Connecting South and Southeast Asia through Improved East-West Linkages



A MEKONG-U.S. PARTNERSHIP & U.S. DEPARTMENT OF TRANSPORTATION PROGRAM

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Questions or Comments? Please Contact:

Eng Gin Moe International Transportation Specialist U.S. Department of Transportation enggin.moe@dot.gov

Rachel Rodgers Program Manager (Contractor) Mekong-U.S. Partnership RodgersRS@state.gov

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LIST OF ABBREVIATIONS

Abbreviation	Term
ACMECS	Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy
ADB	Asian Development Bank
AHN	ASEAN Highway Network
ASEAN	Association of Southeast Asian Nations
BBIN	Bangladesh, Bhutan, India, Nepal
BBIN+M	Bangladesh, Bhutan, India, Nepal, and Myanmar
BBIN-MVA	Motor Vehicles Agreement for the Regulation of Passenger, Personal and Cargo
	Vehicular Traffic between Bangladesh, Bhutan, India, and Nepal
BCIM	Bangladesh, China, India and Myanmar (Economic Corridor)
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation
BTILS	BIMSTEC Transport Infrastructure Logistics Study
СВТА	Cross-Border Transport Agreement
CUTS CITEE	Centre for International Trade Economics & Environment
ECF	Economic Corridor Foundation
ERIA	Economic Research Institute for ASEAN and East Asia
EWEC	East-West Economic Corridor
FRETA	Freight Transport Association
GMRA	Greater Mekong Railway Association
GMS	Greater Mekong Subregion
GHG	Greenhouse Gas
IRU	International Road Transport Union
JICA	Japan International Cooperation Agency
MoU	Memorandum of Understanding
MPAC	Master Plan on ASEAN Connectivity
NSEC	North-South Economic Corridor
OECD	Organisation for Economic Cooperation and Development
SAARC	South Asian Association for Regional Cooperation
SAP	Strategy and Action Plan
SASEC	South Asia Subregional Economic Cooperation
SEC	Southern Economic Corridor
SKRL	Singapore-Kunming Rail Link
STF	Subregional Transport Forum
TLH	Trilateral Highway
TLH-MVA	Trilateral Motor Vehicle Agreement
TSS 2030	GMS Transport Sector Strategy 2030
TTF	Transport and Trade Facilitation
WTO-FTA	World Trade Organization Trade Facilitation Agreement
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific

EXECUTIVE SUMMARY

This report presents the preliminary research findings of a United States Department of Transportation (U.S. DOT) and U.S. Department of State-sponsored initiative to promote and expand intra-regional and East-West connectivity between the five contiguous countries in the Mekong River Delta (Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam) and South Asia (particularly India and Bangladesh). This research includes three phases:

- **Phase 1**: Cataloging, analyzing, and ranking major East-West regional road connectivity plans to identify the most feasible and appropriate plans and planning processes as candidates for future U.S. Government-led technical assistance and capacity building
- **Phase 2**: Application of Phase 1 framework and findings to support U.S. DOT outreach through the U.S. Embassies to foreign governments and stakeholders
- **Phase 3**: Completion of a gap analysis to analyze national-level and regional shortfalls in planning processes and plans

Rather than assessing road corridors in terms of infrastructure development, this report focuses on transportation plans and the overall planning processes for East-West connectivity initiatives. The research team developed a framework to evaluate the planning approach for major road corridors in the study area, which is based on the fundamental principles for a comprehensive, coordinated, and continuous ("3-C") transportation planning process. The evaluation criteria included in this framework are safety, climate resilience, sustainable financing, performance-based planning, governance, stakeholder engagement, border crossings, asset management, and multimodal connectivity. The research team applied these criteria to evaluate and prioritize the relevant corridors in terms of potential opportunities for U.S. engagement with national and regional partners during the technical assistance and capacity building stage of the project.

An initial desk-based research effort identified approximately 40 plans, policy documents, or feasibility studies related to corridors or other related transport connectivity initiatives across South and Southeast Asia. From the universe of regional corridors identified during this scan, the research team selected 11 corridors for further analysis. Based on the scope of the study and the availability of published English-language plans, the research team screened and prioritized the corridors into two categories, with the first group undergoing a more detailed analysis. The corridors were prioritized using the planning criteria, as well geographic coverage, relevance to regional connectivity, and overall level of development. The corridors analyzed in this study include the following:

- First Priority
 - Greater Mekong Subregion (GMS) East-West Economic Corridor (EWEC)
 - GMS Southern Economic Corridor (SEC)
 - o India-Myanmar-Thailand Trilateral Highway (Eastward Expansion Southern Route)
 - o India-Myanmar-Thailand Trilateral Highway (Eastward Expansion Northern Route)
 - South Asia Subregional Economic Cooperation (SASEC) Road Corridor 3 ("India-ASEAN East-West Corridor)
 - Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Trade Route 1

- Second Priority
 - o GMS North-South Economic Corridor (NSEC)
 - o India-Myanmar-Thailand Trilateral Highway (Original Configuration)
 - SASEC Road Corridor 5 ("North Bangladesh-India Connector")
 - BIMSTEC Trade Route 2
 - o Bangladesh, China, India, and Myanmar (BCIM) Economic Corridor

While all identified first-priority corridors encompass, at a minimum, a rudimentary road network, the overall maturity of each corridor varies. Corridors included in the GMS Economic Corridor network generally have the most robust infrastructure, while the Trilateral, BIMSTEC, and SASEC corridors may need more substantial improvements. The selected corridors cover a broad geography, but there is some overlap in the defined routes, particularly between the Trilateral Highway Southern Extension and the GMS corridors, as well as between the SASEC and BIMSTEC corridors. Technical assistance in these overlapping areas may impact a greater audience and be amplified across the broader regional development efforts.

