, with rail links between Thailand–Cambodia (Project 1) and Thailand–Lao PDR (Nong Khai–Friendship Bridge Thanaleng) connecting Project 5 to Thailand having been completed in 2019, and Project 5 Lao–China Railway, connecting the PRC and Lao PDR (Boten–Vientiane) having been opened in December 2021 (Table 5). Project 5 is an important link in the Singapore–Kunming Rail Link (SKRL) and the Trans-Asia Railway projects. It is part of one of the six international economic corridors under the Belt

and Road Initiative. Table 5 shows the status of the nine cross-border railway links. Of the nine priority rail links endorsed by GMRA, two have been physically completed, two are being developed under existing bilateral memorandums of understanding (MOUs), and three of the remaining five rail links have been the subject of a prefeasibility or full feasibility study.

Progress in Implementing the GMS CBTA

The GMS CBTA is the principal instrument of the GMS Program in facilitating the opening of markets and borders for transport services to make the cross-border movement of people and goods faster, easier, and cheaper in the GMS. It will help maximize the benefits from improved physical connectivity by complementing hard infrastructure with the software aspects, e.g., rules, regulations and procedures, governing cross-border transport and trade. The CBTA was ratified by the GMS countries in 2015. Before that, the CBTA was partially implemented through several bilateral and multilateral agreements. To accelerate the implementation of the CBTA, an “Early Harvest” MOU was signed by the GMS ministers in 2017 and launched in June 2018. Under this MOU, each GMS country may issue up to 500 road transport permits to transport operators in the GMS countries (Box 2).

The Mekong Institute, engaged by ADB to monitor the implementation of the Early Harvest mechanism found that cross-border traffic and land-based trade had been increasing rapidly, more than doubling at some of the busiest GMS border crossings in the five-year period to 2018.¹⁶ For example, at Bavet (Cambodia)–Moc Bai (Viet Nam), two-way goods trade more than doubled between 2010 and 2014 and doubled again in the four-year period to 2018. Trade at the Poipet (Cambodia)–Aranyaprathet (Thailand) border also doubled between 2014 and 2018. Both the number of vehicles and the value of trade more

¹³ ADB. 2010. *Connecting Greater Mekong Subregion Railways: A Strategic Framework*. The strategic framework was endorsed at the 16th GMS Ministerial Meeting in Ha Noi, Viet Nam in August 2010.

¹⁴ Carbon dioxide (CO₂) emissions from railways has the smallest contribution to the global growth in transport CO₂ emissions, with CO₂ emissions from railways declining between 2000 and 2018. See the United Nations Framework Convention on Climate Change (UNFCCC). [202202251552---SLOCAT Transport and Climate Change Global Status Report...Global Overview.pdf](#)

¹⁵ The GMRA endorsed these nine priority railway links in March 2015.

¹⁶ The Mekong Institute was engaged by ADB from May 2018 to (i) gather primary data and feedback from permit/temporary admission document holders, (ii) organize national workshops to consolidate country-level feedback and regional workshops to discuss common issues, and (iii) report on the implementation of Early Harvest to ADB and the CBTA Joint Committee.

Table 5: Status of Cross-Border Railway Links in the Greater Mekong Subregion

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

CAM = Cambodia, PRC = People's Republic of China, E = east, FS = feasibility study, GMS = Greater Mekong Subregion, HCMC = Ho Chi Minh City, KOICA = Korea International Cooperation Agency, LAO = Lao People's Democratic Republic, MOU = memorandum of understanding, MYA = Myanmar, THA = Thailand, VIE = Viet Nam, W = west.
Source: ADB.

Box 2: Main Provisions of the Cross-Border Transport Facilitation Agreement Early Harvest Memorandum of Understanding

- Up to 500 multiple journey Greater Mekong Subregion (GMS) road transport permits and temporary admission documents (TADs) to goods and/or passenger transport operators can be issued by each GMS country.
- A TAD is a car pass that must be signed or stamped and dated at the border by the host country Customs officials upon entering and exiting that country.
- Goods transported will continue to observe current domestic Customs procedures at check points.
- There is no limit to the number of journeys that can be made by transport operators, and a single stay in a host country cannot exceed 30 days.
- Vehicles may enter through one border crossing point and exit through another but may only use the routes provided in Protocol 1 of the Cross-Border Transport Facilitation Agreement.

Source: Asian Development Bank.

than doubled at the Mae Sot (Thailand)–Myawaddy (Myanmar) border over the five-year period to 2018. However, the momentum created by the Early Harvest mechanism was disrupted by the COVID-19 pandemic in 2020: (i) the scheduled Joint Committee meeting was canceled and only one National Transport

Facilitation Committee meeting was held during the pandemic; (ii) the Early Harvest MOU expired together with all issued permits; (iii) the PRC and the Lao PDR were unable to sign Protocol 1 adding new routes and border crossings to the Early Harvest MOU; and (iv) the submission of trade data was suspended.

With trade returning to pre-pandemic levels in 2023, borders were progressively reopened, although the Early Harvest MOU and road transport permits had expired. At the 8th CBTA Joint Committee meeting in December 2023, the GMS ministers extended the Early Harvest MOU to the end of 2026 and agreed to relaunch Early Harvest transport operations from 1 April 2024.

The major developments after the relaunch included:

- (i) The opening by the Lao PDR of NR3 and NR9 from Houaphanh to Boten and Savannakhet to Dansavanh, and NR13 from Boten to Nong Nok Khiene.
- (ii) Additional routes and border crossings were added under Protocol 1 of the Extended MOU, which entered into force after final signing at the 8th Joint Committee Meeting.

Key Issues and Challenges

Accelerating Implementation of the GMS CBTA

The actions taken to implement the main provisions of the CBTA have been discussed earlier. These include the initial implementation of the CBTA through several bilateral and trilateral agreements and later, the Early Harvest mechanism. Despite these initiatives, the CBTA still needs to make a significant impact on opening borders, which remain the weakest links along the GMS economic corridors in terms of time and costs of travel. GMS 2030 cites the slow progress in implementing the CBTA as one of the weaknesses of the GMS Program.¹⁷ Thus, the challenge of accelerating the implementation of the CBTA looms large in achieving a seamless and efficient GMS transport system. Continuing efforts are necessary to resolve bottlenecks using innovative approaches.

A trial run of the Early Harvest mechanism was held on 22–28 June 2024 along the PRC–Lao PDR–Thailand–Cambodia GMS economic corridor route, starting in Kunming and ending in Phnom Penh, to identify challenges in its implementation.

The trial run identified outstanding issues, provided lessons on what is working and what is not working well, and indicated what actions are needed to improve the efficiency and effectiveness of the Early Harvest mechanism. These include:

- (i) Different regulatory systems, procedures, and practices among Cambodia, the PRC, the Lao PDR, and Thailand.
- (ii) Need for upgrading of transport infrastructure (e.g., the corridor segment between Boten and Nateuy in the Lao PDR).
- (iii) Lack of training of transport operators manifested by incomplete documentation.
- (iv) Need for upgrading of some border-crossing points (BCPs), including the BCP in Boten, Lao PDR.
- (v) Persistent red tape in a few BCPs.
- (vi) Need for alignment of transport regulations, especially vehicle lengths.
- (vii) Successful mutual recognition of driving licenses.
- (viii) Need for more training, capacity support, and knowledge sharing.
- (ix) Further development of the GMS handbook to include, for example, tolls, border clearance processing flow, and registration requirements.
- (x) Need for more trial runs.

The trial run route of the Early Harvest Mechanism can be used as the basis for developing a pilot project on TTF covering Cambodia, the PRC, the Lao PDR, and Thailand to address bottlenecks in a cooperative and integrated manner. The lessons learned can then be applied to the other economic corridor routes in the GMS.

Promoting Cross-Border Railway Links

Although progress has been made in interconnecting the GMS railways, several issues and challenges remain in the development of the GMS railway network.¹⁸ These involve (i) achieving optimal network development with appropriate standards and technology; (ii) facilitating cross-border trade by rail; and (iii) developing a permanent, legal, intergovernmental GMRA.

¹⁷ GMS/ADB. 2021. *The Greater Mekong Subregion Economic Cooperation Program Strategic Framework 2030*.

¹⁸ The issues and challenges in railway development are discussed in more detail in the Final Report and Knowledge Product: Current Status and Directions for Cross-Border Railway Network Development in the Greater Mekong Subregion, prepared under ADB. TA 9918-REG: Connecting the Railways of the Greater Mekong Subregion, Phase 2. Approved on 19 December 2019.

Achieving optimal network development with the appropriate standards and technology.

There are differences in railway technology and standards among GMS countries. GMS railways are not electrified except in the PRC. The railway networks of Cambodia, Myanmar, Thailand, and Viet Nam are meter gauge railways (1,000 millimeters [mm] between the rail tracks), while those of the PRC and the Lao PDR are standard gauge (1,435 mm between the rail tracks). The GMRA has proposed that existing rail lines be gradually converted to standard gauge, and that new lines be standard gauge. However, full transition to standard gauge in the GMS may be difficult to realize in the near or medium term even with strong government support and large-scale investment due to the extensive meter gauge railway in place.

There is a wide gap between railway performance in the PRC and the Lao PDR, and those of other GMS railways. Much of the PRC railway network and the Lao–China Railway is a modern railway with speeds of up to 200 kilometers per hour. In contrast, railways in Cambodia, Myanmar, Thailand, and Viet Nam require improvement or upgrading. The average age of equipment in Cambodia, Myanmar, Thailand, and Viet Nam is over 25 years. Locomotives are inefficient and polluting.

To meet climate change commitments, greater use of railway transport is essential. However, the current market share of railway transport outside of the PRC is small. The challenge is to complete the railway network in the GMS and to modernize associated railway services so that they become more attractive to passengers and shippers. This will help realize the large potential for a shift from road to rail transport in national freight and passenger markets.

Railway projects require sizable financial resources as shown by their significant share in the cost of rail investment projects in the RIF. In particular, the investment needed to interconnect and modernize GMS railways is enormous. To modernize operations,

substantial investment over the next 10–15 years will be required. Because this investment cannot be fully funded from public sources, attracting more private investment—domestic and foreign—in the railway sectors of Cambodia, the Lao PDR, Myanmar, Thailand, and Viet Nam will be needed.

Facilitating cross-border trade by rail. Rail interconnectivity will require trade facilitation mechanisms at border crossings. The experience with the GMS CBTA suggests that it is necessary to have a system for TTF in place before completing the hardware.¹⁹ Otherwise, the full benefits from physical connectivity cannot be secured. In this regard, a Framework Agreement for Cross-Border Railway Transport Connectivity (FA-CBRTC) has been drafted by a GMRA Working Group. The objectives of the FA-CBRTC are to: (i) facilitate the cross-border movement of rolling stock and the cross-border railway transport of goods and people between and among GMS countries; (ii) harmonize legislation, regulations, procedures, and requirements relating to the cross-border railway transport of goods and people; (iii) promote the development of an interoperable subregional railway network; and (iv) promote multimodal transport. The negotiations for the FA-CBRTC, which started in 2017 are still ongoing. The negotiations have been complex and time-consuming, thereby delaying their conclusion. Even if the FA-CBRTC were to be completed and adopted soon, most of the provisions for operationalizing its principles, obligations and commitments in the proposed Annexes and Technical Arrangements of the FA-CBRTC remain to be negotiated.

Developing a permanent, legal, intergovernmental GMRA. Establishing a legally constituted, intergovernmental GMRA with greater capacity early is critical to GMS railway development. A well-functioning GMRA would facilitate the implementation of the FA-CBRTC, thus enhancing demand and increasing the viability of new cross-border railway

¹⁹ The Lao–China Railway connecting the PRC and the Lao PDR has implemented an efficient trade facilitation system with the support of the two governments, resulting in a clearance time of five hours compared to 24 hours by road, partly due to high road demand. In contrast, full interconnectivity between the rail connection between Poipet (Cambodia) and Aranyaprathet (Thailand) has not yet been implemented due to the need to resolve certain cross-border regulatory and procedural issues between Poipet (Cambodia) and Aranyaprathet (Thailand).

links. Currently, the GMRA is set up as a nonlegal intergovernmental forum under the GMS Program through an MOU among the GMS countries. GMRA is without dedicated staff, secure funding, and formal operating procedures. ADB continues to serve as the GMRA's Secretariat. GMS countries agree in principle that GMRA should be a legal, intergovernmental body, but there is no consensus yet on when this would be implemented, with some GMS countries preferring to wait until a more extensive GMS railway network is in place. The predicament is that deferring the establishment of GMRA as a legal and intergovernmental body may cause undue delay in developing the GMS cross-border railway network.

Supporting Logistics and Intermodal and Multimodal Transport

TSS 2030 stressed that transport infrastructure and TTF are necessary but not sufficient to enable the transport sector to effectively contribute to the growth of trade and investment in accordance with the GMS vision. Logistics development needs to be part of the strategic agenda, with transport infrastructure as an integral and core component. Table 6 shows the overall logistics performance index (LPI) of the GMS countries in 2010, 2018, and 2023. The following observations can be made from the table: (i) there is a large disparity in the LPI of the PRC, Thailand, and Viet Nam and those of Cambodia, the Lao PDR, and

Myanmar—these disparities have continued after more than a decade; (ii) the overall LPI of the GMS countries improved between 2010 to 2023, except in the Lao PDR and Myanmar. The challenge is to sustain improvement and narrow the gap between logistics development in the PRC, Thailand, and Viet Nam with those in Cambodia, the Lao PDR, and Myanmar to strengthen the supply chain in the subregion.

Table 7 shows the LPI of GMS countries in 2023 with its components: customs, infrastructure, international shipments, logistics competence and quality, timeliness, and tracking and tracing. Although Cambodia, the Lao PDR, and Myanmar need to catch up with the PRC, Thailand, and Viet Nam in all aspects, the figures indicate that all countries need improvement in customs, with the scores for customs in all countries falling below the overall LPI. Considering the increasing volume of global and regional trade, GMS countries need to improve their performance in logistics to remain internationally competitive.

Besides the uneven development of logistics in the GMS countries, the high cost of logistics is also of concern. Logistics costs are estimated to be 17.8% of gross domestic product (GDP) in the PRC, 16.8% of GDP in Viet Nam, and 14.1% of GDP in Thailand. This compares with 7% for the European Union, 8% for Singapore, 10% for the United States, 11% for Japan, and 13% for Malaysia.²⁰ The major reasons for this include

Table 6: Overall Logistics Performance Index: 2010, 2018, and 2023

Country	2010	2018	2023
Cambodia	2.37	2.58	2.58
PRC	3.49	3.61	3.70
Lao PDR	2.40	2.70	2.40
Myanmar	2.33	2.30	n.a.
Thailand	3.29	3.41	3.5
Viet Nam	2.96	3.27	3.3

PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.

Note: The top scorer in 2023 was Singapore with 4.3, while the lowest scorer was Libya with 1.9.

Source: World Bank Logistics Performance Index for selected years.

²⁰ Viet Nam.Net Global Vietnam's logistics costs higher than world's; National Economic and Social Development Council. 2023. *Thailand's Logistics Report 2023*; ADB. 2012. *Viet Nam Transport Sector Assessment, Strategy, and Road Map*; ADB. 2011. *Sector Assessment (Summary): Transport in Country Partnership Strategy: People's Republic of China 2011–2015*.

Table 7: Logistics Performance Index and Its Components, 2023

Country	Overall LPI	Customs	Infrastructure	International Shipments	Logistics Competence and Quality	Timeliness	Tracking and Tracing
Cambodia	2.4	2.1	2.4	2.3	2.4	2.7	2.8
PRC	3.7	3.3	4.0	3.6	3.8	3.7	3.8
Lao PDR	2.4	2.3	2.3	2.4	2.4	2.8	2.4
Myanmar*	2.3	2.2	2.0	2.2	2.3	2.2	2.9
Thailand	3.5	3.3	3.7	3.5	3.5	3.5	3.6
Viet Nam	3.3	3.1	3.2	3.3	3.2	3.3	3.4

* 2018.

PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.
Source: World Bank Logistics Performance Index, 2023.

high toll charges, inefficiencies in the supply chain, underdeveloped and uncompetitive logistics industry, and lack of attention to multimodal transport. There is a need to optimize multimodal transport services through the integration and coordination of planning and implementation of different modes of transport.²¹ The interface among several modes of transport, such as road, rail, airports and seaports, should be improved to achieve seamless transport connections providing multimodal options for both freight and passenger traffic.

The development of the logistics industry together with TTF and multimodal transport in the GMS countries will be essential in cutting the cost of logistics. The main constraints in logistics development in the GMS that need to be addressed include:

- (i) Many logistics operators are small and medium-sized with limited capital and equipment, except for some companies in the PRC and Thailand and several foreign companies operating in the GMS countries.
- (ii) Investment in logistics infrastructure and services is relatively small.

- (iii) Human resources in the logistics industry with the necessary skills are limited.
- (iv) Use of information and communication technology (ICT) in logistics operations and services has not yet been maximized.
- (v) A more conducive and harmonized policy and regulatory environment governing logistics investment and operations is needed.

Enhancing Road Safety

Road traffic deaths and injuries continue to be a critical global challenge.²² People of working age make up two-thirds of deaths with huge social and economic loss. Occupants of motorized transport account for more than one-half of fatalities. Nine out of 10 deaths are in low- and middle-income countries, with Southeast Asia accounting for the highest percentage of fatalities globally. TSS 2030 identified enhancing road safety as part of the strategy for GMS transport development. Economic progress and population growth in the subregion has spurred growth in the number of motorized vehicles, with increasing demand straining the GMS countries' capacity for safety education and enforcement.²³ Thus, road safety remains a major challenge in the GMS. TSS 2030

²¹ Cambodia has formulated and adopted a Comprehensive Masterplan on Cambodia Intermodal Transport and Logistics System (CITLS) 2023–2033 which consolidates the master plans of all modes of transport into a comprehensive and inter-connected plan covering roads, rail, waterways, ports, airports, and logistics. The Lao PDR is likewise implementing its own Developing Multimodal Transport Strategy, Vision to 2035.

²² World Health Organization. 2023. *Global Status Report on Road Safety 2023*.