Within each corridor, a strengthened planning process could address identified gaps in the evaluation criteria, such as infrastructure resiliency; transparent financing and investment; safety; governance; and climate resiliency. Building capacity in these areas could lead to more sustainable and equitable connectivity initiatives throughout the region. These gaps are found to different degrees in each corridor reviewed, and this project's Phase 2 and 3 activities will further assess both gaps and opportunities for each corridor through targeted conversations with stakeholders familiar with the on-the-ground context of transportation planning within the Mekong region.

In addition to assessing the planning process for each of the corridors identified above, this report identifies several cross-cutting findings to inform future phases of research, guide engagement with South and Southeast Asian partners, and support the development of a targeted technical assistance and capacity building program. These include:

- **Safety:** Overall, there is limited discussion of strategies or investments to improve road safety at a corridor level. Several plans identified road projects focused on reducing injuries and crashes but did not include clear performance metrics to support a comprehensive, safety-focused planning approach.
- **Climate Resilience**: Integrating climate adaptation and mitigation strategies into corridor planning appears to be an important opportunity, but the shared political commitment of national and multinational stakeholders will be a critical success factor.
- **Performance-based Planning:** Performance-based planning may be an important emerging opportunity in regional road corridor development. A performance-driven focus could incentivize cooperation and commitment of financial and staff resources to improve overall corridor performance in support of regional goals.

- **Sustainable Financing**: In many cases, there does not appear to be a coordinated approach to financing investments at either the corridor level or for major transport projects. Financial realism and credible financial planning will be essential if plans are to be implemented successfully.
- **Governance:** The significant number of overlapping organizations and corridors suggests a need for improved coordination throughout the planning process. There may also be opportunities to better emphasize the significance of Association of Southeast Asian Nations (ASEAN) and Master Plan on ASEAN Connectivity (MPAC) pipeline projects to leverage the leadership of ASEAN for cooperative approaches to the corridors.
- **Stakeholder Engagement:** The participation of public and private sector stakeholders at the local and regional level is important to help shape the plans, ensure support for implementation, and share knowledge of problems to be addressed and potential solutions.
- **Border Crossings:** Both border crossing infrastructure and institutional arrangements were cited as key issues for each corridor reviewed in this study. There appear to be opportunities to expand planning processes to move forward the implementation of agreed-upon transport facilitation frameworks.
- Asset Management: There may be important opportunities to enhance asset management to finance, operate, and maintain the corridors as connected systems. This could entail strengthened corridor-level financial planning, coordinated road condition and traffic data collection, and the use of modeling to set investment and maintenance priorities.
- **Multimodal Connectivity:** Multimodal connectivity appears to be a key priority for many corridors, especially those focused on economic development. Within both cross-sector economic development plans and transport sector plans, there is a consistent emphasis on the need to better connect roads to ports, railways, and multimodal transportation networks.

1 INTRODUCTION

1.1 PROJECT BACKGROUND AND GOALS

This report documents the first phase of a research project conducted by the U.S. Department of Transportation (U.S. DOT) Volpe National Transportation Systems Center (Volpe Center), sponsored by the U.S. DOT Office of International Transportation and Trade (OIT&T) and the U.S. Department of State's Bureau of East Asia-Pacific Affairs as part of the Mekong-U.S. Partnership (MUSP). Through the MUSP, the Department of State is funding projects that promote and expand intra-regional connectivity as well as East-West connectivity linking the Mekong region to South Asia, particularly Bangladesh and India.

This project will facilitate exchanges among these regional partners while also adding U.S. DOT and U.S. state and regional expertise to deliver targeted capacity building and technical assistance dedicated to improving connectivity in line with international best practices in governance and transportation planning.

In the first phase of the project, the research team cataloged and analyzed major East-West regional road connectivity plans and identified the most feasible and appropriate plans and planning processes as candidates for future U.S. Government-led technical assistance and capacity building. The research included studying and analyzing connectivity plans created by major regional and international organizations, other donor countries (including, but not limited to, China, Japan, and Korea), and regional and global research centers. The plans and other documents reviewed are listed in Appendix 1.

In the second phase of the project, the research team will apply the framework and findings developed in this report to support U.S. DOT bilateral and multilateral outreach through U.S. Embassies to foreign governments and stakeholders. The outreach will refine the assessment from the first phase and build support and regional consensus for collaboration and technical assistance to strengthen transport planning and decision-making for transport infrastructure investments in the prioritized corridors.

In the third phase, the research team will conduct a gap analysis to analyze national and regional shortfalls in planning processes and plans. This will include capacity constraints, knowledge gaps, legal/regulatory frameworks, and governance challenges in the Mekong countries and neighboring South Asian countries (Bangladesh and India). Using the assessment of selected connectivity plans from the prior phases, Volpe will develop a gap analysis report and support U.S. DOT in reporting results to the countries analyzed and at relevant regional meetings.

In the final phase, the team will conduct targeted technical assistance with the Mekong and South Asian countries to improve capacity, expertise, and institutional frameworks for planning and investment decision-making for the prioritized corridors.

1.2 TARGET AUDIENCE

The potential audiences for this report and later phases of the project include: 1) U.S. DOT and State Department sponsoring offices and partner U.S. Government agencies conducting related programs in the region, including those focused on regional development and transport infrastructure investment; 2) U.S. Embassies in the region; 3) national governments in the region; 4) regional, bilateral, and multilateral associations with transport corridor initiatives and interests in the region; 5) other interested private sector and civil society organizations.

1.3 STRUCTURE OF REPORT

This report is structured as follows:

- **Methodology**: Research approach, evaluation criteria for plans and planning processes, and approach to prioritization of corridors.
- **Analysis of Corridors and Plans**: Application of criteria to evaluate the strengths and weaknesses of plans and planning processes for major corridors in the study area.
- **Findings and Recommendations**: Cross-cutting findings based on evaluation of the major corridors in the study area and recommendations to consider for the second phase of the project.

1.4 GEOGRAPHIC BOUNDARIES

This report focuses on transportation planning and plans for road corridors to support intra-regional and East-West connectivity between the five contiguous countries in the Mekong River Delta (Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam) and South Asia (particularly India and Bangladesh). While connectivity between these countries is the primary focus of the analysis, many corridors that pass through this region extend further throughout the ASEAN bloc, or northward to China (see Figure 1 below). Additional geographic detail about the study area, priority regions, and corridors is available on the project map <u>here</u> and in Figure 1.



2 METHODOLOGY

2.1 ASSUMPTIONS

The analysis in this report is based on the following assumptions:

- Focus on major road corridors connecting the defined study area in South and Southeast Asia.
- Assess planning for candidate road corridors within a multimodal context, including linkages to ports. This is consistent with many of the source plans, which consider corridors as both connected networks of roads, as well as road networks connected to multimodal corridors.
- Apply a flexible definition of plans, casting a broad net in scanning available source documents to include feasibility studies and vision, scenario, economic development, investment, or implementation plans.
- Associate a combination of plans and planning processes with specific road corridors. Typically, the source plans cover multiple corridors or multiple plans cover a single corridor, often with overlaps in coverage. As a result, the analysis of individual corridors describes the associated and overlapping plans and planning processes.

- In addition to transport sector plans, consider available economic development plans that include the transport sector as well other sectors, from energy to technology and human development. It is likely that economic development plans for cross-border corridors reflect initial regional connectivity efforts that can provide the foundation for later and more geographically focused transport plans.
- Although the researchers could only review the plans themselves, the area of interest is on the planning processes that appear to underlie each plan. A plan is a static source of information, but it is an output of the process to develop and implement the plan. The process to produce the plan is indicative of the plan's successful implementation. Within the limits of Phase 1, each plan "provides a window into the planning process." In later phases of the research, it will be possible to expand and revise understanding of the planning processes through direct contacts with U.S. Government program managers and Embassies with related responsibilities and interests, national governments in the study area, and other stakeholders.
- The research did not intend to identify best practices to target technical assistance and capacity building to corridors with the most comprehensive and advanced planning processes or to countries with the highest level of capacity. The intent is to apply the criteria to identify corridors where there is apparent interest in improving processes in the prioritized topics of interest.

2.2 ASSESSMENT CRITERIA

The research team developed a framework with criteria to evaluate the transport plans and planning processes for major road corridors in the study area. The framework is based on fundamental principles for a comprehensive, coordinated, and continuous ("3-C") transportation planning process:¹

- **Comprehensive**: Applying complete and credible data on road condition, traffic volumes, trip purposes, and other key quantitative measures in a technically rigorous process to accomplish public sector goals and prioritize investments.
- **Coordinated**: Involving collaboration among responsible public sector authorities (regional, national, and metropolitan area, as appropriate) and stakeholders who coordinate on plans, priorities, and investment decisions.
- **Continuous**: Processes in place to routinely update plans and investment priorities, implement projects, operate and maintain the corridor, and monitor and evaluate outcomes as part of an ongoing and sustainable process for corridor planning and management.

The criteria described below are adapted from the 3-C framework established under U.S. federal planning law (49 U.S.C. 5303) and applied to all 50 states and over 400 metropolitan areas with a population over 50,000. The research team adapted the 3-C framework for this corridor research based on a series of capacity building workshops Volpe conducted with OIT&T involving the five

¹ "Metropolitan, Statewide and Non-Metropolitan Planning," U.S. DOT/Federal Transit Administration. <u>https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/metropolitan-statewide-non-metropolitan-planning</u>

Mekong countries, Bangladesh, India, Nepal, and Sri Lanka in September of 2013. The research team also referenced a similar framework used for the Millennium Challenge Corporation in due diligence assessments of potential U.S. Government infrastructure investments and complementary policy or institutional reforms. Table 1 lists the criteria used to screen the corridors for the detailed analysis in Section 3.

Purpose	Criteria
Planning	Safety
	Climate Resilience
	Sustainable Financing
	Performance-based Planning
	Governance
	Stakeholder Engagement
	Border Crossings
	Asset Management
	Multimodal Connectivity
Prioritizing	Geographic Coverage
Corridors	Relevance to Regional Development
	Completeness of Road Infrastructure

Table 1: List of Evaluation Criteria

The evaluation criteria as defined as follows:

- **Safety**: The corridor planning process and resultant plans should incorporate safety goals with performance metrics and targets in setting priorities for investments and strategies, including a specific focus on vulnerable nonmotorized road users.
- **Climate Resilience**: The corridor planning process and resultant plans should incorporate climate resilience goals to design and adapt infrastructure that will be resilient to climate change and extreme weather, as well as other human or natural threats or emergencies. Where applicable, goals and metrics should support national and regional commitments to reduce transport sector GHG emissions.
- **Sustainable Financing**: The corridor planning process and resultant plans should be "financially realistic," reflecting rigorous and credible financial planning, based on realistic forecasts that align estimates of capital and operating costs and revenues.
- **Performance-based Planning**: All stages of the planning and project development process must focus on performance and measurable outcomes, from project initiation, to appraisal, to monitoring and evaluation. When regional associations and national governments initiate proposals, project goals should be clearly expressed in terms of expected outcomes and targets, which then guide project assessment, prioritization, and selection, and establish the ability to monitor and evaluate results.
- **Governance**: There should be a clear description of institutional roles and responsibilities for the corridor, from planning to priority setting, selection of investments, financing,

implementation, operations, and maintenance. This is an essential element to move beyond plans that are policy statements without clear commitment of roles and responsibilities for regional or national governments, private investors, or other stakeholders.