²³ In the Lao PDR for instance, traffic violations increased by 23% in 2023 and remained high in the following years. Implementation of the Road Safety Action Plan 2021–2025 has been impeded by budgetary constraints.

stressed that the GMS transport system needs to be safe to achieve a good level of efficiency, reliability, and sustainability across the subregion. This can be realized more effectively based on cooperation among the GMS countries involving such areas as standards of safety among countries; design, construction, operation and maintenance of road transport infrastructure; and road safety performance data and measures. These efforts need to be closely coordinated with the Association of Southeast Asian Nations (ASEAN), which has developed national safety action plans.

Pursuing and Strengthening Green Transport Initiatives

The transport sector has accounted for a growing share of the world's greenhouse gas (GHG) emissions. It was the fastest growing fossil-fuel based sector in 2010–2019 globally and was the second largest source of carbon dioxide (CO₂) emissions after the power sector in 2019. Increases in road transport both for passengers and freight, aviation, and shipping were the main factors behind the global growth in CO₂ emissions from 2000–2018. This contrasts with the decline in CO₂ emissions from rail during the same period. Because of its large population and strong economic growth, Asia became the largest emitter of CO₂ from transport in 2011. It had the highest growth in transport CO₂ emissions of 41% among regions from 2010–2019.²⁴ Asia currently accounts for more than one-half of global GHG emissions, with the share of the transport sector at about 31%. Road transport, especially freight transport, is the largest contributor.²⁵ More recent GHG emissions estimates show that transport emissions in Asia have risen by 6.6% from 2022, faster than all other sectors in the region and matching those of Europe and North America combined.²⁶

The transport sector affects and is affected by climate change, with transport investments vulnerable to the effects of climate change. These effects include increases in the frequency and intensity of storms, rising sea levels, changes in precipitation, and floods and droughts. As majority of areas in the GMS are the

most vulnerable to climate change, GMS countries urgently need to strengthen actions toward mitigating and adapting to climate change. Several mitigation and adaptation measures have been proposed and identified, including the use of innovative vehicle technologies, use of sustainable biofuels, improved (climate-resilient) transport infrastructure, and use of policy instruments such as tax incentives for low-carbon products and vice versa for carbon intensive products. Beyond individual projects and initiatives, it will be necessary to promote cooperation among the GMS countries in pursuing strategic and innovative solutions, enhancing the policy and institutional environment to address climate change, and mainstreaming climate change in investment programming under the RIF mechanism.

Increasing Private Sector Participation

Increasing private sector participation has been a continuing challenge to GMS transport sector development, and to the GMS Program. GMS 2030 identified “embracing private sector solutions” as an area in the GMS Program that require innovative approaches. More specifically, GMS 2030 provides that “The GMS Program will shift toward a joint approach with the public and private sectors working together to promote sustainable development... the private sector will not only be involved in financing but also in knowledge and the transfer of technology, especially relating to infrastructure projects... GMS 2030 will enhance the role of the GMS Business Council and organize private sector forums... The GMS Freight Transportation Association will be more actively engaged in promoting logistics and connectivity.”

The GMS FRETA, established in 2012 as part of the GMS Business Council, is the main vehicle in the GMS Program for engaging the private sector in GMS transport development. It is an organization of carriers, freight forwarders, logistics associations, and individual companies interested in facilitating trade and transport in the GMS. Its main objective is to represent the private sector in promoting transport facilitation

²⁴ UNFCC. 202202251552---SLOCAT Transport and Climate Change Global Status Report...Global Overview.pdf

²⁵ ADB. 2024. Innovative Transport Solutions are Key to Addressing Climate Change. *Asian Development Blog*; ADB. 2010. *Sustainable Transport Initiative: Operational Plan*.

²⁶ ADB. 2024. *Asian Transport Outlook. 2024 Climate Tracker for Transport in Asia & Pacific – A Primer for COP29*.

efforts in GMS. It hopes to achieve this objective by helping relevant parties reach agreement on standards and regulations governing freight transport, raising awareness on regional transport and logistics issues, and conducting training on international best practices in transport and logistics. Along these lines, FRETA has been engaged in networking with transport and logistics organizations and firms, conducting training to promote road safety, and establishing the GMS Logistics Database.

For FRETA to function more effectively, it needs to expand membership, improve coordination mechanisms, and sharpen communication tools. This will require continuing support for FRETA's operations. Membership is influenced by the progress in implementing the CBTA, because the ultimate benefit of being a FRETA member is the prospect of streamlined and harmonized cross-border formalities, which can save time and money. It would be difficult to attract more members to FRETA without significant improvement in CBTA implementation. Several measures have been proposed to increase the private

sector's participation in the transport sector. These include expanding consultative mechanisms for the private sector's involvement in project design and implementation and policy dialogue, facilitating the private sector's access to financing, and catalyzing the private sector's participation in transport projects through various public-private partnership (PPP) schemes. How to carry out these measures using innovative approaches is a significant challenge.

Enhancing the Planning and Programming of Transport Projects

Making the RIF, in which the transport sector is a dominant component, an effective instrument for programming and mobilizing financial and technical resources for GMS transport projects, has posed a major challenge. Along this line, the Ha Noi Action Plan and the independent evaluation of ADB's support to the GMS Program recommended actions to strengthen the RIF's process, methodology, and content.²⁷ Their recommendations, which are summarized in Table 8, involve the RIF's selection

Table 8: Recommendations of Assessments of the Regional Investment Framework

The Ha Noi Action Plan	Independent Evaluation of ADB Support to the GMS Program
<ul style="list-style-type: none"> • The RIF's concept, process, and principles will have to be improved to enhance its effectiveness as a programming document. • The strategic thrusts and operational priorities in the HAP would have to be integrated in the RIF's selection criteria to ensure that these are reflected in the GMS projects portfolio. This implies the need for a more universal coverage of the RIF to include ongoing projects that have been initiated as part of previous strategic frameworks, as well as planned projects under successor frameworks. • As a living document, the RIF should be able to reflect changing priorities and the proper sequencing of projects. • Projects funded by the GMS governments as well as by the development partners should also be included in the RIF. 	<ul style="list-style-type: none"> • Prepare a new regional investment framework based on clear and consistent selection criteria. The next RIF should provide a clear rationale for project selection and include only those with strong regional character that provide integrated solutions to address cross-sector and cross-country issues. Selected projects should have clear government commitment to finance and implement. • Strengthen country ownership of the RIF planned financing by ensuring that countries submit projects that are clearly feasible from a financial and implementation perspective. • Widen participation in the RIF process with greater engagement of governments at both national and subnational levels, development partners, and the private sector.

ADB = Asian Development Bank, GMS = Greater Mekong Subregion, HAP = Ha Noi Action Plan, RIF = regional investment framework.
Sources: ADB. 2018. *The Ha Noi Action Plan 2028–2022*; ADB. 2021. *ADB Support for the Greater Mekong Subregion Program, 2012–2020: Performance and Results*.

²⁷ ADB. 2018. *The Ha Noi Action Plan 2028–2022*; ADB. 2021. *ADB Support for the Greater Mekong Subregion Program, 2012–2020: Performance and Results*.

criteria, including alignment with the GMS Strategic Framework, projects' scope for implementation, coverage to include non-ADB-funded GMS projects and ongoing GMS projects, stakeholder participation, and flexibility in adjusting to changing priorities and project circumstances.

Efforts have been taken since RIF 2022 to address the concerns raised in the two assessments. For example, RIF 2022 consolidated the previous *Regional Investment Framework (2013–2022)* and the RIF-IP 2014–2020. In addition to project status updates, the reporting format for the project descriptions added three new entries: (i) key locations and GMS economic corridor alignment, (ii) expected/planned measurable outputs, and (iii) project contact. These were added to strengthen RIF 2022 as a tool for spatial planning along the GMS economic corridors, to assist in measuring GMS program outputs, and to facilitate matching between project proponents and potential funders. The third update of RIF 2022 adjusted the pipeline by reducing the number of

projects from 155 to 125 overall, and from 87 to 65 for transport projects, dropping projects that had not progressed or are not likely to be implemented in the near term.

Major changes in the RIF's project proposal screening process, project criteria, and format of reporting were introduced in RIF 2023–2025 (RIF 2025). It covers three steps beginning with the submission of project proposals by the GMS working groups, followed by the prioritization of project proposals meeting the minimum criteria, and finally the validation of the proposed projects by the GMS national secretariats and the GMS Secretariat. Box 3 shows the set of minimum and aspirational criteria for proposed projects in the RIF. The continuing efforts to strengthen the RIF process and content are notable. It is too early to assess the results of the changes made in terms of the quality of projects and financial resources mobilized—these will depend on the effective application of the revised criteria and process, and the full cooperation of all parties concerned.

Box 3: Minimum and Aspirational Criteria in the Regional Investment Framework

Minimum Criteria

- Projects must have regional impact of spillover effects.
- Projects must be proposed by an active GMS Working Group.
- Projects must be aligned with GMS regional and/or national and sector strategies.
- As applicable, projects may include minimum standards of project readiness and project preparation.

Aspirational Criteria

- Are multicountry projects with regional benefits.
- Support spatial development (economic corridors and/or city clusters).
- Have private sector participation.
- Have strong gender elements.
- Are green projects or support the blue economy.
- Target poverty alleviation/reduction.
- Align with international principles for quality infrastructure.
- Foster digitalization.

Source: ADB.

Summary of Findings

The main findings of the midterm review of TSS 2030 are as follows:

- (i) TSS 2030 continues to be a sound basis for action during the second half of TSS 2030's implementation period. It remains relevant to the development needs and priorities of the GMS countries and the subregion. It is also well-aligned with the vision and goals articulated in the GMS Strategic Framework 2030.
 - (ii) The transport sector had consistently been the dominant sector in the RIF in terms of number of projects and costs, except in RIF 2027. The share of transport projects in terms of number declined from an average of 56.4% in the RIF 2022 series to 20% in RIF 2027. In terms of costs, their share also came down from an average of 86.4% in the RIF 2022 series to 64.3% in RIF 2027. This partly reflects the growing number of mature transport investment projects compared to new projects in the other sectors which are either being proposed or just initiated.
 - (iii) TTF projects had the least number of projects in both the RIF 2022 and the new RIF series. There was only one TTF project in RIF 2025 and RIF 2027 and none in RIF 2026. The slack in formulating and proposing TTF projects is a cause for concern.
 - (iv) The subsector allocation of transport projects in the RIFs manifests the priority that GMS countries have given to improving road links with neighboring countries and enhancing the capacity and efficiency of their road transport networks. They also show the growing importance of railways in complementing the road transport network and establishing cross-border railway links. There is a perceptible increase in investments in ports and inland waterways. Moreover, logistics projects started to take a more prominent role in the more recent RIFs. The foundations for intermodal and multimodal transport are being established.
 - (v) Progress in implementing and financing priority transport investment projects has been good.
- Nineteen (19) transport investment projects were completed during the first half of the TSS 2030 implementation period. Thirty transport investment projects are ongoing, seven of which were carried over from the TSS 2030 list. This means that the implementation of 23 new projects has been initiated since the launch of TSS 2030.
- (vi) Completed and ongoing transport investment projects have a combined cost of \$50.9 billion with about one-fourth accounted for by completed transport investment projects. GMS governments, especially the PRC and Thailand accounted for the largest share of financing of both completed and ongoing transport investment projects.
 - (vii) Completed and ongoing projects are likely to deliver about 5,000 km of constructed and/or rehabilitated roads; 13 new bridges; 4,415 km of railway; and eight upgraded ports. They will further strengthen road transport connectivity along the GMS economic corridors and bring the GMS countries closer to interconnecting the railway system of GMS countries and establishing a subregional railway network.
 - (viii) Developments in the railway subsector indicate that the GMS countries are gradually moving toward interconnectivity of their national rail networks. Of the nine priority rail links endorsed by the GMRA Board in 2015, two have been physically completed, two are being developed, and three of the remaining five have been the subject of a prefeasibility or full feasibility study.
 - (ix) The momentum in CBTA implementation created by the Early Harvest mechanism was disrupted by the COVID-19 pandemic in 2020. The Early Harvest MOU expired together with all issued permits. In 2023, borders reopened, and in 2024, the Early Harvest MOU was extended to the end of 2026. Additional routes and border crossing were also added under Protocol 1 of the extended MOU.
 - (x) Progress in GMS transport development has been good, but issues and challenges still need to be addressed. Those deemed to be of high priority, and thus require more emphasis and attention in the TSS 2030 update are:

- (a) **Accelerating implementation of the CBTA.** Need to (1) expedite, expand, and institutionalize implementation of the Early Harvest mechanism; (2) harmonize systems, procedures, and practices among GMS countries; (3) ensure that cross-border facilities and equipment are upgraded where necessary; (4) provide more training, capacity support, and knowledge sharing to personnel at border crossings and to transport operators; and (5) mobilize more support for TTF initiatives.
- (b) **Promoting cross-border railway links.** Need to (1) achieve optimal network development with appropriate standards and technology; (2) mobilize substantial financing for rail projects; (3) facilitate cross-border trade by rail; and (4) develop a permanent, legal, intergovernmental GMRA.
- (c) **Supporting logistics and intermodal and multimodal transport development.** Need to (1) promote intermodal and multimodal transport development through improved road-rail-port-airport connectivity, and closer integration of planning and implementing different modes of transport; (2) improve the policy and regulatory environment governing logistics investment and operations; (3) promote investment in logistics investment and services; (4) expand human resources with the necessary skills in the logistics industry; and (5) maximize the use of ICT in logistics operations and services.
- (d) **Enhancing road safety.** Need to (1) strengthen subregional cooperation on road safety in such areas as standards of safety, design, construction, operation and maintenance of road transport infrastructure, and road safety data and measures; and (2) integrate road safety measures in transport projects.
- (e) **Pursuing and strengthening green transport initiatives.** Need to (1) more vigorously pursue mitigation and adaptation measures, including the use of innovative vehicle technologies, the use of sustainable biofuels, improved (climate-resilient) transport infrastructure, and the use of policy instruments such as tax incentives for low-carbon products and vice versa for carbon intensive products; and (2) promote cooperation among the GMS countries in pursuing strategic and innovative solutions, enhancing the policy and institutional environment to address climate change, and mainstreaming climate change in financial planning and investment programming under the RIF mechanism.
- (f) **Increasing private sector participation.** Need to (1) strengthen FRETA's organization and operations, (2) expand consultative mechanisms for the private sector's involvement in project design and implementation and policy dialogue, (3) facilitate the private sector's access to financing, and (4) catalyze the private sector's participation in transport projects through various PPP schemes.
- (g) **Strengthening the planning and programming of transport investment projects.** Need to (1) sustain efforts to improve the RIF system and process; (2) strictly apply the prescribed criteria for including transport projects in the RIF to maximize subregional benefits; and (3) reinstate some of the information contained in the previous RIF series, such as more specific information on the availability of financing and information on ongoing projects to provide a more comprehensive view of the progress being made by projects in the RIF.

Conclusion

The GMS countries have performed well in implementing GMS transport projects. They have made substantial progress in developing transport infrastructure, especially road infrastructure and establishing physical links among them. The GMS economic corridor road transport network has been completed and has further been upgraded and expanded. All cross-border road transport links along the East–West, North–South, and Southern Economic Corridors have been established. GMS capitals, industrial and commercial centers, and major airports and seaports are now interconnected by road. Cross-border railway links are gradually being established. However, there are remaining issues and challenges that need to be addressed to realize the TSS 2030’s vision of a seamless, efficient, reliable,

and sustainable GMS transport system.²⁸ Based on the midterm review of TSS 2030, the TSS 2030 update should give priority attention and incorporate adjustments and refinements in the approaches and actions dealing with the following issues and challenges:

- (i) Accelerating implementation of the CBTA.
- (ii) Promoting cross-border railway links.
- (iii) Supporting logistics development and intermodal and multimodal transport.
- (iv) Enhancing road safety.
- (v) Pursuing and strengthening green transport initiatives.
- (vi) Increasing private sector participation.
- (vii) Enhancing the planning and programming of transport projects.

²⁸ The *Assessment of Greater Mekong Subregion Economic Corridors* (footnote 6) concluded that “...the country reports confirm that the GMS countries have built a firm foundation for creating vibrant economic corridors. However, full benefits will be obtained only if the next steps are taken to further strengthen this foundation, and to transform transport corridors into fully functioning economic corridors.”



IV. GREATER MEKONG SUBREGION TRANSPORT SECTOR STRATEGY 2030 UPDATE

Highways, ports, railways, and cross-border bridges in the Greater Mekong Subregion. Transport and trade infrastructure across the subregion strengthens regional connectivity by facilitating efficient movement of goods and people.

Evolving Environment for Greater Mekong Subregion Transport Sector Development

TSS 2030 cited four developments that are of direct significance to GMS transport sector development at the time of its launch in 2018:

- (i) **Opening up of Myanmar.** Myanmar is strategically located, serving as a land bridge between Southeast Asia and South Asia, and between the PRC and South Asia. The opening up of Myanmar has vastly improved the potential for increased trade and investment among these regions, and between Myanmar and the other GMS countries. More efforts are necessary to address the bottlenecks in the Myanmar component of the GMS East–West Economic Corridor (EWEC) and North–South Economic Corridor (NSEC) to realize this potential.
- (ii) **Agenda toward full ASEAN integration under ASEAN 2025.** The Master Plan on ASEAN Connectivity 2025 is aimed at guiding actions to improve physical, institutional, and people-to-people links in the region. The ASEAN Transport Strategic Plan provides guidance on regional policy covering land, air and maritime transport, sustainable transport, and transport facilitation. Because all GMS countries are members of ASEAN, except the PRC, GMS transport development—its strategy, programs, and measures to ensure consistency and complementarity should be continuously and closely coordinated with ASEAN.
- (iii) **Belt and Road Initiative.** The Belt and Road Initiative (BRI) was launched by the PRC to promote and expand connectivity and cooperation among the PRC, Southeast Asia, South Asia, Central Asia, Europe, and Africa. The BRI has increased potential financing sources for priority GMS transport projects, including from the Asian Infrastructure Investment Bank. Pursuing such new funding opportunities will require the strengthening of institutional capacity and individual expertise in the planning, preparation, and implementation of GMS transport programs and projects.
- (iv) **Growing number of regional cooperation and integration initiatives.** Besides ASEAN, there are several other regional and subregional initiatives that involve all or subsets of GMS countries, e.g., Lower Mekong Initiative, Indonesia–Malaysia–Thailand Growth Triangle, Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy, Mekong River Commission, Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation.