- **Stakeholder Engagement**: The corridor plan and underlying planning process should incorporate an open and "proactive" public engagement process that encourages timely and substantial participation of relevant countries and metropolitan areas, regional associations, the private sector, civil society, and community members, including those with limited abilities to engage. Stakeholder engagement should occur continuously throughout the planning and project development process. There should be opportunities, for example, to shape decisions early in the project development process, such as the definition of purpose and need, goals, criteria for prioritization, and project selection procedures.
- **Border Crossings**: Border crossings are an essential element of the cross-border corridors, but they prove particularly challenging since they are the responsibility of more than one country to plan, finance, operate, and maintain. This criterion focused on all of these aspects, and the ability to incorporate a "holistic" approach to crossings, that combines consideration of infrastructure (access roads, bridges, inspection stations, etc.), technology for processing goods and people movement, and binational and multinational protocols. Assuming a goal of streamlining transport flows, all of these elements should be incorporated in border planning, operations, and investment.
- Asset Management: Transportation Asset Management Plans focus on analyzing information about the assets, their management and maintenance strategies, long-term expenditure forecasts, and business management processes. Asset management provides for the sustainable operations and maintenance of proposed infrastructure projects, building on realistic financing for major capital projects and credible forecasts of costs, revenues, traffic, and demographic trends affecting the corridor.
- **Multimodal Connectivity**: Proposed new major transport infrastructure projects must be analyzed as potential elements of a connected multimodal system, not in isolation. Road projects must be considered not only as part of an overall road network, but also as part of a broader multimodal system, including consideration of connectivity to rail and port facilities, and for the ability to improve freight movement as well as passenger mobility and accessibility. This criterion should lead to establishing substantial and continuous coordination of planning and decision-making processes for roads as part of a connected multimodal network.

2.3 ALIGNMENT WITH RELATED INTERNATIONAL AND REGIONAL INITIATIVES

This report and the overall research and technical assistance efforts are being developed with consideration of other related initiatives underway. As the research advances, the research team will consider specifics from other U.S. Government and partner activities to ensure that this project is

consistent and complementary. For example, the U.S. Government is supporting the Organization for Economic Co-operation and Development (OECD) to develop the Blue Dot Network²:

"...to help countries pursue quality infrastructure investments by promoting the application of robust international standards, best practices and open market principles..... the Blue Dot Network will provide an internationally-recognised certification framework to assist countries in pursuing investments that maximise the positive economic, social, environmental and development impact of infrastructure."

There is a complementary connection between the corridor planning criteria in this report and the criteria used by OECD's Blue Dot Network. Using these planning criteria as a lens through which to assess each of the target corridors at a regional or multi-national level is similar to the approach taken by the Blue Dot Network at the project-level.³ From an initial review, there appear to be similar use of criteria for asset management and life cycle financial planning; incorporation of a range of socioeconomic goals in planning priority setting (i.e., the UN Sustainable Development Goals); and consideration of transport sector energy use and CO₂ emission levels. Alignment of this research with the Blue Dot Network program as well as with other potentially complementary international or regional initiatives will be explored in later phases of this research.

3 ANALYSIS OF CORRIDORS AND PLANS

3.1 INTRODUCTION

This section introduces several key corridors that could play an important role in connecting South and Southeast Asia, fostering economic development, and advancing a broad range of regional transport goals. These corridors are presented in existing regional connectivity plans developed by a range of organizations, from international and regional associations to multilateral and bilateral development agencies. The objective of this section is to describe the corridors and their corresponding planning processes through the lens of regional plans. The plans provide a window on the underlying planning processes, as described in Section 2.

In this study, the term *corridor* is used to refer to both transportation and economic corridors. A transportation corridor may not always serve as an economic corridor, because in addition to the development of infrastructure, there are additional critical components for the development of an economic corridor. These include business and industrial development, communications technology, and logistics and supply chain improvements. However, an efficient transportation system is a foundation of a successful economic corridor.

² "OECD and the Blue Dot Network: Designing a trusted global framework for quality infrastructure investment." <u>https://www.oecd.org/corporate/oecd-and-the-blue-dot-network.htm</u>

³ https://www.oecd.org/corporate/oecd-and-the-blue-dot-network.htm

To set up the institutional context of the plans, Section 3.2 introduces the major sponsoring organizations. These organizations include not only those that developed plans for corridors, but also those that play an important role in coordinating among different stakeholders to implement regional initiatives. Section 3.3 provides an overview of major regional corridors identified through a comprehensive literature review. Section 3.4 introduces the priority regional networks and their associated planning or coordinating organizations. Section 3.5 describes several documents that provide foundations for the corridor planning and plans, including one master plan and multiple regional agreements that are key in supporting the development and implementation of a seamless regional transportation network. Section 3.6 applies the set of criteria the research team developed and applied to evaluate the planning process of each of the corridors of interest, and to prioritize a set of six corridors for detailed analysis. Section 3.7 presents the analysis for the six prioritized corridors. Finally, Section 3.8 includes summary analysis of additional corridors that the team identified as less critical for the study.