Because cooperation in the transport sector is a common component of most of these initiatives, close coordination between them and the GMS is essential to promote synergy and ensure consistency.

Six years after the launch of TSS 2030 in 2018, the setting for GMS transport sector development needs to be revisited. The developments named by TSS 2030 remain relevant and important, with the situation in Myanmar vastly changing since 2020. Other trends and developments have emerged, posing challenges to GMS transport sector development. Those deemed to have a direct bearing on the sector's development are: (i) COVID-19 and other pandemic risks, (ii) digitalization and technological development, (iii) climate change and sustainable development, and (iv) urbanization.

(i) **COVID-19 and other pandemic risks.**

The COVID-19 pandemic has exposed the vulnerability of supply chains to disruptive shocks and stress.²⁹ The transport sector and associated logistics services were unprepared to deal with these disruptions—bottlenecks in logistics services, delays in the delivery of essential goods, congestion in ports and other logistics centers, disruptions in transport operations and services, and increased transport costs. The pandemic has underscored the need to take proactive action to make supply chains, transport networks and operations, and logistics services resilient to disruptive shocks such as those from the COVID-19 pandemic. GMS countries should strengthen supply chains to be able to adequately respond and adjust to potential disruptive shocks. Measures include increasing collaboration and networking among actors in the supply chain, establishing contingency and business continuity plans, investing in digital supply chain

technologies, and adopting more flexible supply chain arrangements that can facilitate response to disruptive events.

(ii) **Technological change and digitalization.**

Technological change and digitalization have taken place at a rapid pace.³⁰ The major advances include mobile and digital technologies, artificial intelligence, robotics, and the Internet of Things. Digitalization in transport and logistics can help raise efficiency, reduce costs, and expand services. With rising costs, improving digital capability can also help in remaining viable and competitive. The adoption of digital supply chain technology can enhance resilience to disruptive shocks, with the COVID-19 pandemic underscoring the need for digitalization in uncertain and volatile situations. Digitalization offers many opportunities, but it has also downside risks in terms of the possible carbon footprint impact and the increased need for cybersecurity. Digitalization in the GMS is uneven, with some countries making progress and others lagging due to policy and regulatory issues, lack of infrastructure and shortage of the requisite skills.³¹ In the GMS transport sector, increased collaboration is needed to obtain the benefits of technological progress. For example, greater use of digital technology can help GMS countries facilitate cross-border trade and investment, improve logistics services, and address bottlenecks in urban transport. At the same time, it will be necessary for GMS countries to mitigate associated risks and potential negative impacts.

(iii) **Climate change and sustainable development.**

Climate change is not new in the development agenda, but the need to address it has become more urgent. This is important to developing Asia, which is greatly vulnerable to climate change and its potentially severe impact on the social and economic well-being of people

²⁹ World Economic Forum. How the COVID-19 pandemic has changed supply chain practices; McKinsey. 2021. How COVID-19 is reshaping supply chains; J. Moosavi, AM Fathollahi-Fard, MA Dulebenets. 2022. Supply chain disruption during the COVID-19 pandemic: Recognizing potential disruption management strategies. *Int J Disaster Risk Reduct.* 1 (75) p. 102983; O. Touat. 2024. Global Supply Chain Disruptions: Lessons From the COVID-19 Pandemic Crisis. In: A. Mishrif, (eds). *Business Resilience and Market Adaptability. The Political Economy of the Middle East.* Palgrave Macmillan.

³⁰ ADB. 2024. *Strategy 2030 Midterm Review: An Evolution Approach for the Asian Development Bank*; GMS and ADB. 2019. *Greater Mekong Subregional Program Strategic Framework 2030.*

³¹ The main challenges and constraints to digitalization are identified and discussed in ADB. 2024. *Greater Mekong Subregion Digitalization Action Plan (2025–2027).*

in the region.³² GMS countries are vulnerable to climate change impacts.³³ The accelerating climate crisis has already become evident with more frequent, extreme, and volatile weather conditions regionally and globally. GHG emissions from Asia have grown faster than the global average, so that its share of global GHG emissions increased from 22% in 1990 to 44% in 2019. Without any change in policies, this share is likely to remain until 2050. The transport sector has been the major contributor to the growth in CO₂ emissions, with transport emissions from Asia growing faster than those from other sectors in the region. Currently, Asia's progress in decarbonization is falling behind targets on emissions, thus requiring more urgent action. For their part, GMS countries need to make resolute efforts to combat climate change and pursue green initiatives individually and collectively, with the GMS transport sector playing a critical role.

- (iv) **Rapid urbanization.** GMS has a relatively low level of urbanization, but the rate of urbanization has been growing at 3%–5% per year, which is higher than the world average.³⁴ At this rate of increase, more than 40% of the GMS population will be residing in cities by 2030. Urbanization plays an important role in transforming the subregion's economy from mainly agriculture to industry (manufacturing, construction, commerce, financial and nonfinancial services), providing higher value-added jobs to city dwellers. They serve as the engine of growth in their respective economies. However, rapid urbanization has run into many problems which include those in transport, housing, electric power, water supply and sanitation, waste management, and urban planning. In transport, increasing traffic congestion is a common concern fueled by the shift toward the use of private vehicles for transport. Public transport

systems have not been able to cope with the increase in demand, resulting in deteriorating transport services, worsening air pollution, and increasing CO₂ gas emissions. The development of a sustainable urban transport system in the GMS will require (i) plans, policies, and institutional mechanisms for sustainable urban transport; (ii) development of affordable and efficient public transport and nonmotorized transport; and (iii) support for lower emission modes of transport.

Strategic Framework

Vision. The TSS 2030 vision of a seamless, efficient, reliable and sustainable GMS transport system remains relevant and appropriate to GMS transport development. Its realization will make a substantial contribution toward achieving the GMS 2030 vision of a more integrated, prosperous, sustainable and equitable subregion. In accord with GMS 2030, the approach toward the TSS 2030 vision will be imbued with the central principles of sustainability, integration, and inclusion and crosscutting themes involving policy dialogue, capacity building, and private sector participation. Innovation, including the use of digital technology has been added as a central and crosscutting theme following the adoption by the GMS countries of the *GMS Innovation Strategy for Development 2030*.³⁵

Strategic thrusts and initiatives. TSS 2030 specified six strategic thrusts or directions to achieve its vision: (i) completing the economic corridor network and improving links with South Asia and Southeast Asia, (ii) facilitating cross-border transport, (iii) strengthening intermodal links, (iv) promoting logistics development, (v) improving road asset management, and (vi) enhancing road safety. The TSS 2030 update recasts and refines these

³² Under a high emission scenario, climate change could result in losses in gross domestic product (GDP) of 24% in Asia as a whole, and 30% in Southeast Asia where five of the GMS countries are located, by 2100. See ADB. 2023. *Asia in the Global Transition to Net Zero: Asian Development Outlook 2023 Thematic Report*.

³³ The European Commission's Climate Risk Index indicates that GMS countries face medium to high vulnerability. Cited in GMS. 2022. *GMS 2030 Strategic Framework for Accelerating Climate Action and Environmental Sustainability*.

³⁴ ADB. 2018. *Greater Mekong Subregion Long-Term Strategic Framework 2030*.

³⁵ ADB. 2024. *The GMS Innovation Strategy for Development 2030*; ADB. 2024. *GMS Digitalization Action Plan (2025-2027)*.

strategic thrusts to address the key issues and challenges identified in the midterm review, as follows:

- (i) Accelerating implementation of the CBTA.
- (ii) Promoting cross-border railway links.
- (iii) Supporting logistics development and intermodal and multimodal transport.
- (iv) Promoting road safety.
- (v) Pursuing and strengthening green transport initiatives.
- (vi) Increasing private sector participation.
- (vii) Enhancing the planning and programming of transport projects.

The first three—accelerating implementation of the CBTA, promoting cross-border railway links, and supporting logistics development and intermodal and multimodal transport—are essential in developing a seamless and efficient transport system. They also respond to the need to have resilient and robust supply chains on account of possible disruptions from such events as COVID-19 and other pandemics. In turn, promoting road safety and pursuing and strengthening green transport initiatives are necessary to ensure reliability and sustainability of the transport system. Greater private sector participation will help improve the effectiveness and level of interventions across all strategic thrusts. Finally, enhancing the planning, programming, and monitoring of transport projects will help maximize the contribution of interventions in achieving the TSS 2030 vision. Many elements of these strategic thrusts and initiatives are regional public goods because they benefit the GMS countries collectively. They include initiatives addressing technological change and digitalization, climate change and sustainable development, and urban development.³⁶

Accelerating implementation of the CBTA.

The objective of this strategic thrust is the effective, expanded, and sustained implementation of the

CBTA so that (i) trucks, drivers, and goods can go to any GMS country; (ii) trucks with goods can transit any GMS country without reloading or transloading; (iii) clearance times at border crossings are reduced through coordinated border management; and (iv) institutional coordination among agencies at and behind the borders is improved. This will open markets and borders for transport services; promote the free movement of people, goods, and vehicles within the GMS; and contribute toward developing a subregion that is more integrated as a production base and market. To achieve this objective, the following initiatives need to be pursued:

- (i) Expediting, expanding, and institutionalizing implementation of the Early Harvest mechanism of the CBTA.³⁷
- (ii) Providing more benefits to holders of GMS Road Transport Permits and temporary admission documents.
- (iii) Harmonizing and aligning systems, regulations, procedures, and practices governing cross-border transport in GMS countries.
- (iv) Digitalizing transport and trade services and documents, including GMS cargo tracking platform, Internet of Things, and transport management systems.³⁸
- (v) Upgrading cross-border facilities and equipment in less developed BCPs.
- (vi) Providing more training, capacity support, and knowledge sharing to personnel at border crossings and to transport operators, including further development of the corridor handbook.
- (vii) Conducting trial runs involving other GMS economic corridor routes.
- (viii) Formulating a pilot project on TTF involving a major economic corridor route such as a trial run route under the Early Harvest mechanism

³⁶ Cooperation in urban development in the GMS Program has been guided by the *Greater Mekong Subregion Urban Development Strategic Framework 2015–2022*, which has four crosscutting themes—green development and climate change resilience, disaster risk management, inclusive development, and competitiveness. Specific programs include infrastructure provision and upgrading in GMS corridor towns and other key urban centers.

³⁷ The issue of a GMS transport permit holder entering a GMS country being required to be a FRETA member should be resolved. The membership of FRETA in the committee granting permits under the CBTA should be considered.

³⁸ This is being addressed by the GMS Working Group on Trade and Investment. See GMS Cooperation Framework on Digitalization of Trade Documents. The effort should include an assessment of the connectivity between GMS digital infrastructure and national electronic systems.

to address TTF bottlenecks in a cooperative and integrated manner, with lessons learned to be applied to other economic corridor routes.

- (ix) Mobilizing financial and technical support for TTF initiatives.

Promoting cross-border railway links. This strategic thrust is aimed at achieving interconnection and interoperability of the GMS railway system and promoting efficient, safe, and environmentally sustainable rail transport of goods and people within and beyond the GMS. This will help advance multimodal transport in the GMS, provide economic benefits for bulk cargo, improve transport connectivity within the GMS, with the rest of the PRC, and with South Asia and Southeast Asia, and help combat climate change, with rail transport having the least CO₂ emissions among transport modes. The achievement of this objective will require the upgrading and expansion of the national railway networks of GMS countries, establishment of railway links with neighboring countries, TTF on rail transport, and effective institutional arrangements for coordination and implementation. More specifically, this strategic thrust will be addressed through the following initiatives:

- (i) Promoting optimal network development with appropriate standards, technology and operations.
 - (a) Setting GMS railway standards.
 - (b) Gradually shifting from diesel-powered to electricity-powered rolling stock.
 - (c) Modernizing GMS railway infrastructure and rolling stock.
 - (d) Expediting the implementation of viable railway projects through the preparation of feasibility and prefeasibility studies for proposed projects.
- (ii) Facilitating cross-border transport and trade by rail.
 - (a) Finalizing and ratifying the FA-CBRTC.
 - (b) Negotiating and adopting the Annexes to the FA-CBRTC.
- (iii) Developing a permanent, legal, intergovernmental GMRA.

- (a) Fully operationalizing the GMRA Secretariat with dedicated staff, secure funding, and formal operating procedures.
- (b) Developing the GMRA into a permanent, legal, and intergovernmental body.

- (iv) Attracting private sector financing for priority railway projects from both domestic and foreign sources.

Supporting logistics and intermodal and multimodal transport development.

This strategic thrust helps the TTF and transport infrastructure to achieve the TSS 2030 vision of a seamless and efficient transport system, and in the process, helps to advance economic integration in the GMS and improving the subregion's competitiveness. Logistics and intermodal and multimodal transport development are essential in increasing intra-GMS trade and the subregion's trade with the rest of the world. A well-functioning logistics system and intermodal and multimodal transport provides flexibility to the supply chain, as well as gains in efficiency via the availability of transport options that maximize the strengths of the various modes of transport. They enable goods to be delivered from their source to the end-user in a more efficient, faster, and cheaper way. As an integral part of the supply chain, this strategic thrust also aims to enhance the resiliency of logistics operations to disruptive events like the COVID-19 pandemic. The development of logistics and intermodal and multimodal transport in the GMS will involve the following initiatives:

- (i) Improving road-rail-port-airport connectivity.
- (ii) Promoting the development of other modes of transport, especially rail transport.
- (iii) Improving the policy and regulatory environment governing investment in the logistics industry.
- (iv) Promoting domestic and foreign investment in logistics investment and services.
- (v) Expanding human resources with the necessary skills in the logistics industry.
- (vi) Digitalizing logistics operations and services.
- (vii) Integrating and coordinating the planning for the development of logistics and different modes of transport.

- (viii) Developing cross-border logistics clusters at key border crossings along the GMS economic corridors.

Enhancing road safety. This strategic thrust aims to ensure that the GMS transport system remains safe so that it maintains a good level of efficiency, reliability, and sustainability across the subregion. Road safety is the focus of TSS 2030 because it is the principal means of transport and road traffic crash is one of the main causes of death and injuries in the subregion, with rapid urbanization exacerbating the situation. The need for road safety is well-recognized by GMS countries, and each of them has road safety strategies and action plans. It is a global concern exemplified by the World Health Organization's 2nd Decade of Action for Road Safety (2021–2030), and regionally as in the Road Safety Initiatives under ASEAN's Transport Strategic Plan. In the GMS, the strategic thrust toward improving road safety across the subregion will be pursued through the following initiatives:³⁹

- (i) Collaborating more closely in key aspects of road safety, including
 - (a) Standards of safety.
 - (b) Design, construction, operation and maintenance of road transport infrastructure.
 - (c) Intelligent transport system technology.
 - (d) Vehicle safety technology.
 - (e) Road safety data and monitoring system.
- (ii) Integrating road safety measures in GMS transport projects.

Pursuing and strengthening green transport initiatives. This strategic thrust follows through the direction indicated in GMS 2030 to mainstream green initiatives in all aspects of GMS activities. In the transport sector, this requires (i) implementing GHG mitigation measures, (ii) supporting resilient and environmentally friendly road transport and urban infrastructure, and (iii) strengthening the policy and regulatory setting to make it more conducive to

environmentally sustainable solutions. GMS countries' green initiatives efforts in the transport sector are embodied in their nationally determined contributions (NDCs) (Appendix 5). Some examples of NDCs are: in Cambodia, shifting long distance freight movement from trucks to rail; in the PRC, fostering urban low-carbon transportation system; in the Lao PDR, the Boten–Vientiane railway, which is already operational; in Myanmar, inland marine sector for GHG emission reduction; in Thailand, the Action Plan for Greenhouse Gas Emission Reduction in the Transport Sector (2021–2030); and in Viet Nam, improving energy efficiency in transportation.⁴⁰

This strategic thrust will require cooperation among the GMS countries in pursuing strategic and innovative solutions toward a resilient and sustainable transport system. It will involve the following initiatives:

- (i) Supporting GHG emission goals in the transport sector.
- (ii) Promoting the use of innovative vehicle technologies and sustainable biofuels.
- (iii) Promoting investment on electric vehicle charging stations and service centers at the borders, ports, airports, rail and other transport depots.
- (iv) Promoting the use of “environment-friendly” policy instruments such as tax incentives and special financing arrangements for low-carbon products and disincentives for carbon intensive products.
- (v) Mainstreaming environment and sustainable development in financial planning and investment programming of transport projects under the RIF mechanism.
- (vi) Designing and implementing resilient and environment-friendly transport infrastructure, including urban transport infrastructure.

Increasing private sector participation. As set forth in GMS 2030, this strategic thrust aims not only to increase private sector financing of GMS transport projects, but also to leverage the private sector's

³⁹ World Health Organization. 2021. *Decade of Action for Road Safety 2021–2030*. Association of Southeast Asian Nations. 2016. *ASEAN Transport Strategic Plan 2016–2025*.

⁴⁰ Ministry of Transport of Thailand. 2021. *Action Plan for Greenhouse Gas Emission Reduction in the Transport Sector (2021–2030)*.

knowledge, expertise, and familiarity with the policy, regulatory and operational issues they face both as users of transport infrastructure and providers of transport services.⁴¹ The private sector can serve as drivers of innovation and investment, policy and regulatory reform, enhanced efficiency and resilience, and client-oriented approaches. As the main vehicle in the GMS Program for engaging with the private sector in the transport sector, FRETA plays a critical role in GMS transport development, such as in advocating policies, regulations and practices to facilitate cross-border transport and trade, networking and collaborating with GMS national transport and logistics associations, training in the adoption of best practices in transport and logistics, and establishment of a GMS transport and logistics database. The initiatives that will be pursued toward this strategic thrust in the GMS transport sector are as follows:

- (i) Enhancing FRETA's effectiveness
 - (a) Strengthening organization and operations, including mobilization of funding to each GMS country FRETA chapter.
 - (b) Expanding membership.
 - (c) Improving coordination mechanisms.
 - (d) Sharpening communications tools.
 - (e) Conducting an annual FRETA forum.
 - (f) Intensifying advocacy role, including for measures to increase the competitiveness of cross-border operations.
 - (g) Intensifying training activities.
- (ii) Improving and expanding consultative mechanisms for the private sector's involvement in policy dialogue, and project design and implementation.
- (iii) Clarifying the role of the private sector in investing and exploiting logistics services and industrial zones along the GMS economic corridors
- (iv) Facilitating the private sector's access to financing.
- (v) Catalyzing the private sector's participation in transport projects through various PPP schemes, including the establishment of transparent and feasible PPP mechanisms for

developing logistics infrastructure at the main border crossings along the GMS economic corridors.

- (vi) Strengthening mechanisms for collaboration among various public and private transport and logistics organizations in the GMS countries.

Strengthening the planning and programming of transport projects.

This strategic thrust is aimed at helping ensure that GMS transport sector projects make the most contribution to the goals of TSS 2030 and more broadly to those of GMS 2030.

The transport sector accounts for a major part of the RIF; thus, enhancing the planning and programming of transport projects can increase the effectiveness of the RIF. The initiatives to be pursued to achieve this strategic thrust are as follows:

- (i) Sustaining efforts to improve the process and system for prioritizing transport projects in the RIF.
- (ii) Applying strictly the prescribed criteria for including transport projects in the RIF to maximize subregional benefits, including their alignment with TSS 2030 and GMS 2030 objectives.
- (iii) Establishing a system for tracking the progress of implementing projects in the RIF which would provide a comprehensive view and feedback on interventions.

Action Plan

Operational Priorities

To achieve the vision and strategic thrusts of the TSS 2030 update, an action program consisting of specific project interventions should be implemented. TSS 2030 specifies operational priorities in seven transport subsectors and thematic areas around which project interventions are formulated and implemented. These operational priorities help to identify and prepare transport projects for inclusion in the RIF. The operational priorities in TSS 2030 were reviewed to ensure consistency with and responsiveness to

⁴¹ ADB. Strategy on Private Sector Engagement in the GMS Program. Forthcoming.

the emerging developments and strategic thrusts and initiatives. Majority of the operational priorities are still relevant and appropriate, but some require adjustment to align them with the updated strategic thrusts and initiatives. The operational priorities of the TSS 2030 update are presented below.

Roads

- (i) Upgrading sections requiring improvement in the original alignment of EWEC in Myanmar and of NSEC in Cambodia.
- (ii) Upgrading the new routes in EWEC and NSEC in Myanmar and the Lao PDR.
- (iii) Strengthening links among key transport interchange nodes like ports, airports, and rail stations.
- (iv) Improving links between secondary roads and main corridor routes.
- (v) Promoting the use of innovative vehicle technologies and sustainable biofuels.
- (vi) Designing and implementing resilient and environmentally friendly road transport infrastructure.
- (vii) Establishing effective approaches to road asset management and financing.
- (viii) Implementing mechanisms for strengthening the implementation and coordination of road safety measures.

Railway

Sustaining the operation of the GMRA and developing it into a permanent, legal, intergovernmental body.

- (i) Completing the missing railway links to interconnect the subregion.
- (ii) Gradually shifting from diesel-powered to electricity-powered rolling stock.
- (iii) Renewing and replacing rolling stock.
- (iv) Modernizing systems for train operation, user service, and management support, including the use of digital technology.

- (v) Improving asset management capacity.
- (vi) Facilitating cross-border transport and trade by rail.

Ports and Inland Waterways

- (i) Developing and/or increasing the capacity of major deep seaports.
- (ii) Promoting the use of coastal shipping and inland waterways for domestic and international trade by providing and improving support facilities and services.
- (iii) Improving landside seaport access.
- (iv) Improving port operations, policies and regulations, including the use of innovative technology.
- (v) Designing and implementing resilient and environmentally friendly water transport infrastructure.

Air Transport

- (i) Developing and/or improving secondary airports.⁴²
- (ii) Filling the missing gaps in the intra-GMS air network.⁴³
- (iii) Increasing integration of second and third tier destinations into regional and international airports.⁴⁴
- (iv) Designing and implementing resilient and environmentally friendly air transport infrastructure.
- (v) Increasing the use of airports in border areas in the GMS.

Logistics

- (i) Improving road-rail-port connectivity.
- (ii) Establishing inland dry ports with road and rail interface.
- (iii) Establishing direct feeder service between ports and inland container depots (ICDs), and integrating ICDs into the rail network.

⁴² Mekong Tourism Coordinating Office. 2017. *Mekong Trends: Air Transport Snapshot – A Bright Future*.

⁴³ For example, there are no direct flights between the Lao PDR and Myanmar. Chiang Rai and Udon Thani in Thailand can support regional connections. Bagan and Mawlamyine in Myanmar can benefit from regional flight connections.

⁴⁴ Some examples are Dalat, Halong and Hue in Viet Nam; Khon Kaen and Ubon Ratchathani in Thailand; and Bagan, Kentung, and Mawlamyine in Myanmar; and Battambang and Koh Kong in Cambodia.

- (iv) Promoting the logistics industry through deregulation and increased foreign participation.
 - (v) Encouraging investment in logistics hubs, ICDs, inland dry ports, and cold storage facilities.
 - (vi) Improving the interface between the public and private sectors in logistics development, including through the strengthening of FRETA.
 - (vii) Promoting human resource development programs to support GMS logistics development.
 - (viii) Increasing the use of ICT and digital technology in logistics management.
 - (ix) Streamlining terminal and port operation.
- (iv) Adopting mechanisms for coordinating transport programs and projects with the development plans of major cities and towns along the economic corridors.
 - (v) Designing and implementing climate-resilient and climate-friendly urban transport infrastructure, including use of innovative technologies.

Transport Facilitation

- (i) Facilitating implementation of the CBTA by:
 - (a) Expediting, expanding, and institutionalizing implementation of the Early Harvest mechanism.
 - (b) Harmonizing and aligning systems, regulations, procedures, and practices governing cross-border transport and trade in GMS countries.
 - (c) Digitalizing documentation requirements in coordination with ASEAN and other concerned organizations.
- (ii) Upgrading cross-border facilities.
- (iii) Improving border management.
- (iv) Enhancing institutional mechanisms for implementing transport facilitation measures at the central and local levels.
- (v) Strengthening the interface between transport facilitation and trade facilitation initiatives.
- (vi) Conducting capacity building programs to raise awareness, knowledge, and skills of central, local, and border officials in TTF.

Urban Transport

- (i) Developing affordable and efficient public transport and nonmotorized transport.
- (ii) Supporting lower emission modes of transport.
- (iii) Constructing circumferential and bypass roads around major urban centers along the corridors.

Updated Pipeline of Transport Projects

The pipeline of transport projects in the TSS 2030 update consists of (i) ongoing transport investment projects (Appendix 3), (ii) proposed projects in RIF 2027, and (iii) projects that have not yet been included in the RIF but may be proposed for inclusion subject to the existing RIF process and criteria. Projects that have not been included but may be proposed include major investment projects that have been recently announced and/or initiated by some GMS countries and project concepts that may be developed further and proposed to be included in the RIF.

Ongoing transport projects. There are 34 ongoing transport investment projects as of the end of 2024, with the largest number being road and bridge projects at 26, followed by 5 railway projects, 2 border-crossing improvement projects, and 1 port project. With a combined cost of \$42.7 billion, they are expected to improve connectivity, expand the capacity and increase the efficiency of the GMS road network, help in interconnecting the GMS railways, and promote intermodal and multimodal transport. All projects involve individual GMS countries except for two cross-border projects covering the Lao PDR and Thailand, and Myanmar and Thailand. Based on the first to the fourth update of RIF 2022, there are five ongoing TA projects in the GMS transport sector, with one involving the Lao PDR, three involving Myanmar, and one covering all GMS countries.

Proposed transport projects in RIF 2027. RIF 2027 has 34 proposed transport projects of which 23 are investment projects and 11 are TA projects (details are in Appendix 4).⁴⁵ Of the 34 proposed

⁴⁵ Two investment projects include a TA component.

projects, 18 are on roads and bridges, 6 are in logistics, 5 are in railways, 4 are in air transport, and 1 is in ports and inland waterways. The total cost of the projects is \$16 billion, with railway projects being the largest with 70.4% followed by roads and bridges with 28.3% of the total cost. Ports and inland waterways, logistics, and air transport each account for less than 1% of the total cost. There are two major railway projects in RIF 2027 with a combined cost of \$11.2 billion:

- (i) Vientiane Thakhek–Mu Gia Railway Project (452 km) Mu Gia–Vung Ang (103 km) with a cost estimate of \$1.6 billion; and
- (ii) Construction of High-Speed Railway for Regional Connectivity (Section 2: Nakhon Ratchasima–Nong Khai, 357 km) with a cost estimate of \$9.6 billion.⁴⁶

The TA projects in the transport sector in RIF 2027 consist of six projects for preparing feasibility studies, two projects on logistics development, and one project each on road safety, national railway policy framework, and air transport. There is only one proposed TTF project in RIF 2027.

Other GMS transport projects. RIF 2027 only includes proposed transport projects as of 2024. New projects could be added and listed projects could be dropped from the pipeline in the process of rolling over the RIF in subsequent years. For this reason, other GMS projects that could be included in later years, subject to RIF criteria, are also listed in the updated project pipeline. The first set of projects are major transport investment projects that are not in the RIF but are expected to help significantly in enhancing connectivity in the GMS and beyond. The second set of projects are mainly TA project concepts that address key strategic initiatives and operational priorities of the TSS 2030 update that may be developed further. The following are examples of the first set of projects:

- (i) North–South Express Railway project: This is a proposed new railway connecting Ha Noi in the north and Ho Chi Minh City in southern Viet Nam.

It is a 1,541 km long, double-tracked standard gauge railway. It is part of the Singapore–Kunming Railway Link (SKRL) and the Trans-Asian railway network.

- (ii) Vientiane–Ha Noi Expressway project: This is a major infrastructure project intended to enhance connectivity between the capital cities of Vientiane in the Lao PDR and Ha Noi in Viet Nam. It supports the GMS initiative toward improving intercity links.

The second set of projects will complement investment projects in the RIF and help in the align software aspects of transport development with the development of hardware. They also address the lack of TA projects in the transport sector in the RIF, especially in TTF. The main project leads along these lines are:

- (i) **Pilot project on TTF along a GMS economic route.** This will involve all aspects of TTF along a selected GMS economic corridor route covering two or three countries. It can be built on and around the trial run on the Early Harvest mechanism conducted in 2024 and include trial runs on other selected GMS economic corridor routes.
- (ii) **Supporting TTF in the GMS.** This will build on the results of an earlier TA on TTF to help accelerate the implementation of the CBTA—Support for Implementing the Action Plan for Transport Facilitation in the GMS.⁴⁷ The components of this proposed TA can include harmonization and alignment of systems, regulations, procedures, and practices governing cross-border transport and trade in GMS countries; digitalizing trade documents in coordination with ASEAN and other concerned organizations, including electronic licensing; upgrading cross-border facilities and equipment in less developed BCPs; training, capacity support, and knowledge sharing involving personnel at border crossings and transport operators, including further development of the corridor handbook; monitoring and reporting on

⁴⁶ Part of the Kunming–Vientiane–Bangkok railway link.

⁴⁷ ADB. 2020. *Support for Implementing the Action Plan for Transport and Trade Facilitation in the Greater Mekong Subregion: TA Completion Report.*

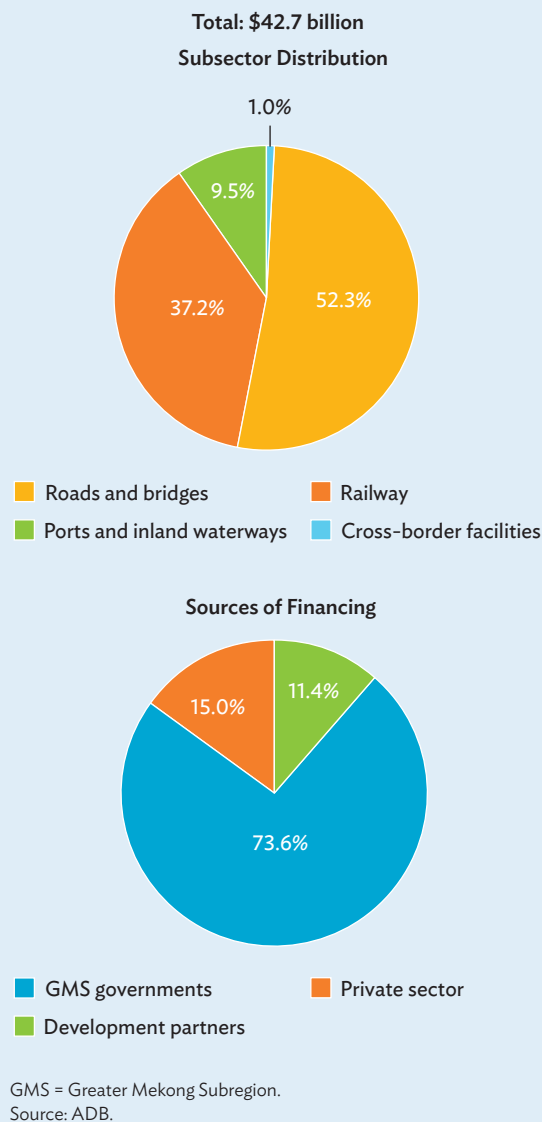
the progress of the Early Harvest mechanism, including cross-border data sharing; and strengthening of FRETA and promoting private sector participation in GMS transport development.

- (iii) **Connecting the Railways of the GMS (Phase 3):** This will extend Phase 2 of the TA and will help sustain efforts toward developing priority railway links in the GMS, facilitating transport and trade via rail, and strengthening the role, operations, and standing of GMRA.
- (iv) **Establishing a monitoring system for tracking indicators in the GMS results framework of which the transport sector is a major component.** This will require the implementation of a system for collecting, consolidating, and reporting of indicators in the GMS results framework, including those in the TSS 2030 update. This system should be practical, implementable, and sustainable. It will require cooperation and coordination among the STF and other GMS working groups, the GMS Secretariat, and GMS countries.

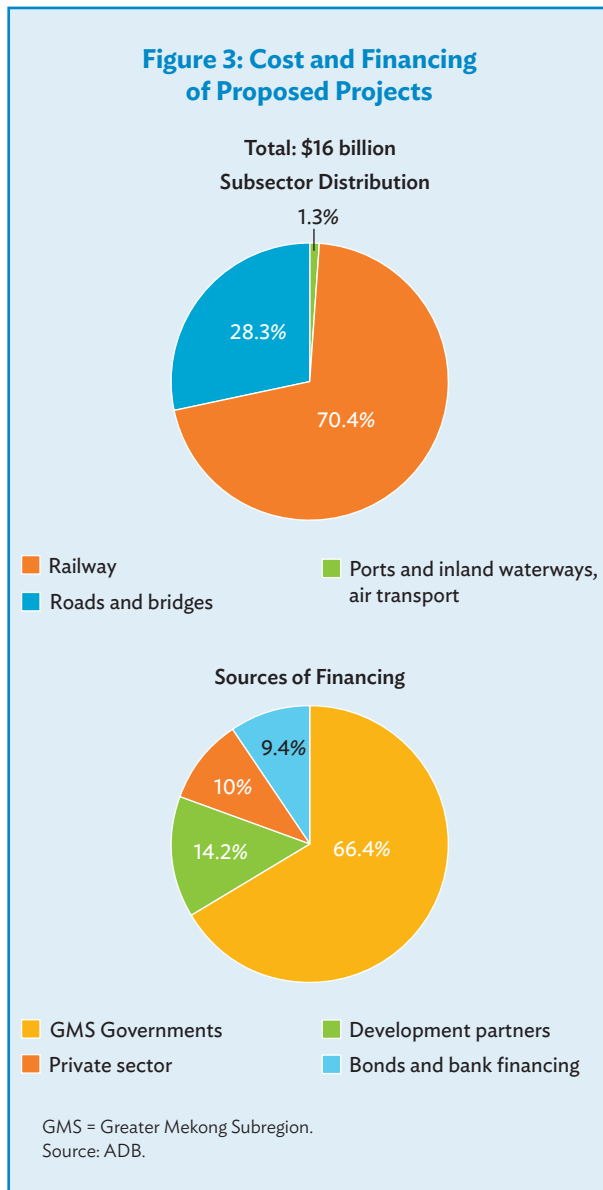
Cost and Financing

The total cost of ongoing transport investment projects amounts to \$42.7 billion, of which road and bridge projects account for the largest share of 52.3%, followed by railway projects with 37.2%, and ports and inland waterways with 9.5% (Figure 2). Cross-border facilities improvement projects account for about 1% of the total cost of ongoing projects. Proposed investment projects in RIF 2027 require total financing of \$16 billion, with railway projects having the largest share of 70.4%, followed by roads and bridges with 28.3% (Figure 3). Ports and inland waterways, logistics, and air transport have shares below 1%. TA projects in RIF 2027 require financing of \$21 million. Road and bridge projects and railway projects require the largest financing for both ongoing and proposed projects, with the share of proposed railway projects almost doubling compared to their share in ongoing projects.

Figure 2: Cost and Financing of Ongoing Projects



A major part of the financing of ongoing and proposed transport project continues to come from the GMS governments (73.3%), with the private sector taking a more important role, at 15.3%. Financing from development partners is 11.4%, including ADB at 6%. All projects in RIF 2027 have identified potential funding source/s: GMS governments with 66.4%, development partners with 14.2%, the private sector with 10%, and bonds and bank



financing with 9.4%.⁴⁸ Among the projects expected to be funded by development partners, ADB, Japan International Cooperation Agency (JICA), and Thailand's Neighboring Country's Economic Cooperation Development Agency (NEDA) were specified.

Development partners have played an important role in GMS transport development, as shown in their share of financing of ongoing and proposed projects.⁴⁹ Nevertheless, there is scope for deepening engagement with them in implementing TSS 2030, such as (i) increasing the frequency and depth of interactions with development partners beyond their attendance in STF meetings, including the conduct of bilateral meetings; (ii) ensuring high quality of projects at entry in the RIF; and (iii) mobilizing more financial support for project preparation. A noteworthy feature of infrastructure financing in the GMS is the important role that the PRC and Thailand have played in assisting neighboring countries to upgrade their infrastructure. The other aspects of financing discussed in TSS 2030 are still applicable to the period covered by the TSS 2030 update, as shown in the following.