3.2 OVERVIEW OF KEY ORGANIZATIONS

The corridor plans discussed in this report are sponsored by or include participation from a range of regional associations, international development and donor organizations, research centers, and national government partners. There is significant overlap in the funding and membership of these entities, with many corridors being planned or funded by multiple sources. In some cases, identical road segments are considered to be part of different corridors, and thus may be represented in separate and unrelated planning documents.

3.2.1 Regional Associations

Key regional associations involved in the planning or implementation of this study's priority corridors include:

- The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)
- The Greater Mekong Subregion (GMS)
- The South Asia Subregional Economic Cooperation (SASEC) Program
- The South Asian Association for Regional Cooperation (SAARC)
- The Association of Southeast Asian Nations (ASEAN)

Table 2 indicates the countries that are members of each organization.

Organization	S	outh Asia		I	Other Countries				
	India	Bangladesh	Myanmar	Myanmar Laos Thailand Cambodia Vietnam		Vietnam	7		
BIMSTEC	Х	Х	Х		Х			Sri Lanka, Nepal, Bhutan	
GMS			х	х	x	х	х	China (Yunnan Province and the Guangxi Zhuang Autonomous Region	
SASEC	х	х	х					Sri Lanka, Maldives, Nepal, Bhutan	
SAARC	х	х	х					Sri Lanka, Maldives, Afghanistan, Nepal, Bhutan	
ASEAN			х	х	х	х	х	Indonesia, Malaysia, Singapore, Philippines, Brunei	

Table 2: Membership of Select Regional Associations

3.2.2 International Development and Donor Organizations

International development or donor organizations, including the Asian Development Bank (ADB), the Japan International Cooperation Agency (JICA), the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and the World Bank fund or coordinate many corridor development and transport projects in South and Southeast Asia. ADB plays a key role in corridor planning, as it serves as the secretariat and primary financer for associations including GMS and SASEC, as well as maintaining partnerships with ASEAN and other regional organizations. JICA has also established partnerships with ADB and the World Bank and supports several ongoing initiatives under the Japan-Mekong Cooperation. UNESCAP maintains the Asian Highway Database, which provides critical condition information for many road segments included in South – Southeast Asia transport corridors.

3.2.3 Research Centers

Regional research centers such as the Economic Research Institute for ASEAN and East Asia (ERIA) often conduct analyses regarding the feasibility of proposed or potential road corridors. ERIA was established in 2007 by 16 Asian countries to conduct and disseminate policy research and provide policy recommendations on topics including infrastructure and economic integration.

3.3 OVERVIEW OF REGIONAL CORRIDORS

Through the initial screening and analysis process, the research team identified approximately 40 plans, policy documents, or feasibility studies related to road and multimodal corridors or other related transport connectivity initiatives across South and Southeast Asia. These documents covered a wide range of corridors throughout the region, including:

- GMS Economic Corridors
- Trilateral Highway (original configuration and potential extensions)
- SASEC Road Corridor System
- BIMSTEC Trade Routes
- Bangladesh, China, India and Myanmar (BCIM) Economic Corridor
- Asian Highway Network
- ASEAN Highway Network
- Asian Cargo Network
- Belt and Road Initiative
- Eurasian Southern Corridor
- China-Indochina Peninsula Economic Corridor

The research team applied the geographic and planning criteria described in Section 2.2 to screen and identify a priority set of corridors to assess in further detail. Several of the prioritized corridors are part of a broader network and are thus represented by a planning process that extends beyond an individual corridor; these are noted in the following section. The table below shows the selected plans that refer to each of the eleven corridors discussed in this document. An "X" means that the corridor was a primary focus of the plan, while a "+" indicates that the plan referred to potential connections or overlaps with the corridor.

Plan Sponsor	Plan Name	EWEC	NSEC	SEC	TLH (Original)	TLH (Northern)	TLH (Southern)	SASEC 3	SASEC 5	BIMSTEC 1	BIMSTEC 2	BCIM EC
ADB	GMS Transport Sector Strategy 2030: Toward A Seamless, Efficient, Reliable, Sustainable GMS Transport System (2018)	Х	Х	х	+							
ADB	Review of Configuration of the Greater Mekong Subregion Economic Corridors (2018)	Х	Х	Х	+							
ADB	Revisiting the GMS Economic Corridor Strategies and Action Plan (2015)	Х	Х	Х								
ADB	Strategy and Action Plan for the Greater Mekong Subregion East-West Economic Corridor (2010)	Х										
ADB	Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor (2010)		Х									
ADB	Strategy and Action Plan for the Greater Mekong Subregion Southern Economic Corridor (2010)			х								
ACMECS	Ayeyarwady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS) 5-Year Master Plan (2018)	Х		х								
JICA	JICA's Regional Cooperation in ASEAN (2012)	Х		Х								
ERIA	The India-Myanmar-Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia and Vietnam: Challenges and Opportunities	+	+	+	х	х	Х					
ADB	South Asia Subregional Economic Cooperation (SASEC) Operational Plan 2016–2025 (2016)							Х	Х			
ADB	South Asia Subregional Economic Cooperation (SASEC) Operational Plan 2016–2025 Update (2020)				+			х	Х	+	+	
ADB	Updating and Enhancement of the BIMSTEC Transport Infrastructure and Logistics Study (2018)				+					Х	Х	
Independent University, Bangladesh	Bangladesh–China–India–Myanmar (BCIM) Economic Corridor: Challenges and Prospects (2018)											х

3.4 OVERVIEW OF PRIORITY REGIONAL CORRIDOR NETWORKS

As this report has previously noted, there is significant overlap between the plans that describe the corridors of the region as well as the corridors themselves. Further, the plans are largely driven by international donors or multi-national organizations whose interests, motivations, and jurisdictions for developing the plans can extend beyond the specific road and transport corridors that are the focus for this study. As such, the corridors of interest are often a part of a broader network of corridors and are thus represented by a planning process that extends beyond the individual corridors in the study area. To help contextualize the information extracted from the plans, this section of the report clarifies the broader networks within which the target corridors lie.