New funding mediums have emerged that can significantly supplement the traditional sources of transport investment financing—e.g., Asia Bond Fund, Asian Bond Markets Initiative, ASEAN Infrastructure Fund, and funds from the Asian Infrastructure Investment Bank, and more recently the Multilateral Center for Development Finance (MCDF).⁵⁰ However, the ability of the GMS governments to borrow funds for infrastructure projects may be constrained by the concern to keep their debt burden within prudent limits. Increasing private sector financing of GMS transport projects has therefore become more important to ensure timely implementation of priority investment projects. Although the private sector has financed some GMS transport projects, there are still many opportunities for its participation through various PPP schemes. More efforts are needed to promote PPPs, such as the establishment of frameworks and approaches to make transport infrastructure bankable and more attractive to the private sector. These include measures to offset or mitigate the commercial and sovereign risks faced by investors in these undertakings. More generally, achieving a more conducive business environment will be important.

⁴⁸ Bonds involve the issuance of debt instruments by governments or corporate entities, while bank financing refers to direct bank lending to governments or corporate entities.

⁴⁹ ADB. 2022. *Deepening Development Partners' Engagement in the Greater Mekong Subregion Program*.

⁵⁰ Established in 2020, MCDF is a multilateral financial mechanism designed to promote high-quality infrastructure and connectivity investments in developing countries through partnerships.

Private sector investors need to tap various sources to finance their projects, especially for large projects involving PPPs. Some possible ways of raising funds for these projects include (i) corporate bond issues; (ii) debt and/or equity financing from ADB's private sector window or the International Finance Corporation, an affiliate of the World Bank; (iii) cofinancing arrangements between commercial banks and ADB and the World Bank; (iv) funding from bilateral development agencies such as the Japan Bank for International Cooperation, which is engaged in both public and private sector lending; and (v) credits from industrial country export credit agencies, which are increasingly financing transactions without the need for government counter guarantees.⁵¹ It will be necessary to provide more information to the private sector about these possible sources of funds, including how these funding vehicles can be availed of.

Specific initiatives that will be pursued to support resource mobilization for priority GMS transport projects include (i) taking steps toward the establishment of a GMS project development facility to help prepare transport projects, including those for possible PPP arrangements; (ii) conducting GMS transport investment forums to stimulate private sector interest and mobilize funding for priority GMS transport projects; and (iii) holding seminars and workshops to exchange experience and best practice approaches to PPP projects within and outside of the GMS, and to disseminate information on possible sources of finance for such projects.

Institutional Mechanisms and Arrangements for Implementation

The institutional mechanisms and arrangements in the first half of the TSS 2030 implementation period will continue during the remaining period covered by the TSS 2030 update. Accordingly, the following GMS-wide institutions will be the main bodies involved in the implementation of the TSS 2030

update: STF, GMRA, and Joint Committee and its supporting bodies for implementing the CBTA. Engagement with the private sector will be conducted broadly through the GMS Business Council and more specifically through FRETA.

Implementation of the TSS 2030 update will require close coordination among concerned agencies and between the public and private sectors in the GMS at the subregional and national levels. It will also require coordination with related programs of other regional and subregional initiatives and bodies such as ASEAN, BRI, Ayeyawady–Chao Phraya–Mekong Economic Cooperation Strategy, Indonesia–Malaysia–Thailand Growth Triangle, Lancang–Mekong Cooperation, and the United Nations Economic and Social Commission for Asia and the Pacific. Finally, implementation of the TSS 2030 update will be coordinated with related activities of the other GMS working groups (e.g., Working Group on Environment, Trade and Investment, Urban Development, Tourism), GMS Innovation Task Force, GMS Secretariat, and GMS national secretariats. Collaboration with the transport sector activities of the Central Asia Regional Economic Cooperation Program and South Asia Subregional Economic Cooperation Program will be pursued to promote cross-learning among subregional initiatives.

STF is responsible for overall coordination of the implementation of TSS 2030 and its update, reporting to the GMS ministers through the Senior Officials' Meeting. Its terms of reference are as follows:⁵²

- (i) Facilitate and coordinate the identification and formulation of GMS initiatives in the transport sector.
- (ii) Review and update the pipeline of transport projects in the RIF.
- (iii) Monitor and prepare progress reports on the implementation of GMS transport programs and projects.

⁵¹ Bonds and bank financing which is being pursued in the PRC's Pu'er Jinggu to Ning'er Expressway Project is a relatively new feature in the funding of GMS transport projects.

⁵² A review of the GMS institutional framework concluded that STF is working well, partly due to the well-defined scope of work and strong ownership among relevant agencies in the GMS countries. See ADB. 2016. *Study on Strengthening the Greater Mekong Subregion Program's Institutional Framework*. Paper prepared for the 21st GMS Ministerial Conference. Chiang Rai, Thailand. November.

- (iv) Assist in resolving issues and bottlenecks in the implementation of GMS transport programs and projects.
- (v) Work closely with FRETA to promote the active participation of the private sector in GMS transport development.
- (vi) Coordinate with other GMS working groups and bodies on related programs and projects.

STF meets at least once a year with the participation of representatives of key development partners and the private sector to discuss project status reports and strategic program and project issues. STF is expected to continue performing its role of helping implement the strategic thrusts, operational priorities, and action program of the TSS 2030 update in coordination with other closely related GMS bodies.

GMRA is a nonlegal intergovernmental organization established in August 2014, tasked to increase “railway connectivity to promote efficient, safe and environmentally sustainable rail transport of goods and people in and beyond the GMS countries.” Its more specific objectives include ensuring that GMS countries are connected to a railway network, promoting the development of a seamless rail network, and developing the institutions and procedures needed to integrate the national railways. Its members are the GMS governments and ADB. It has formed three working groups to help advance the priority programs of GMRA: (i) working group on network connectivity, (ii) working group on network integration and interoperability, and (iii) working group on partnerships and GMRA operations. With adequate support from its stakeholders, GMRA is envisaged to spearhead the GMS railway development agenda.

The Joint Committee for the GMS CBTA is an advisory body that coordinates, monitors, and assesses the functioning of the CBTA and its annexes and protocols. The Joint Committee, which is at ministerial level, is supported by (i) four subcommittees covering transport, customs, health, and immigration; and (ii) national transport facilitation committees in the GMS countries, which are responsible for coordinating and monitoring CBTA implementation within respective countries.

Important steps have been taken in the last few years to strengthen CBTA institutional arrangements and mechanisms, including regularizing joint committee meetings and enhancing the participation of customs, health, and immigration authorities in the GMS countries. These initiatives will be sustained to accelerate the implementation of the CBTA.

FRETA’s principal tasks comprise policy advocacy for TTF and logistics development, networking, and collaboration with transport and logistics associations in GMS countries, conducting an annual FRETA forum, training on best practices in transport and logistics including road safety, and establishing a GMS transport and logistics database.

Progress and Results Monitoring

The monitoring of progress and results will be conducted through the strategy’s results framework. TSS 2030 formulated a results framework consisting of three levels of the results chain, namely: impact, outcomes, and outputs. Around 4 years after TSS 2030 was launched, the GMS Program adopted a new GMS Program Results Framework to establish a system for monitoring and evaluating its implementation over time.⁵³ Accordingly, the TSS 2030 results framework needs to be revised to align it with the GMS results framework and ensure consistency and complementarity of vision, outcomes and indicators.

The GMS results framework has three levels of results indicators:

- (i) Level 1: Overall progress of the GMS subregion toward attaining the GMS 2030 vision of a more integrated, prosperous, inclusive, and sustainable subregion.
- (ii) Level 2: Results of regional cooperation and integration initiatives at the sector level under the three pillars of GMS-2030—Community, Connectivity, and Competitiveness.
- (iii) Level 3: Mobilization of financial and knowledge resources and effective institutional support to the GMS Program.

⁵³ GMS. 2022. *The Greater Mekong Subregion Program Strategy 2030 Results Framework*.

The TSS 2030 results framework falls under Level 2. It was revised considering the guidance provided in the note to the GMS results framework as follows: (i) the monitoring system should include clear indicators, targets, and data collection methods, as well as mechanisms for reporting and feedback; (ii) indicators should have a sound rationale, should not be difficult to compile, and should be those that could be collected regularly; and (iii) targets should be realistic and attainable; and (iv) there should be a balance between comprehensiveness and what is manageable in terms of the number of indicators.

The revised framework of TSS 2030 is presented in Appendix 6. It simplifies, refines, and updates the TSS 2030 results framework to link it explicitly to the GMS results framework and to ensure that (i) indicators included in the framework are clear and monitorable; and (ii) the framework can readily be integrated into the overall GMS results framework. STF will work closely with the GMS Secretariat in periodically collecting and consolidating data covering the indicators in the TSS 2030 update results framework, and in the reporting of findings and recommendations to the GMS senior officials.

Appendixes

Appendix 1: Comparative Table: Greater Mekong Subregion Strategy 2030 vs. Greater Mekong Subregion Transport Sector Strategy 2030

GMS Strategy 2030	GMS Transport Sector Strategy 2030
<p>“The vision of a seamless, efficient, reliable, and sustainable GMS transport system will be realized by the following:</p> <p>(i) The shift to an intermodal approach will encourage competition within and across corridors, and will require new links and connections (e.g., port–highway–railway connections). (ii) Transport connectivity gains will be maximized via cross-border transport to create a single market and production base, with the free flow of goods, services, and labor in line with the Cross-Border Transport Facilitation Agreement objectives of cross-border movement of trucks, drivers, and goods without reloading or transloading, and coordinated management at and behind the border.</p> <p>“Efficient logistics will require (a) improvements in infrastructure (i.e., transport and communications); (b) increased supply chain management capacity within shippers, traders, and consignees; and (c) well-developed regulatory and institutional frameworks. GMS-2030 will support investments in inland dry ports, logistics hubs, and inland container depots, and will foster close linkages with the private sector (e.g., freight transport associations) while building the capacity of relevant stakeholders.</p> <p>“GMS-2030 will place a greater emphasis on asset management for efficiency and reliability reasons, and will ensure that the common performance standards underlying the regional corridor network are upheld by exploring a variety of financing options for maintenance..... Given the disappointing GMS road safety record and its adverse impact on health services costs. Considerations of road safety will be prioritized under GMS 2030.”</p>	<p>“The long-term vision of TSS 2030 is a seamless, efficient, reliable, and sustainable GMS transport system.”</p> <p>“To achieve the long-term vision of TSS 2030, the following strategic thrusts will serve as the foundation of the strategy: (i) completing the GMS transport corridor network and improving links with South Asia and Southeast Asia, (ii) facilitating cross-border transport, (iii) strengthening intermodal transport links, (iv) promoting the development of logistics, (v) improving road asset management, and (vi) enhancing road safety.</p> <p>“Transport Facilitation: (i) Facilitating the extension of traffic and transport rights along the GMS economic corridors; (ii) Upgrading border-crossing facilities...</p> <p>“Logistics: (i) Improving road–rail–port connectivity; (ii) Establishing inland dry ports with road and rail interface; (iii) Establishing direct feeder service between ports and inland container depots (ICDs), and integrating ICDs into the rail network; (v) Improving the interface between the public and private sectors in logistics development; (vi) Encouraging investment in logistics hubs, ICDs, inland dry ports, and cold storage facilities...”</p> <p>“Roads: (i) Enhancing links to key transport interchange nodes like ports, airports, and rail stations; (ii) Improving links between secondary roads and main corridor routes; (iii) Establishing effective approaches to road asset management and financing; (iv) Implementing mechanisms for strengthening the implementation and coordination of road safety measures.”</p>

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Appendix 1 *continued*

GMS Strategy 2030	GMS Transport Sector Strategy 2030
<p>“GMS-2030 will shift emphasis toward developing and expanding capacity in sea, river, and dry ports, given the growing importance of maritime trade. Greater port capacity and intermodal links will further strengthen GMS integration outwards. GMS-2030 will encourage the greening of ports to ensure healthy oceans and water bodies.</p> <p>(iv) Post-COVID-19, noting the need for recovery in the aviation sector and the potential fast expansion in demand for air transport, GMS-2030 will promote international and secondary airports....”</p>	<p>“Ports and Inland Waterways: (i) Developing and/or increasing the capacity of major deep seaports; (ii) Promoting the use of coastal shipping and inland waterways for domestic and international trade by providing and improving support facilities and services; Improving landside seaport access; (iii) Improving port policies and regulations.”</p> <p>“Air Transport: (i) Developing and/or improving secondary airport; (ii) Expanding existing international airports; (iii) Developing new international airports that may be designated as such in the future...”</p>
<p>“GMS-2030 will integrate transport into urbanization strategies and planning, particularly along corridor networks, and realize climate change benefits...”</p>	<p>“Urban Transport: (i) Constructing circumferential and bypass roads around major urban centers along the corridors; (ii) Adopting mechanisms for coordinating transport programs and projects with the development plans of major cities and towns along the economic corridors...”</p>

COVID-19 = coronavirus disease, GMS = Greater Mekong Subregion, GMS-2030 = Greater Mekong Subregion Program Long-Term Strategic Framework 2030, TSS 2030 = Transport Sector Strategy 2030.
 Sources: GMS Program. 2019. *Greater Mekong Subregion Program Strategic Framework 2030*. 23rd GMS Ministerial Conference, Phnom Penh; GMS Program. 2017. *GMS Transport Sector Strategy: Toward a Seamless, Efficient, Reliable, and Sustainable GMS Transport System*.

Appendix 2: Completed Greater Mekong Subregion Transport Investment Projects

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs
Cambodia			
Cambodia: Poipet Border-Bridge/ Aranyaprathet	6.5 Government of Cambodia	This project will rehabilitate part of the GMS Rail Link1: Kunming–Ha Noi–Ho Chi Minh City (HCMC) to Phnom Penh–Bangkok (Singapore–Kunming Rail Link mainline).	Cambodia: Poipet border railway bridge rehabilitated.
Sihanoukville Port Access Road Improvements	5.0 Government of Cambodia	Originally, the project will improve the final 9.5 kilometers (km) of National Road (NR) 4 leading to Sihanoukville port. Due to the shortage of the budget, the proposed alignment has been changed, and the distance is shortened from 9.5 km to 5 km.	5 km of NR 4 leading to Sihanoukville port improved.
Establishment of Bus/Truck Driving Test Center	5.0 Private Sector (SCG Thailand) 6.5 Government of Cambodia	The project involves the acquisition of equipment and/or construction of facilities. It addresses the (i) lack of testing facilities and equipment for bus and truck drivers; (ii) lack of professional drivers of heavy vehicles, especially cross-border vehicles; and (iii) need to reduce the frequency of road accidents.	Bus/Truck Driving Test Center established.
Lao People's Democratic Republic (Lao PDR)			
Hongsa (Xayaboury)–Chomphet (Luang Prabang) Construction (114 km)	56.0 Neighboring Countries Economic Development Cooperation Agency (NEDA) Thailand	This road is part of the tourism corridor that includes Chiang Rai, Chiang Mai, Luang Prabang (Chiang Thong), and Vientiane. The section's construction will promote trade, investment, and tourism.	114-km road constructed.
Lao PDR Capital City Vientiane to Vang Vieng Section of Vientiane to the People's Republic of China (PRC) Mohan Port Highway Project	1,300.8 Government of the PRC	The project involves the construction of a highway from the capital city Vientiane to Vang Vieng section of Vientiane to PRC Mohan port, about 113.5 km long.	113.5 km long highway from capital city Vientiane to Vang Vieng built.
Vientiane–Boten Railway Project (414km)	5,800.0 Government of the PRC	The Vientiane–Boten Railway Project will connect the Chinese railway in the north of the Lao PDR at the Chinese border to Vientiane and can potentially connect to the Thai rail line via Nong Khai. This standard gauge railway with a speed of 160 km/h to 200 km/h for passenger train and 120 km/h for freight train will form part of the substantial 3,000-km Singapore–Kunming Rail Link.	414-km railway constructed; transport costs reduced; people-to-people visits increased; trade and cultural exchanges promoted.

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Appendix 2 *continued*

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs
Mekong Bridge at Bungkan (Thailand)–Paksan (Lao PDR)	88.0 Government of Thailand	The bridge will facilitate the transport of goods and passengers from northeastern Thailand through central Lao PDR and central Viet Nam via NR 8.	Bridge on the Mekong River between Bungkan in Thailand and Paksan in the Lao PDR built.
Thanaleng–Nong Khai Railway Extension Project (7.5 km)	31.6 Government of the Lao PDR and NEDA Thailand	The construction of section one, with support from NEDA, was completed in April 2016. The extension from Thanaleng to Vientiane Station (section 2).	Extension of railway line from Thanaleng to Vientiane, Lao PDR completed.
Myanmar			
Mae Sot–Myawaddy Border-Crossing Project and Infrastructure Improvements (Border-crossing facilities with Thailand)	130.0 Government of Thailand	This new crossing will be dedicated to cross-border freight traffic and will avoid the congested urban areas. The bypass will link with a newly envisioned special trade zone on the Myanmar side. The overall project will consist of about 21.4 km of new four-lane divided highway (16.745 km in Thailand, 3.895 km in Myanmar), a 760-meter-long bridge across the Moei River at the border, and associated border-crossing facilities (BCFs).	Cross-border bridge with border-crossing facilities and 21.4 km of four-lane highway constructed.
Thailand			
Coastal Terminal Development Project of Laem Chabang Port Thailand	58.5 Government of Thailand	This project will reduce the logistics costs for exporters, importers, and logistics providers. The coastal terminal will serve domestic waterway transport through Laem Chabang Port.	The capacity of the coastal terminal increased to 300,000 (TEUs)/year.
GMS Highway Expansion Phase 2 Project	213.6 99.4 Asian Development Bank (ADB) 114.2 Government of Thailand	The proposed project will (i) upgrade about 125 km of a national highway in northeastern Thailand from a two-lane to a four-lane carriageway, and (ii) strengthen capacity in road safety management by introducing road safety audits and awareness training for the executing agency during project implementation.	125 km of road sections of NH 22 and NH 23 upgraded from two to four lanes; and capacity in road safety management strengthened.
Tak–Mae Sot Highway Improvement Project	100.0 Government of Thailand	The project will improve highway capacity on the East–West Economic Corridor (EWEC) in Thailand, specifically, the stretch of the corridor that connects with the Myanmar section at Myawaddy. It will upgrade the existing 86 km road from two to four lanes.	86 km. of road to be upgraded from two to four lanes.