3.4.1 GMS Economic Corridors

Three Strategy and Action Plans (SAPs) were prepared and released between 2008 and 2009 for the three Greater Mekong Subregion economic corridors: EWEC, NSEC and SEC. These SAPs were written to guide the development of these corridors. The Economic Corridor Forum (ECF) was established roughly around the same time (June 2008) and helped reinforce the central role of economic corridor development in the GMS Program.

The SAP development process for each corridor involved national and corridor-level meetings, workshops, and the participation of public and private stakeholders. These meetings resulted in agreed-upon changes to the NSEC and SEC. The final alignments for each corridor are shown in Figure 2. The NSEC and SEC Action Plans contain twice as many projects and measures as the EWEC Action Plan as these two



Figure 2: GMS Economic Corridors (Source: Review of Configuration of the Greater Mekong Subregion Economic Corridors (2018))

corridors include multiple subcorridors. According to the "Revisiting the GMS Economic Corridor Strategies and Action Plan" released in 2015, the EWEC had an 100% completion rate of all the road projects, while the SEC and NSEC had a 71% and 81% completion rate, respectively. In addition to ADB, other development partners include multilateral institutions such as the World Bank and several United Nations agencies, and bilateral agencies such those in Australia, Finland, France, Netherlands, Norway, New Zealand, Japan, Republic of Korea, Sweden, and Switzerland.

3.4.2 India-Myanmar-Thailand Trilateral Highway and Potential Extensions

Following the 2018 ASEAN-India Summit Meeting, the Government of India commissioned ERIA to assess the feasibility of establishing a transportation corridor along the original route of the Trilateral Highway and into Cambodia, Laos, and Vietnam. The resulting study, "The India-Myanmar-Thailand Trilateral Highway and its Possible Eastward Extension to Lao PDR, Cambodia, and Viet Nam: Challenges and Opportunities," includes findings from country-specific studies, other ASEAN-India connectivity analyses, and the Comprehensive Asia **Development Plan. The study** considers both the original alignment, which connects India and Thailand via Myanmar, and potential Northern and Southern Extension routes. Due to the extensive overlap



Figure 3: Alignment of the Trilateral Highway and its Extensions (source: The India-Myanmar-Thailand Trilateral Highway and its Possible Eastward Extension to Lao PDR, Cambodia, and Viet Nam: Challenges and Opportunities)

with other corridor projects (ADB, UNESCAP, and ASEAN Master Plan projects on the northern route, and EWEC, NSEC, and SEC road segments on the southern route), ERIA recommends close cooperation with ADB, UNESCAP, and ASEAN in future planning and development efforts.

According to ERIA, the potential southern extension is significantly more developed than the northern extension, largely due to its overlap with GMS economic corridors. Development of the northern route faces many challenges, including the lack of cross-border transport agreements between Myanmar, Laos, and Vietnam; mountainous terrain; and unresolved security issues. Additionally, while many road segments comprising the original route have been completed or upgraded in recent years, Myanmar will likely require additional ongoing financial assistance from partner countries or organizations for infrastructure maintenance and upgrades.

3.4.3 SASEC Road Corridor System

SASEC was established in 2001 by ADB in response to a request from the South Asia Growth Triangle (Bangladesh, Bhutan, India, and Nepal), a subset of SAARC. SASEC's initial priority transport projects were identified via the 2006 SAARC Regional Multimodal Transport Study. The 2016-2025 SASEC Operational Plan outlines the organization's approach to transport, trade facilitation, and economic corridor development, and identifies seven priority national corridors and their potential industry links. An update to this plan, published in 2020 following an ADB-led project prioritization effort, identified five SASEC road transport corridors to help facilitate multimodal and crossborder connectivity. Two of these corridors, the "India-Association of Southeast Asian Nations East-West Corridor" (Road Corridor 3), and the "North Bangladesh-India Connector" (Road Corridor 5), are discussed in further detail later in this report.



Figure 4: SASEC Road Corridors (Source: South Asia Subregional Economic Cooperation Operational Plan 2016– 2025 Update)

3.4.4 BIMSTEC Trade Routes

BIMSTEC is an interregional grouping established in June 1997. It comprises seven countries including Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand. The BIMSTEC **Transport Infrastructure Logistics** Study (BTILS) was completed with ADB funding in November 2008, and the final report and its recommendation were endorsed at the 12th BIMSTEC Ministerial Meeting in December 2009. In the original BTILS, there was some discussion of potential development of BIMSTEC corridors, which were partially based on the earlier SAARC corridor concept.

The BIMSTEC Transport Infrastructure and Logistics Action Plan 2014-2020 presents three corridors. The first route links South Asia and Southeast Asia, and the central section consists of the Trilateral Highway. This route incorporates 29 priority road developments. The second route connects two main hubs, Kolkata and Chittagong, which handle large volumes of international and domestic trade. This route includes 11 priority road and rail sections. The third route is between Kolkata and Nepal and includes six priority projects.



Figure 5: Key BIMSTEC Trade Routes (Source: Updating and Enhancement of the BIMSTEC Transport Infrastructure and Logistics Study)

3.5 FOUNDATIONAL DOCUMENTS

A key step for international corridor development is the establishment of regional master plans and border crossing agreements to help harmonize logistics and protocols. After reviewing the plans, policy documents, and feasibility studies (as explained in Section 3.3), the research team found frequent references to the same three foundational documents. This section introduces the general content of these documents and their role in supporting the planning process for transport and economic corridors in South and Southeast Asia.

3.5.1 Master Plan on ASEAN Connectivity 2025 (MPAC 2025)

MPAC 2025 was adopted by ASEAN leaders at the 28th and 29th ASEAN Summits in Vientiane, Lao PDR, in September 2016. The MPAC vision is to "achieve a seamlessly and comprehensively connected and integrated ASEAN that will promote competitiveness, inclusiveness, and a greater sense of Community." The plan discusses five strategic areas, including sustainable infrastructure, digital innovation, seamless logistics, regulatory excellence, and people mobility. Several proposed initiatives related to improving physical infrastructure and enhancing connectivity include:

- Establishing a rolling priority pipeline list of potential ASEAN infrastructure projects and sources of funds
- Establishing an ASEAN platform to measure and improve infrastructure productivity
- Strengthening ASEAN competitiveness through enhanced trade routes and logistics
- Enhancing supply chain efficiency through addressing key chokepoints

MPAC 2025 documents the ongoing sustainable infrastructure efforts that will continue from the Master Plan on ASEAN Connectivity 2010. Specifically, the plan highlights key strategies, such as the completion the ASEAN Highway Network (AHN), the continuation of the Singapore-Kunming Rail Link (SKRL) project, and the establishment of an integrated and seamless multi-modal transport system. MPAC 2025 includes strategies to ensure efficient implementation, such as proactive stakeholder engagement and robust performance management. The plan proposes a regular consultative process with the private sector on the progress of ASEAN Connectivity Work Plan initiatives and engagement with stakeholders at key conferences and fora. The plan also proposes a list of outcomes and metrics to guide assessment of the progress of the MPAC 2025, including measures related to sustainable infrastructure and seamless logistics. Metrics for some key measures, such as cost of transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritized economic corridors and time required for transporting goods on prioritize

3.5.2 Greater Mekong Subregion Cross-Border Transport Agreement (GMS CBTA)

The GMS CBTA is a multilateral agreement signed by Lao PDR, Thailand, and Vietnam at Vientiane, Lao PDR in November 1999. Since its inception, the CBTA has been updated to include an additional 16 annexes and 3 protocols between 2004 and 2007. The agreement has three broad goals:⁴

• To facilitate the cross-border transport of goods and people between and among the contracting parties;

⁴ Greater Mekong Subregion Cross-Border Transport Agreement (1999)

- To simplify and harmonize legislation, regulations, procedures, and requirements relating to the cross-border transport of goods and people; and
- To promote multimodal transport.

Articles 4 through 35 of the CBTA outline a range of policies that aim to achieve the stated goals. The policies are comprehensive and include provisions pertaining to visas, customs, vehicle registrations, signage, driving permits, road and bridge design, and border crossing facilities, among others.

Between 2004 and 2007, the contracting parties signed a series of annexes and protocols. These addenda broadened the scope of the agreement and greatly expanded the details with which the policies will be implemented.

Many, if not all, of the plans that address each of the target corridors also address the CBTA. However, the guiding documents are quick to point out that while all of the contracting parties have signed the CBTA in good faith and with the best intentions, implementation of the policies outlined in the CBTA has been slow. This lack of implementation is often identified as a key challenge to effectively facilitating cross border transportation.

3.5.3 Motor Vehicles Agreement for the Regulation of Passenger, Personal and Cargo Vehicular Traffic between Bangladesh, Bhutan, India, and Nepal (BBIN-MVA)

In 2015, the Transport Ministers of Bangladesh, Bhutan, India, and Nepal signed the BBIN-MVA to "enable the exchange of traffic rights and ease cross-border movement of goods, vehicles, and people, thereby helping expand people-to-people contact, trade, and economic exchanges between our countries."⁵ This agreement builds upon early progress made by the SAARC MVA and is intended to complement existing bilateral transport arrangements or agreements. A set of 30 priority transport connectivity projects are noted in the BBIN-MVA, which supports developing transport corridors into economic corridors.

The original agreement included a six-month implementation work plan, but progress to date has been limited. In addition to country-level representatives, experts from the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the International Road Transport Union (IRU), ADB, and private sector organizations have been engaged in strategic implementation planning.⁶ In 2017, Bhutan announced that it would temporarily decline to move forward with the ratification of the agreement due to environmental concerns related to increased vehicular traffic; however, Bhutanese representatives did not object to the remaining three countries moving forward with implementation, and discussion on a draft enabling Memorandum of Understanding (MoU) was initiated in 2020.⁷

⁵ Full Text of BBIN Agreement on Motor Vehicles, <u>https://nepalforeignaffairs.com/bbin-agreement-on-motor-vehicles-agreement/</u>

⁶ Workshop on the Implementation of the Bangladesh-Bhutan-India-Nepal Motor Vehicles Agreement, <u>https://www.sasec.asia/index.php?page=event&eid=173&url=joint-workshop-ects-bbin</u>

⁷ The India-Myanmar-Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia, and Viet Nam: Challenges and Opportunities, <u>https://www.eria.org/uploads/media/Research-Project-Report/2020-02-</u> <u>Trilateral-Highway-Report/Trilateral-Highway-Integrative-Report.pdf</u>

ERIA's analysis of potential extensions of the Trilateral Highway cites both the BBIN-MVA and the GMS-CBTA as potential models for additional transport facilitation institutional arrangements. Similarly, the SASEC Operational Plan 2016-2025 states the importance on the BBIN-MVA as a key factor in decreasing both the time and monetary costs associated with cross-border travel. The agreement is also being promoted by a project initiated by the Centre for International Trade Economics & Environment (CUTS CITEE) with support from the U.S. State Department and UK Aid Direct. The project's objectives are:⁸

- To facilitate trade, transit, and transport among five countries: Bangladesh, Bhutan, India, Nepal and Myanmar (BBIN+M)
- Effective implementation of the BBIN and such other enabling framework agreements and policy initiatives through evidence-based research, facilitate dialogue, advocacy and capacity building
- Estimation of the potential net gains from the effective implementation of the MVA and its impact on socio-economic development.