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Appendix 2 *continued*

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs
Single Rail Transfer Operator Development Project of Laem Chabang Port	90.0 Government of Thailand	Currently, approximately 88% of the transport from the Laem Chabang Port to the hinterland is via the road system, with the remainder by rail (9.5%) and inland waterway (2.5%). The proposed project will develop infrastructure and necessary facilities for serving the discharging and loading containers transported by rail to the port area. The project will facilitate rail transfer in response to the completion of the State Railway of Thailand's double-track construction project. It will increase the handling capacity of rail transport at the port from the current 500,000 TEUs/year to 1–2 million TEUs/year.	Necessary infrastructure and facilities constructed, increasing the handling capacity of rail transport at the port from the current 500,000 TEUs/year to 1–2 million TEUs/year.
Mae Sot–Myawaddy Border-Crossing Project and Infrastructure Improvements (Border-crossing facilities, with Myanmar)	130.0 Government of Thailand	This new crossing will be dedicated to cross-border freight traffic and will avoid the congested urban areas. The bypass will link with a newly envisioned special trade zone on the Myanmar side. The overall project will consist of about 21.4 km of new four-lane divided highway (16.745 km in Thailand, 3.895 km in Myanmar), a 760-meter-long bridge across the Moei River at the border, and associated BCF.	Cross-border bridge with border-crossing facilities and 21.4 km. of four-lane highway.
Chiang Rai–Chiang Khong Highway Improvement Project	90.0 Government of Thailand	The project will improve highway capacity of North–South Economic Corridor (NSEC) in Thailand. It will upgrade the existing 109-km road from two to four lanes.	61 km of road upgraded from two to four lanes and 48 km constructed with new alignment.
Aranyaprathet–Poipet New Road with Border-Crossing Facilities (Thailand part)	30.0 Government of Thailand	Recent discussions at the prime minister's office between representatives of Thailand and Cambodia have resulted in a general agreement on the location of a new Poipet–Aranyaprathet border crossing, specifically for freight traffic. Passenger traffic will continue to use the existing border crossing. The construction of Thailand's part of this new facility will consist of a 4.7-km bypass road and a bridge over the Prom Hrod Canal.	4.7-km bypass road and bridge constructed.
17. Kalasin–Nakrai–Kamcha I Highway Improvement Project	170.0 Government of Thailand	The project will improve highway capacity of EWEC in Thailand between Kalasin and Kamcha I. It will upgrade the existing 107.7-km road from two to four lanes.	107.7 km of road to be upgraded from two to four lanes.

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Appendix 2 *continued*

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs
Viet Nam			
GMS Kunming–Haiphong Transport Corridor—Noi Bai–Lao Cai Highway (additional financing)	182.0 147 ADB 35.0 Government of Viet Nam	The project is designed to provide (i) a 244-km grade-separated and access-controlled highway, including 10 interchanges with toll booth and 5 service areas, starting at Noi Bai, near Ha Noi, and ending in Lao Cai on the border with the PRC in northwest Viet Nam; (ii) electric, communications, tolling systems, and associated facilities, as well as the Vietnam Expressway Corporation's highway operation and maintenance (O&M) equipment and vehicles; and (iii) capacity building for the corporation in project implementation management, corporate-financing management, highway O&M, and safeguard planning and implementation.	244-km grade-separated and access-controlled highway, including 10 interchanges with toll booths and 5 service areas constructed; electric, communications, and tolling systems, and associated facilities provided; capacity building for Vietnam Expressway Corporation in project management, financial management and safeguard planning conducted.
Second Northern GMS Transport Network Improvement (Luang Prabang–Thanh Hoa)	77.8 71.1 ADB 6.7 Government of Viet Nam	This project aims to provide more efficient transport across the Lao PDR–Viet Nam border, as well as on the project road sections of the GMS northeastern corridor through the provinces of Thanh Hoa, in northern Viet Nam, and Houaphanh, in northeastern Lao PDR. It includes two components: (i) an upgrade to all-weather status of 196 km of Highway 217 in Viet Nam and of 143 km of routes 6, 6A, and 6B in the Lao PDR; and (ii) improvements in the safety of the road sections	Upgrade 45 km of National Highway No. 2017 from Cam Thuy to BaThuoc Construction of new Ha Trung Flyover.

GMS = Greater Mekong Subregion, Lao PDR = Lao People's Democratic Republic, TEU = twenty-foot equivalent unit.
Source: ADB.

Appendix 3: Ongoing Greater Mekong Subregion Transport Investment Projects

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs/
Cambodia			
Phnom Penh–Sihanoukville Expressway Project (formerly Phnom Penh–Sihanoukville Highway Corridor Improvements)	2,000.0 People’s Republic of China (PRC) private sector	This is an approximately 190.01-km expressway project to be built on a new alignment. A build–operate–transfer (BOT) model with a 50-year concession period was approved. The expressway will provide a high-capacity road link between Phnom Penh and the port city of Sihanoukville, which form part of the Greater Mekong Subregion (GMS) Southern Coastal Corridor.	190.01-km expressway linking Phnom Penh to the deep seaport of Sihanoukville constructed; capacity of GMS Southern Central Corridor expanded.
Road Network Improvement Project (formerly GMS: Deepening Connectivity of Southern Economic Corridor Project)	76.9 70.0 6.9 Asian Development Bank (ADB) Government of Cambodia	The originally proposed project name was GMS: Deepening Connectivity of Southern Economic Corridor, later on, it was changed to Second Road Asset Management Project, and finally to Road Network Improvement Project under ADB Loan 3576-CAM. The project will improve about 147 km of flood-prone and unsafe national roads through provision of periodic maintenance and rehabilitation on National Road (NR) 6 (50 km) and NR 1 (97 km), respectively, with asphalt–concrete pavement (under a performance based contract). These are high-priority roads connecting Cambodia with Thailand and Viet Nam.	<ol style="list-style-type: none"> 194 km of national roads rehabilitated with safer and climate-resilient standards. Axle load control enhanced. Quality assurance for civil works in the Ministry of Public Works and Transport strengthened. Road safety enforcement in project communes improved.
People’s Republic of China (PRC)			
Dali–Ruili Railway	4,008.0 Government of the PRC	This 330-km railway from Dali to Ruili via Baoshan is connected to the Guangtong–Dali Railway and is an important section of the western route of the Singapore–Kunming Rail Link (SKRL). It is essential for the completion of the SKRL’s western route and for the establishment of the Third Asia–Europe Continental Land Bridge. The line will be Class I, electrified, with a maximum speed of 140 km per hour (km/h) for passenger trains	330 km of railway built.

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Appendix 3 *continued*

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs/
Rehabilitation of the Ning'er Jiangcheng Longfu road (part of Yunnan Pu'er Regional Integrated Road Network Development Project)	589.5	This 234-km road runs from Ning'er to the No. 3 boundary marker (Longfu checkpoint) along the border between the PRC and Viet Nam, via Jiangcheng county. This road is an important route connecting southern Yunnan to the Lao People's Democratic Republic (Lao PDR) and Viet Nam, providing infrastructure to support trade and regional cooperation among the PRC, the Lao PDR, Myanmar, and Viet Nam.	234 km of roads constructed or rehabilitated.
	200.0 ADB		
	389.5 Government of the PRC		
Yuxi–Mohan Railway	7,912.5 Government of the PRC	This 507-km railway runs from Yuxi to Mohan via Xishuangbanna, linking with the Kunming–Yuxi Railway. Once it is connected to the railway currently under construction on the Lao PDR side, this route will be one of the most direct from the PRC to the Association of Southeast Asian Nations (ASEAN) countries. As a section of SKRL's middle route, this line is crucial to the establishment of an ASEAN–PRC Free Trade Agreement, the economic development of the GMS, and a modern integrated transport network. The line will be Class I, electrified, and with a maximum speed of 160 km/h for passenger trains; double track from Yuxi to Xishuangbanna.	507 km of railway built.
Lao People's Democratic Republic			
Vang Tao Border-Crossing Point	15.0 Government of the Lao PDR	This facility between Vang Tao and Chong Mek along NR 16 is one of the border-crossing points between southernmost Lao PDR and Thailand. The border-crossing facility does not meet the requirements of the GMS Cross-Border Transport Facilitation Agreement (CBTA).	Vang Tao and Chong Mek border facility upgraded to GMS CBTA requirements.
NR 13 Improvement and Maintenance Project (Vientiane to Phon Hong)	128.0 30.0 World Bank (International Development Association credit) 9.5 Nordic Development Fund (NDF) 40.0 Asian Infrastructure Investment Bank (AIIB)	NR 13 North (NR 13N) connects Vientiane to the country's northern provinces. Present and projected traffic demand requires an expansion of the road to four lanes in some sections and improvements in two other sections. The government has decided to start on the section of NR 13N from Sikeut to Phon Hong, which totals 58 km. The project will be implemented using the output- and performance-based road contracts approach.	58-km road road expanded to four lanes in some sections and improved in two other sections Key Outcomes: 1. Economic benefits from reduced vehicle operating cost; 2. Reduction in traffic injury and fatality risks and increased safety of pedestrians; and

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Appendix 3 continued

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs/
	38.5 Government of the Lao PDR		3. Road infrastructure which is more resilient to climate events.
Luang Namtha–Xiengkok– Lao PDR–Myanmar Friendship Bridge (NR 17)	167.0 Government of India	NR 17 starts from Luang Namtha town, in Luang Namtha Province, passes through Muang Sing and Muang Long, and connects with the Lao PDR–Myanmar Friendship Bridge, in Xiengkok. This road is part of the ASEAN–India transport corridor. This section also falls in the North East–West Transport Corridor, or ASEAN Highway (AH) 13.	Road section on NR17 from Luang Namtha to the Friendship Bridge in Xiengkok constructed and/or rehabilitated.
Mekong Bridge at Luang Prabang	n.a. Neighboring Countries Economic Development Cooperation Agency Thailand	The project will develop a tourism corridor between the Lao PDR and Thailand, specifically from Chiang Rai to Chiang Mai, Luang Prabang, and the capital city, Vientiane. The road project from Muong Ngeune to Luang Prabang, which crosses the Mekong Bridge at Luang Prabang, is part of this initiative.	Road link from Chiang Rai to Chiang Mai, Luang Prabang, and the capital city, Vientiane improved and/or rehabilitated.
Upgrading 13S (portion from Savannakhet Province to Bolikhamxay) (253 km)	200.0 World Bank 114.0 AIIB 35.0 European Investment Bank 5.0 NDF 55.0 Government of the Lao PDR 6.0 To be determined (TBD)	This will link the East–West Economic Corridor (EWEC), also known as NR 9 (or AH 16), and the two newly established economic corridors: NR 12 (or AH 131) and NR 8 (or AH 15). It will also provide the foundation for a connection between the Kunming–Luang Prabang–Vientiane– Paksan–Thakhek–Savannakhet stretch of the North–South Economic Corridor (NSEC) and connecting Cambodia, up to Savannakhet via the Southern Economic Corridor (SEC).	325 km of NR13 S or AH 11 improved; with better maintenance of the existing alignment and widening in some sections, using concrete and asphalt-concrete overlay.
Houei Sai River Port (a component of Second GMS Corridor Towns Project in Urban Development Chapter of the Regional Investment Framework 2022)	2.13 ADB	As inland transport is becoming more important, especially for tourism, building this river port is necessary.	Houei Sai River Port built.

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Appendix 3 *continued*

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs/
Myanmar			
East–West Economic Corridor Eindu–Kawkareik Road Improvement Project	121.8 100.0 ADB 20.0 ASEAN Infrastructure Fund 1.8 Government of Myanmar	The project will improve 66.4 km of road between Eindu and Kawkareik. It is in Myanmar’s Kayin State, which borders Thailand.	66.4 km of roads upgraded.
GMS EWEC Corridor Improvement I and II	550.2 Japan International Cooperation Agency (JICA)	The cost of the bridges involved in this project are: Attran Bridge (\$68.25 million), Gyaing (Kawkareik) Bridge (\$122.86 million), Gyaing (Zathapyin) Bridge (\$129.11 million), and Sittaung (Kyaikhto) Bridge (\$180.7 million, proposed for approval in 2020). <ul style="list-style-type: none"> • The Gyaing (Kawkareik) Bridge was completed. • The Gyaing (Zathapyin) Bridge was 84.3% complete as of 7 August 2025. • The Attran Bridge was 82.7% complete as of 7 August 2025. 	Four new 4-lane bridges constructed.
Thaton–Payagi Road Improvement Project	128.0 Private Sector build– operate–transfer (BOT System)	The expected components of this 151 km, two-lane road improvement project will primarily consist of road repairs and upgrading along most of the road’s length, with major reconstruction and widening of the road sections running through the towns of Bilin, Kyaikto, and Payagi, including a possible grade-separated interchange with NR 1 at Payagi.	151 km of roads upgraded.
Daluo (PRC)–Tachilek (Myanmar) Highway	Public–Private Partnership (BOT System) (156.8 km); Department of Highways (87.5 km)	This project involves the improvement of an existing highway that is a part of the GMS North–South Economic Corridor (NSEC) (and of the Asian and ASEAN highways) in Myanmar, linking with the PRC to the north and Thailand to the south. This highway is also one of the major border trade routes between Myanmar and Thailand via Tachileik. The improvement will consist of upgrading the Kyaington–Mongla section (93 km) of this highway to ASEAN Class II standards.	93 km road between Mongla and Kyaington upgraded.

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Appendix 3 continued

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs/
Bridge on the Kyaington– Lyainglin–Taunggyi Road (AH 2)	15.8 Government of Myanmar	The service life of the Tarkaw (Thanlwin) Bridge (bank-to-bank 900 feet) is about 40 years, and its load capacity is only HS 20. A new bridge of four lanes with an HS 25 load capacity has been proposed. The type of bridge will be specified after the feasibility study. The Tarkaw (Thanlwin) Bridge was completed. It is a two-lane bridge.	A new bridge with capacity of HS 25 built.
GMS Highway Modernization Project	202.1 194.7 ADB 7.4 Government of Myanmar	The project will improve transport conditions along Myanmar's EWEC and NSEC by (i) improving about 99 km of Bago–Thanlyin highways, (ii) improving the 64 km of Yangon–Mandalay Expressway from No. 3 Junction to Bawnatgyi Junction and the safety improvement of the Yangon–Mandalay Expressway, and (ii) preparing detailed designs for other highway projects, also along the GMS economic corridors.	Yangon–Mandalay Expressway: 99 km of Bago–Thanlyin road upgraded; and detailed design prepared for the improvement of Yangon–Patheingyi Highway (165 km) and new highway alignment between Bago and Kyaikto (70 km).
Improvement of Six Inland Ports	236.5 53.6 JICA 182.9 TBD	The project includes the establishment of six inland ports along the Ayeyawady and Chindwin rivers. The feasibility study for Mandalay Port was completed in February 2014. To construct Mandalay Port, the government obtained a grant aid from JICA. The total implementation cost for Mandalay Port is \$53.64 million, and the estimated implementation time is about 2.5 years. There was some delay in implementing the project due to the coronavirus disease (COVID-19) pandemic and land compensation process. The project is still ongoing. The remaining five inland ports are proposed to be implemented via public–private partnership (PPP).	Inland port facilities upgraded and inland waterway transportation mode improved.
Second GMS Highway Modernization Project (formerly Bago–Kyaikto Road)	781.1 483.8 ADB 254.8 JICA 42.5 Government of Myanmar	The project entails a new highway alignment on an extension of EWEC, between Bago and Kyaikto to provide easier access to Thilawa Special Economic Zone. The goal is to achieve a safer and more efficient movement of goods and people along the GMS EWEC and NSEC in Myanmar. The project will (i) develop a new four-lane arterial expressway between Bago (Bago Region) and Kyaikto (Mon State) (Bago–Kyaikto expressway) of about 62 km, along EWEC; (ii) build government's capacity to develop and manage expressways meeting international standards; and (iii) ensure road safety in the Bago–Kyaikto corridor.	62 km new arterial highway between Bago and Kyaikto constructed.

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Appendix 3 *continued*

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs/
Thailand			
Bang Yai– Kanchanaburi Intercity Motorway Project (part of Laem Chabang– Bangkok–Dawei [Myanmar] Corridor)	1,600.0 Government of Thailand	In addition to playing a strong national role, this expressway will be part of the Laem Chabang–Bangkok–Dawei (Myanmar) highway corridor, linking the port at Laem Chabang with the proposed deepwater port at Dawei, and with Myanmar’s highway network, connecting with Mawlamyine and Yangon. The proposed expressway is an important component of Thailand’s National Highway Development Plan.	96 km of intercity motorway constructed.
Lomsak–Phetchabun Highway Improvement Project	170.0 Government of Thailand	The project will improve highway capacity of EWEC in Thailand between Kalasin and Kamcha I. It will upgrade the existing 107.7-km road from two to four lanes.	92 km of road upgraded from two to four lanes.
National Railway Improvement	12,192.3 Government of Thailand	The proposed project will upgrade 2,476 km of railway in Thailand from a single track to double track and eliminate all at-grade level crossing.	2,476 km of railways upgraded from single track to double track.
Laem Chabang Port Development Project, Phase 3	3,000.0 PPP Private Sector	Projections of demand indicate that the total containers accommodated in Basin I and Basin II will exceed 10 million TEUs per year by 2018, while the maximum capacity of Basin I and Basin II together is approximately 11 million TEUs per year. Given these projections, the development of Basin III will be necessary to accommodate the increasing throughput and strengthen the port’s role as a gateway to the GMS. The proposed study will present technical and other options regarding the expansion of the port.	
Construction of a New Railway Line from Den Chai to Chiang Rai and Chiang Khong	2,278 Government of Thailand	The construction of this new double-track railway from Den Chai to Chiang Rai will reduce the country’s logistics costs and fuel imports; enhance speed, convenience, and safety; and support integration with neighboring transport systems, such as those in the Lao PDR and southern PRC. It will also benefit development, especially in the northern provinces, such as Phayao, Phare, and Chiang Rai, which will lead to the country’s overall economic growth.	326-km railway constructed.

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Appendix 3 continued

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs/
Construction of a New Railway Line from Baan Pai KhonKaen) to Mahasarakham, Roi Et, Mukdahan, and Nakhon Phanom	1,708.9 Government of Thailand	In 1989, the Government of Thailand decided to improve the nationwide rail network. One important network was the Mukdahan–Nakhon Phanom line on EWEC. Circumstances later resulted in the need for a feasibility study on the construction of a new railway line that would be integrated into EWEC. This new, updated study was significant because it represented one of the milestones of rail infrastructure expansion in EWEC. The study showed that this proposed route should be built as a double track on a new alignment for the Baan Pai (Khon Kaen)–Mahasarakham–Roi Et–Mukdahan–Nakhon Phanom line. For the time being, the State Railway of Thailand is carrying out a detailed design study on the new route alignment, which will be able to link with the Thai–Lao Friendship Bridge No. 2, in Mukdahan, and the Thai–Lao Friendship Bridge No. 3, in Nakhon Phanom.	355-km railway constructed.
Mekong Bridge at Bungkan—Paksan (Thailand Part) (Roads and bridges)	88.0 Government of Thailand	This bridge will connect Amphoe Muang, Bungkan Province (Thailand) and Muong Paksan, Bolikhamxay Province (Lao PDR). It will facilitate the transport of goods and passengers from northeastern Thailand to central Lao PDR and central Viet Nam via NR8.	168-km construction km includes road and bridge.
Viet Nam			
Central Mekong Delta Connectivity	860.0 ADB—410.0 134.0 Government of Australia 260.0 Korea Export–Import Bank 56.0 Government of Viet Nam	This investment project will improve connectivity between Viet Nam and the rest of the Mekong Delta region, and provide better access to the southern coastal region from Ho Chi Minh City (HCMC) by building two cable-stayed bridges across the Mekong River, and building associated roads.	New bridges and roads connecting Viet Nam to Mekong Delta Area built.
GMS Ben Luc–Long Thanh Expressway (Stage 2)	1,607.4 635.7 ADB 634.8 JICA 336.9 Government of Viet Nam	The project will construct a 57.1 km expressway between Ben Luc and Long Thanh, south of HCMC. This is a section of the GMS SEC. This project will connect Ben Luc and Long Thanh in the southern region of Viet Nam. The expressway will be part of the Greater Mekong Subregion SEC. It will improve transport efficiency and boost economic activities in the region.	571-km expressway between Ben Luc and Long Thanh (connecting to the CaiMep–ThiVai Seaport) constructed.

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Appendix 3 *continued*

Project Title	Cost Estimate/ Source (\$ million)	Description	Expected Outputs/
GMS Ha Noi–Lang Son Expressway Project (Huu Nghi Chi Lang Section)	1,400 Private Investors	This project will construct a 156.6-km expressway between Ha Noi and Huu Nghi, in Lang Son Province, on the border with the PRC’s Guangxi Zhuang Autonomous Region. This project will connect Ha Noi and Huu Nghi, Lang Son Province, on the border with the PRC’s Guangxi Zhuang Autonomous Region. Huu Nghi–Chi Lang section is about 43 km.	45 km of expressway (Ha Noi–Bac Giang), 64 km of expressway (Bac Giang–Lang Son), and 43 km of expressway (Chi Lang–Huu Nghi Border Gate constructed).
Northern Mountain Provinces Transport Connectivity Project (formerly GMS Corridor Connectivity Enhancement Project)	245.1 188.4 52.2 Government of Viet Nam 4.5 Government of Australia	The project will finance improvement of international and national transport connectivity of underdeveloped provinces of Viet Nam by improving accessibility to GMS corridors. The project aims to expand the benefits of the GMS corridors to the northwestern provinces, where high poverty incidence is reported, by enhancing the road connectivity between the Noi Bai–Lao Cai Expressway and the provinces of Lao Cai, Lai Chau, and Yen Bai through rehabilitation of NH 279 and NH32 and upgrading of PR 175 to a national highway.	NH 279 and NH 32 rehabilitated, and PR 175 upgraded to a national highway.

km = kilometer, PR = provincial road, TEU = twenty-foot equivalent unit.
Source: ADB.

Appendix 4: Proposed Transport Sector Projects

Greater Mekong Subregion Regional Investment Framework, 2025-2027

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Transport						
Investment	Integrated Road Network Improvement Project	2024	Cambodia	150.0	Development partner	The project has the following components: (i) Siem Reap Upper Ring Road (\$50 million); (ii) link road between Siem Reap and Svay Leu (\$20 million); (iii) link road between NR5 at Kampong Tralach and NR6 at Phāv (\$80 million).
TA	TA: Sustainable Road Network Improvement Project, Svay Rieng Province	2024	Cambodia	1.0	Development partner	This is a transaction technical assistance facility to prepare the proposed Sustainable Road Network Improvement Project.
Investment	Investment: Sustainable Road Network Improvement Project, Svay Rieng Province	2024	Cambodia	50.0	Development partner	The project will build a new alignment road from Svay Rieng to Bavet alongside the heavily used National Road No. 1 with the goal of reducing the travel time and making economic and environmental savings by cutting the fuel consumption of factory workers who commute regularly on the road. The new road alignment project complies with the government's Rectangular Strategy and will reduce the number of traffic accidents.
TA	TA: Safer Access Road Network Improvement Project	2024	Cambodia	1.2	Development partner	The TA project will help develop the most urgent and cost-effective road safety programs. It will be an integral part of the road safety policy of the government and will deliver the following outputs: (i) road safety diagnosis completed, (ii) road safety programs on selected high-risk corridors prepared, (iii) road safety management capacity strengthened, (iv) road safety policies and business procedures incorporated into the life cycle of roads, (v) sustainable funding arrangements for road safety identified, (vi) nationwide road safety improvement programs identified and prepared for further design and implementation, and (vii) prefeasibility study and design and monitoring framework for subsequent stand-alone road safety project prepared.

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Appendix 4 continued

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	Investment Safer Road Network Improvement Project	2024	Cambodia	100.0	Development partner	The project will develop safer and sustainable road corridors and logistics centers (i.e., border-crossing points).
TA	Feasibility Study for Steung Bot International Railway Station and the Rehabilitation of Sereisophom and Battambang Station Facilities in Banteay Mean Chey and Battambang Province	2024	Cambodia	6.0	Development partner	<p>The project will cover three railway stations of regional and national importance. There is currently no freight station in the area to transport cargo and agricultural produce. The project will improve transportation among Cambodia, Thailand, and other GMS countries by linking rail traffic between two northern provincial towns in Cambodia with districts in nearby provinces of Thailand and Cambodia.</p> <p>The construction of a new rail freight station facility at Steung Bot will improve trade between Cambodia, Thailand, and other GMS countries for heavy cargo and agricultural produce. It will support tourism transportation and a modal shift from road to rail which will reduce road maintenance costs and traffic accidents.</p> <p>The project will help improve the expertise of national and local government agencies in multipurpose railway station construction by adopting modern technology and engineering. The project will be part of the triangular economic development corridor between Cambodia, Thailand, and Viet Nam.</p>
Investment	Development of Regional Logistics Complex	2024	Cambodia	50.0	Development partner	Logistics volumes increase sharply with overall economic growth, higher incomes, and population growth. Transport of consumer goods in urban areas increases significantly, depending on the rate of urbanization and the incomes of urban residents. This project will build a comprehensive logistics hub by concentrating on all related activities, including a truck terminal, a distribution center, logistics service businesses, and other related facilities—in one hub. The project has an incentives plan to attract private logistics-related businesses. It will provide basic infrastructure, a transport network, and tax incentives. The regional logistics complex will help reduce traffic congestion in downtown areas, support logistics efficiency, and reduce costs.

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Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	Construction of Logistics Complex in Bavet	2024	Cambodia	50.0	Development partner	The project will improve key logistics functions, in particular proper transport management and planning. The new complex will reduce transport costs, streamline customs clearance for imports and exports, improve cargo collection and distribution, strengthen circulation processing, enhance commodity inspection, and provide logistics information services. In addition to boosting Cambodia's economy, the complex will play a crucial role in promoting and boosting global supply chains, especially connectivity with other ASEAN member countries. The complex will house public truck terminals, distribution centers, a commercial center, vital public services, and related support businesses to improve logistics efficiency.
TA	Kampong Chhnang Logistics Special Zone	2024	Cambodia	2.8	Development partner	The project has four components: (i) rehabilitation and improvement of the existing Kampong Chhnang airport, (ii) development of a logistics special zone, (iii) introduction of vendor-managed inventory by private logistics firms, and (iv) promotion of a logistic zone for private firms. Kampong Chhnang is located 95 kilometers (km) from Phnom Penh, and the existing airstrip has a runway 2.5 km in length as well as a small airport tower and other buildings which need to be restored. The Kampong Chhnang International Project, which includes rehabilitation of the existing airport, was originally planned to be a public-private partnership (PPP) scheme. The cost of phase 1 development, including airport upgrading and purchase of land, was estimated at \$668 million in a prefeasibility study and conceptual master plan in 2009. Utilizing the upgraded airport, a logistics special zone could enhance multimodal transport and potentially attract private investors and logistics service providers.

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Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	Investment: Improvement of Cross-Border Logistics and Transport System in Bavet City (Construction of PR316D and New Cross-Border Facilities)	2024	Cambodia	23.0	Development partner	The project aims to enhance the capacity of cross-border transport in the Bavet Area and to facilitate a seamless border crossing at the Bavet border point. Key project components include: (i) reducing congestion by building new border facilities and improving existing facilities, and (ii) coordinating a new international border point in Bavet City to promote cross-border logistics and transport between Cambodia and Viet Nam along NRI between Phnom Penh and Bavet.
TA	TA: Improvement of Cross-Border Logistics and Transport System in Bavet City (Construction of PR316D and New Cross-Border Facilities)	2024	Cambodia	1.5	Development partner	This transaction TA project will prepare the investment project above to enhance the capacity of cross-border transport in the Bavet area and to facilitate a seamless border crossing at the Bavet border point.
TA	Development of Railway Regulatory Framework	2024	Cambodia	16.0	Development partner	The TA project aims to strengthen the railway regulatory framework in Cambodia. It will increase the safety and efficiency of railway operations, thereby supporting the enhancement of the country's logistics sector. The key components of the TA project include: (i) review of the railway concession agreement; (ii) updating and enactment of a Railway Law; development of railway regulations, technical standards and operation manuals; and, (iii) implementation of cross-border railway agreements.
Investment	Lancang-Menglian (Mengla) section of the Lancang-Menglian Highway	2024	People's Republic of China (PRC)	1,264.6	Development partner: 1,131.20 Government of the PRC: 133.41	The total length of the Lancang-Menglian highway project is 49 km, including 29.91 km in Lancang County and 19.09 km in Menglian County. The starting point is the end of Silan highway, and the stopping point is south of Menglian County. It includes setting up Mengbin interchange, airport interchange, Langle pivot, Menglian North connectivity and Menglian south pivot, the Lancang Lahu Autonomous County and Menglian Dai, Lahu, Wa Autonomous County, where the project is located. There are ethnic minority areas bordering Myanmar in Yunnan.

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Appendix 4 continued

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	Jiangcheng County Longfu Port Phase I Construction Project	2024	PRC	111.0	Government of the PRC	The highway is an important gateway connecting the PRC to Southeast Asia and South Asia. The project will build a high standard road connection to the PRC–Myanmar border. It is expected that the road will promote the growth of distribution centers, logistics distribution centers, and tertiary industries, including tourism, light industry, commodity processing, transit trade and transportation. The beneficiaries will include workers in these industries. This port project will speed up port transportation and infrastructure construction, facilitating economic and trade cooperation between the PRC and Viet Nam. The project aims to make Longfu port a rapid and convenient channel from the PRC to Southeast Asia. Longfu port will become a logistics and trading center specializing in agricultural products from the surrounding areas. It will support a new border trade area serving Jiangcheng County and Viet Nam. The Kunming–Mojiang–Longfu Highway will form a transport network connecting the interior and exterior of the PRC, and the PRC and Viet Nam.
Investment	Function Improvement Project of Yutang to No.476, Muyang Town, Funing County, Yunnan Province	2025	PRC	150.00	Development partner Government of the PRC	This road improvement project will link Yutang in the PRC with Viet Nam. It starts at Yutang, Muyang Town, Funing County, and stops at Zhongyue 476 boundary monument, with a total length of 30 kilometers. It is planned to be constructed according to the secondary highway, with an average kilometer cost of CNY30 million/km. The PRC Tianpeng Port has an annual customs clearance capacity of 2 million people and 2 million tons of goods. The project is the main traffic artery between Tianpeng Port–Viet Nam Sheung–Peng port and the PRC’s Peace Corridor–Viet Nam. The project will play a positive role in facilitating the passage of people and goods between the PRC and Viet Nam and will benefit 1.2 million people living in the border area between the PRC and Viet Nam.

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Appendix 4 continued

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	PRC Basa-Viet Nam Basha Red River Boundary River Highway Bridge Project	2025	PRC	23.6	Government	The bridge is a low-tower cable-stayed bridge with a main span of 110 meters (m). The total length of the bridge is 420 m, the width of the bridge deck is 35.3 m. There are six lanes and cars travel each way, and the load standard is highway class I.
Investment	PPP Project of Pu'er Jinggu to Ning'er Expressway	2022	PRC	1,527.6	Government of the PRC PPP investment (Government - 24.37 Social Capital- 99.90 Special bonds issuance - 100.63 Bank financing - 1,302.65)	The project belongs to the county expressway "All-Access" project. The route starts from Dongmangmian Village in Jinggu County, then connects Zhentai to Jinggu Expressway project and ends at Shuizhai Village of Ning'er County, connecting with G8511 Expressway. The total length of the road is 72.037 km. There are 53 bridges on the route, including one large bridge. There are 13 tunnels, 6 interchanges, 1 service area, 1 parking area, 1 maintenance area, 1 monitoring center, and 5 toll stations. The planned construction period is 3 years. The project will promote the growth of distribution centers, logistics distribution centers, and tertiary industries, such as tourism, light industry, commodity processing, entrepôt trade, and transportation. The road is connected to the Lao-China Railway, which drives the border exchanges and border trade between Pu'er City and the Lao People's Democratic Republic (Lao PDR), Myanmar, and Viet Nam. Beneficiaries will include border trade operators, tourism operators, and border residents on both sides. The road will promote economic and trade exchanges and tourism exchanges with the Lao PDR, Myanmar, and Viet Nam. The project began in December 2022 and is expected to be completed in December 2025. At present the project still has a funding gap of \$650 million.

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Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	PRC Jinshui River-Viet Nam Malutang Multifunctional Cross-Border Bridge	2025	PRC, Viet Nam	23.5	Government of the PRC	The main bridge of the project adopts a single-tower cable-stayed bridge design. The bridge has a total length of 23 m and a width of 38 m. To promote the opening up of Jinshuihe Port to the outside world, it needs to be upgraded to an international port and a multifunctional cross-border bridge needs to be built. This bridge between the PRC's Jinshui River and Viet Nam's Malutang Port will drive the economic and social development of Honghe Prefecture and will lead to economic and cultural exchanges between the PRC and Viet Nam.
Investment	Improvement of Bridges on NR9 in Savannakhet Province, Lao PDR (Phase II)	2024	Lao PDR	25.0	Japan International Cooperation Agency	The project will reconstruct both the Xe Cham Phon and Xe Xam Xoy bridges to secure a safe and stable traffic flow on NR 9. It will contribute to the development of infrastructure and the economy of the surrounding regions.
Investment	Lao PDR-Thailand Bridge No. 6 Salavan-Oubon	2024	Lao PDR	63.3	Neighboring Countries Economic Development Cooperation Agency	The main components of the project are: (i) a 5 km, two-directional, four-lane connecting road to the bridge on the Thailand side; (ii) the Ubon Ratchathani border control facility; (iii) a traffic changeover point; (iv) a bridge with a total length of 1,607 m, and width of 14.7 m; (v) the Salavan control facility; (vi) a connecting road to the bridge on the Lao PDR side with a length of 17.25 km, designed as two-directional four-lane road.
Investment	Vientiane-Thakhek- Mu Gia Railway Project (452 km) Mu Gia-Yung Ang (103 km)	2023-2025	Lao PDR	1,600.0	Private sector PPP	The project will construct 452 km of railway. It will: (i) promote economic growth by building railway lines for exports and imports, (ii) create employment by establishing a mass transportation system, and (iii) promote tourism by developing a leisure sports industry.

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Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
TA	Feasibility Study for Savannakhet–Lao Bao Railway Project (220 km)	2024	Lao PDR	2.0	Private sector PPP	The TA project will conduct a feasibility study for a project that will construct 220 km of railway. The project will: (i) promote economic growth by building railway lines for exports and imports, and (ii) create employment by establishing a mass transportation system.
TA	Feasibility Study for Pakse, Champasak Province–Vernkham (Lao PDR–Cambodia border) Railway project, (100 km)	2024	Lao PDR	1.0	Private sector PPP	The TA project will conduct a feasibility study for a project that will construct 100 km of railway.
Investment and TA	Improvement NR6 Hanglong to Phoulao, Houaphanh Province	2024	Lao PDR	65.0	Development partner	The road will be 107 km long. It is envisaged that the improvement of the road will bring it to a class IV. The road is in mountainous terrain and existing roads will be built to a minimum carriageway width of 5.5 m with a shoulder width of between 0.5 m and 2 m. The objective of the project is to improve access to social services and markets (leading to improved livelihoods and poverty reduction). The road will improve connectivity within the region and provide improved links between the Lao PDR, Thailand, and Viet Nam. It is anticipated the road will increase international trade in the GMS Northeastern Corridor and lead to economic growth in the project area.
Investment	Improvement of National Road 8 and the Nam Phao International Border Checkpoint (Lao PDR and Viet Nam), in Bolikhamsay Province	2024	Lao PDR	200.0	Development partner Government of the Lao PDR	The project will improve about 130 km of road in Bolikhamsay Province by laying an asphalt–concrete pavement, if the budget is sufficient. The project will provide economic benefits in the Lao PDR, mainly in the central part of the country, and will enhance connectivity in the area, including between the Lao PDR and Viet Nam, and eventually Thailand, when the Lao–Thai friendship bridge is finished in 2024 or 2025.

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Appendix 4 continued

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	Improvement of the National Road in Xiengkhouang Province (91km)	2024–2025	Lao PDR	40.0	Development partner Government of Lao PDR	<p>The project will improve about 91 km of Phoulao–Muang Kham road in Xiengkhouang and Houaphanh Provinces, laying an asphalt–concrete pavement, if the budget is sufficient.</p> <p>The project will provide economic benefits in the Lao PDR, mainly in the northeastern part of the country, in the provinces of Xiengkhouang and Houaphanh. The road will enhance connectivity in the area, including between the Lao PDR and Viet Nam.</p>
TA	Small Solar Powered Fixed-Wing Unmanned Aircraft Based PID Flight Controller	2024	Myanmar	1.0	Development partner	<p>The TA project will (i) consider the airframe and fixed-wing design of the proposed aircraft; (ii) calculate the total electrical power consumption of the aircraft; (iii) select solar cell, battery capacity, servomotor size; (iv) select the electronic speed controller based on the current rating of servomotor; (v) select the GPS receiver based on the size and weight of the aircraft and its payload; (vi) implement the proposed proportional, integral, derivative flight and solar charge controllers; and (vii) implement the whole aircraft system.</p> <p>The project will reduce oil and fuel consumption. The pilot can drive the aircraft remotely from the ground using manual and automatic controls.</p>
Investment	Construction of a New Road from Udon Thani to Bueng Kan	2024–2025	Thailand	500.0	Government of Thailand: 250.00 ADB: 250.00	<p>The project will construct a four-lane highway of 155.531 km from Mekong bridge (Bueng Kan–Bolikhamsai) offering a new route to Bueng Kan. The new road will encourage the export of goods to foreign countries via the Mekong bridge in Bueng Kan province. It will bypass the heavy traffic in Nong Khai and reduce travel times. The beneficiaries will be local industries and local residents.</p>

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Appendix 4 continued

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	Renovate Passenger Terminal at Lampang Airport	2025–2026	Thailand	1.9	Government of Thailand	The passenger terminal building will be expanded so it can handle 450 people per hour, or 1.2 million people per year. A summer thunderstorm damaged the roof of the passenger terminal and the roofs of other buildings, so they must be replaced. The renovation and expansion will enable more tourists to visit Lampang province in northern Thailand.
Investment	Strengthen the Aprons and Taxiways of Nakhon Phanom Airport Using an Airport Electric System	2026–2028	Thailand	13.5	Government of Thailand	The project will strengthen the aprons and taxiway, enabling the airport to accept aircraft with a capacity of 220 seats. The number of passengers using Nakhon Phanom Airport has increased steadily in recent years and the project will facilitate an increase in tourists.
Investment and TA	Construction of High-Speed Railway for Regional Connectivity (Section 2: Nakhon Ratchasima–Nong Khai, 357 km)	2025	Thailand, PRC	9,631.8	Government of Thailand	The project will build a 357.12-km high-speed rail system (five stations) that will be connected to the PRC's transportation network. It will be part of the Belt and Road Initiative and help to strengthen international relations between Thailand and the PRC. The project will open opportunities for trade, investment, and tourism. It will reduce travel times and costs and increase travel safety and convenience. It will offer an opportunity for railway staff from Thailand to learn about the PRC's railway technology and to build the necessary skills to develop and operate the high-speed railway system.
Investment	Sixth Thai–Lao Friendship Bridge (Ubon Ratchathani–Salavan)	2026	Thailand, Lao PDR	172.3	Thailand side: government Lao PDR side: seeking finance	The Sixth Thai–Lao Friendship Bridge will begin on the Thai side in Natan district, Ubon Ratchathani province and connect with the city of Salavan in the Lao PDR. This bridge will be an arch bridge with two traffic lanes, spanning a total length of 1,607 m, and the traffic changeover is located on the Thai side.

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Appendix 4 continued

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
Investment	New Four-Lane Highway Route from Highway No. 202 Connecting to the 6th Thai-Lao Friendship Bridge (Ubon Ratchathani–Salavan)	2026	Thailand	126.2	Government of Thailand	<p>This initiative is in accordance with the goals in the Greater Mekong Subregion (GMS) 2023 strategy, the National Strategy (2018–2037), the Thirteenth National Economic and Social Development Plan (2023–2027), and the Third Thailand Logistics Development Plan (2023–2027), with a specific emphasis on supporting connectivity to improve competitiveness. Construction of the Sixth Thai-Lao Friendship Bridge (Ubon Ratchathani–Salavan) will enhance connectivity among GMS countries. It will foster cross-border economic growth and trade while positioning Ubon Ratchathani province as a central hub for connecting with the new parallel economic corridor, linking Da Nang Port in Viet Nam and the Andaman Sea with the city of Dawei in Myanmar.</p> <p>This new four-lane, 33.8-km highway project begins at Highway No. 202 and will connect to the Sixth Thai-Lao Friendship Bridge (Ubon Ratchathani–Salavan).</p> <p>This project aligns with the objectives outlined in the GMS 2023 strategy, the National Strategy (2018–2037), the Thirteenth National Economic and Social Development Plan (2023–2027), and the Third Thailand Logistics Development Plan (2023–2027), focusing on fostering connectivity to enhance competitiveness.</p> <p>The investment in this project will accommodate the increasing demand for travel and goods. The road will be part of road networks supporting cities, agriculture, tourism, and industries. It is scheduled to open at the same time as the Sixth Thai-Lao PDR Friendship Bridge (Ubon Ratchathani–Salavan).</p>

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Appendix 4 continued

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
TA	Study of Development of Transportation Network Connecting to Udon Thani Airport and Khon Kaen Airport	2024–2025	Thailand	3.5	Government of Thailand	Sustainable transport systems are characterized by efficiency (connectivity, punctuality, convenience, and fair fares), safety, environmentally friendly transportation, and accessibility to all citizens. Udon Thani airport and Khon Kaen airport are major airports within the GMS. Developing the transport network connecting to the Udon Thani Airport and Khon Kaen Airport will make traveling to both airports more convenient. The objective of the study was to (i) create a transportation network development plan to access Udon Thani Airport and Khon Kaen Airport in order to increase their service efficiency, (ii) examine appropriate alternative modes of traveling by public transport to access the airports, and (iii) create a model that can be used to produce implementation guidelines for relevant agencies.
TA	Implementation of Modern Technologies and Innovation to Enhance Efficiency in Dry Ports and Surrounding Areas	2026	Thailand	1.0	Development partner	The Ministry of Transport has prioritized the development and implementation of appropriate technologies within logistics parks, including ports, dry ports, inland container depots, and surrounding areas. Such parks will enhance economic potential, decrease domestic logistics freight costs, improve safety, and facilitate the efficient movement and management of cargo throughout the supply chain. The initiatives include: <ul style="list-style-type: none"> • Development of 5G technology solutions • Development of Narrowband Internet of Things (NB-IoT) technology to support 5G • Development of advanced information and communication technology (ICT) • Development of big data system • Adoption of connected and autonomous vehicle technology • Technology and innovation management in Freight Village

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Appendix 4 continued

Type (Investment or Technical Assistance [TA])	Project Title	Year of Commencement	Country	Cost Estimate (\$ million)	Potential Funding Source and Amount (\$ million)	Description and Planned Outputs
						<p>The project objectives are to: (i) study modern technologies and innovative transportation models relevant to dry ports or inland container depots, (ii) promote efficient movement of cargo domestically and within GMS member states, (iii) study and recommend effective measures and guidelines for optimizing logistics transportation costs, and (iv) conceptualize designs and develop technology models suitable for enhancing the efficiency of logistics transportation within dry ports or inland container depots.</p>

Source: ADB.

Appendix 5: Nationally Determined Contributions of Greater Mekong Subregion Countries in the Transport Sector

Country	Climate Change Mitigation				Necessary Financial Support (\$ million)	Climate Change Adaptation Measures
	Unconditional Targets		Conditional Targets			
	Measures	Measures	Measures	Measures		
CAM	<ul style="list-style-type: none"> Establish green belts along major roads for climate change mitigation^a Shift long distance freight movement from trucks to train^a 	<ul style="list-style-type: none"> Promote integrated public transport systems in main cities Enhance maintenance and inspection of vehicle E-mobility 		...		
PRC	<ul style="list-style-type: none"> Improve green transportation system and standards Foster urban low-carbon transportation system Optimize the transportation structure Accelerate the replacement and optimization of transportation fuels Encourage new energy vehicle development 	<ul style="list-style-type: none"> E-mobility 		-	<ul style="list-style-type: none"> Urban greenways Strengthening of the maintenance of transportation facilities, and raising of design and construction standards Resilience of national highway network 	
LAO	<ul style="list-style-type: none"> New bus rapid transit system in Vientiane capital and associated nonmotorized transport component Lao–China railway 	<ul style="list-style-type: none"> 30% electric vehicles penetration for two wheelers and passengers' cars in national vehicle mix Biofuel to meet 10% of transport fuels 		500	<ul style="list-style-type: none"> Increase the resilience of urban development and infrastructure to climate change, including using green infrastructure and nature-based solutions Promote ecosystem-based adaptation solutions 	
MYA	<ul style="list-style-type: none"> Electric vehicles. Development of a Shipping Energy Efficiency Management Plan and a Green Shipping Strategy. 	<ul style="list-style-type: none"> Inland marine sector for GHG emission reduction Green ship strategy for coastal shipping 		1.2		
				1.1		

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Appendix 5 continued

Country	Climate Change Mitigation			Climate Change Adaptation	
	Unconditional Targets		Conditional Targets		Necessary Financial Support (\$ million)
	Measures	Measures	Measures	Measures	
THA	<ul style="list-style-type: none"> Environmentally Sustainable Transport System Plan (2013–2030). NDC road map identifies key measures and allocates emission reduction targets and responsibilities to relevant agencies in energy, transport, industry, and waste management sectors. 	-	-	-	-
VIE	<ul style="list-style-type: none"> Reduction of emission from fuel combustion in energy industry, industrial production and construction, transportation and others. 	<ul style="list-style-type: none"> For transport sector, improve energy efficiency and conversion in transportation, including passenger, freight, and private transportation 	-	<ul style="list-style-type: none"> Updating transport facilities in areas with high disaster risk and vulnerability to climate change. Developing and completing the expressway network and the inter-regional transport system. 	-

CAM = Cambodia, PRC = People's Republic of China, GHG = greenhouse gas, LAO = Lao People's Democratic Republic, MYA = Myanmar, NDC = nationally determined contribution, THA = Thailand, VIE = Viet Nam.

^a The figures are greenhouse gas reduction volume in energy industry, industrial production and construction, transportation, and others (household, agriculture, services and trade) in the country. Sources: Government of Cambodia. 2020. *Updated Nationally Determined Contributions*; Government of the People's Republic of China. China's Achievements, New Goals and New Measures for Nationally Determined Contributions (Unofficial Translation); Government of the Lao People's Democratic Republic. 2021. *Nationally Determined Contributions*; Government of Myanmar. 2021. *Nationally Determined Contributions*; Government of Thailand. 2021. *Thailand's Updated Nationally Determined Contributions*; Government of Viet Nam. 2022. *Updated Nationally Determined Contribution (NDC)*.

Appendix 6: Greater Mekong Subregion Transport Sector Strategy 2030 Update Results Framework

GMS-wide Outcomes

Connectivity: People's access to goods and services for healthy and productive lives improved

Competitiveness: Efficient cross-border movement of people and goods enhanced

Sector Vision, Outcomes, and Outputs

Vision			
Seamless, Efficient, Reliable, and Sustainable GMS Transport System			
Outcomes/Outputs	Indicator/s	Baseline/Targets	Source/s of Information
Outcome: Efficient and safe cross-border movement of people, goods, and vehicles along the GMS economic corridor transport network	Time and cost of travel along the GMS economic corridor transport network as indicated by the Road Connectivity Index ^a	70 (2019)/ At least 78 by 2030	ADB Asian Transport Outlook Database
	Road traffic crash fatalities as measured by deaths per 100,000 population	22.1 (2019)/ Reduced by 25% by 2030 ^b	ADB Asian Transport Outlook Database
Output 1: GMS economic corridor road transport network strengthened and improved	Construction, rehabilitation, and upgrading of corridor roads	Completion of ongoing road projects (3,711.9 km) and bridge (10) projects listed in Appendix 2 by 2030	RIF, Minutes of STF, Ministries of Transport of GMS countries
Output 2: CBTA implementation enhanced and accelerated, and complementary TTF measures enhanced	Extension of the Early Harvest Mechanism beyond 2026 and its application to new routes and border crossings	Implementation of the Early Harvest Mechanism institutionalized by 2030	Joint Committee for the CBTA, STF, ADB
		Trial runs of the Early Harvest mechanism conducted in at least two other GMS economic corridor routes by 2030	Joint Committee for the CBTA, STF, ADB
	Improvement of cross-border facilities	At least five cross-border facility improvement projects are included in the RIF from 2024 to 2030	RIF, STF, GMS Secretariat
Output 3: Cross-border railway links and GMS railway network established; multimodal transport development promoted	Conduct of training programs for central, local, and border officials on TTF	At least 2 training workshops per year are held up to 2030	ADB, STF, GMS Secretariat
	Completion of the priority GMS railway links and the GMS railway network	Completion of ongoing (3,924 km) railway projects in Appendix 2 and proposed railway projects in the RIF	STF, RIF
	Sustained and strengthened operation of GMRA	Continuing funding for GMRA operations secured, and GMRA transformed into a permanent, legal and intergovernmental body by 2030	GMRA, STF, ADB

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Appendix 6 *continued*

Vision			
Seamless, Efficient, Reliable, and Sustainable GMS Transport System			
Outcomes/Outputs	Indicator/s	Baseline/Targets	Source/s of Information
	Implementation of ports and inland waterways, and air transport projects.	At least two projects on ports and inland waterways, and one project on air transport are included in the RIF each year from 2024 to 2030	RIF, STF, GMS Secretariat
Output 4: Climate change mitigation and adaptation measures in the transport sector strengthened.	Status of implementation of nationally determined contributions of GMS countries in the transport sector	Achievement of nationally set targets for climate change mitigation and adaptation	GMS country progress reports and updates
Output 5: Logistics development promoted.	Performance of GMS countries in logistics as indicated by the overall Logistics Performance Index Implementation of projects on logistics development in the GMS	Improvement in the average logistics performance index from 3.1 in 2023 to 3.5 in 2030 ^c At least three projects on logistics development included in the RIF each year from 2024 to 2030.	World Bank Logistics Performance Index RIF, STF, GMS Secretariat
Output 6: Private sector participation enhanced.	Increase in the number of PPP projects in the GMS transport sector	At least three PPP projects included in the RIF each year from 2024 to 2030 Share of PPP projects in total financing of transport projects in the RIF increased from 10% in RIF 2027 to at least 15% in RIF 2030.	RIF, STF, GMS Secretariat RIF, STF, GMS Secretariat
	Sustained and enhanced operation of FRETA	Continuing and increased funding of FRETA operations secured by 2030 Annual FRETA forum conducted	FRETA, ADB FRETA

ADB = Asian Development Bank, CBTA = Cross-Border Transport Facilitation Agreement, FRETA = Freight and Transport Association, GMS = Greater Mekong Subregion, GMRA = Greater Mekong Railway Association, km = kilometer, PPP = public-private partnership, RIF = regional investment framework, STF = Subregional Transport Forum, TTF = transport and trade facilitation.

Note: This adopts the structure of the GMS Strategy 2030 Results Framework under which Level 2 (sector-level) results indicators measure the outcomes and outputs of interventions and initiatives under the three pillars of GMS-2030—connectivity, competitiveness, and community.

^a The Road Connectivity Index compiled by the World Economic Forum comprises: (i) a measure of the average speed of a driving itinerary connecting the 10 or more largest cities in an economy accounting for at least 15% of the economy's total population, and (ii) a measure of access to direct routes or road straightness. Average excludes Myanmar due to lack of data. Data for the People's Republic of China refers to the whole country.

^b This is the target of the Association of Southeast Asian Nations for road traffic fatalities under its Transport Strategic Plan.

^c Average of the logistics performance index (LPI) for the GMS countries excluding Myanmar for which no data is available. The national LPI of the five countries in 2023 ranged from 2.4 to 3.7.

Source: ADB.

Greater Mekong Subregion Transport Sector Strategy 2030 Midterm Review and Update

The Greater Mekong Subregion (GMS) Transport Sector Strategy 2030 provides a framework for GMS cooperation in the transport sector for the period 2018–2030. This report presents the strategy’s midterm review and an update covering plans for the second half of the implementation period, providing a road map for cooperation in the GMS transport sector up to 2030. It considers progress and evolving issues and challenges, aiming to enhance the strategy’s contribution to the achievement of the GMS vision of a more integrated, prosperous, sustainable, and equitable subregion.

About the Greater Mekong Subregion Economic Cooperation Program

The GMS is made up of Cambodia, the People’s Republic of China (specifically Yunnan Province and Guangxi Zhuang Autonomous Region), the Lao People’s Democratic Republic, Myanmar, Thailand, and Viet Nam. In 1992, with assistance from the Asian Development Bank and building on their shared histories and cultures, the six countries of the GMS launched a program of subregional economic cooperation—the GMS Program—to enhance their economic relations. The GMS Program covers the following sectors: agriculture; energy; environment; health cooperation; tourism; transport; trade and investment; and urban development.

About the Asian Development Bank

ADB is a leading multilateral development bank supporting inclusive, resilient, and sustainable growth across Asia and the Pacific. Working with its members and partners to solve complex challenges together, ADB harnesses innovative financial tools and strategic partnerships to transform lives, build quality infrastructure, and safeguard our planet. Founded in 1966, ADB is owned by 69 members—50 from the region.



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ASIAN DEVELOPMENT BANK

6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org