⁸ Bangladesh-Bhutan-India-Nepal Motor Vehicles Agreement: Facilitating implementation and stakeholder buy-in in the BBIN sub-region (BBINMVA), <u>https://cuts-citee.org/background-objectives/</u>

3.6 APPLICATION OF FRAMEWORK

From the universe of regional corridors identified during the initial scan, the research team selected 11 corridors for further analysis by applying the criteria introduced in Section 2.2. Based on the scope of the study and the availability of published English-language plans, the research team screened and prioritized the corridors into two categories, with the first group undergoing a more detailed analysis. The corridors were prioritized using the planning criteria, as well geographic coverage and relevance to regional development. The research team also considered the overall level of development for each corridor. Although several of the corridors of interest have overlapping segments, no corridors were excluded from the analysis due to these overlaps, which are noted in the summary discussions in Sections 3.7 and 3.8.

Table 3 indicates which of the planning criteria are referenced in the plans for each corridor. An "X" means that there was a robust discussion or plan for addressing the criterion, while a "+" indicates that the criterion lacked a clearly defined planning approach but was referenced or included as a priority for the corridor or sponsoring organization. Additional discussion of each criterion marked with either an "X" or "+" is included in the corridor-by-corridor analysis that follows. The criteria are discussed in summary form for the second-priority corridors, so a detailed breakdown is not included in the table.

While the presence of an "X" or "+" indicates that the research team found the planning criterion referenced in an associated plan, the absence of a marker does not necessarily indicate the absence of the associated planning activity on the corridor. Further analysis during the later stages of the research may reveal that an organization or agency is actively demonstrating a more robust capacity for the planning activity. This caveat is a function of the limits of a desk review.

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Criteria

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		Safety	Climate Resilience	Sustainable Financing	Performance-based Planning	Governance	Stakeholder Engagement	Border Crossings	Asset Management	Multimodal Connectivity
East-West Economic Corridor (EWEC)	Myanmar, Thailand, Laos, Vietnam	+	+	X	X	X	+	X	+	Х
Southern Economic Corridor (SEC)	Myanmar, Thailand, Cambodia, Vietnam	+	+	Х	Х	Х	+	Х	+	Х
India-Myanmar-Thailand Trilateral Highway (eastern expansion - southern route)	Thailand, Cambodia, Vietnam	+	+	+	+	Х	+	Х	+	Х
India-Myanmar-Thailand Trilateral Highway (eastern expansion - northern route)	Myanmar, Laos, Vietnam	+	+	+	+	Х	+	Х	+	Х
SASEC Road Corridor 3 ("India–ASEAN East–West Corridor")	India, Bhutan, Myanmar	+	+	Х	Х	Х	+	Х		+
BIMSTEC Trade Route 1	India, Myanmar, Thailand	+		+	Х	Х	+	Х		Х
North-South Economic Corridor (NSEC)	Thailand, Myanmar, Laos, China						1	1	1	
India-Myanmar-Thailand Trilateral Highway (original configuration)	India, Myanmar, Thailand									
SASEC Road Corridor 5 (North Bangladesh - India Connector)	Bangladesh and India									
BIMSTEC Trade Route 2	India, Bangladesh									
BCIM Economic Corridor	India, Bangladesh, Myanmar, China									

Table 3: Mekong Corridor Criteria Matrix

3.7 FIRST PRIORITY CORRIDORS

This section applies the nine planning criteria described in Section 2.2 to the six first-priority corridors of interest. Each sub-section analyzes how well a corridor's planning process aligns with the criteria based on the reviewed plans. If a criterion is not mentioned in any of the plans or documents reviewed for a specific corridor, the section does not include that criterion.

References with links for source plans and documents are listed in Appendix 1.



3.7.1 GMS East-West Economic Corridor

Figure 6: Alignment of the GMS East-West Economic Corridor

Corridor Summary

Alignment

The EWEC is a 1,320 kilometers (km) land route connecting the Adaman Sea in the Indian Ocean and the South China Sea. The corridor covers four countries: Myanmar, Thailand, Lao PDR, and Vietnam. Each plan reviewed refers to the same core route for the EWEC (Da Nang-Myawaddy), but some plans also propose alternate routes or extensions.

End points

• Mawlamyline (Myanmar) to Da Nang (Vietnam)

Border crossings

- Myawaddy/Mae Sot (Myanmar/Thailand)
- Mukdahan/Savannakhet (Thailand/Lao PDR)

• Dansavanh/Lao Bao (Lao PDR/Vietnam)

Nodes

- Myanmar
 - Mawlamyline Myawaddy
- Thailand
 - o Mae Sot Tak Phitsanulok Khon Kaen Kalasin Kuchinarai Mukdahan
- Lao PDR
 - o Savannakhet Dansavanh
- Vietnam
 - Quang Tri Thua Thien Hue Dong Ha Da Nang

Relevant Plans

- Strategy and Action Plan for the Greater Mekong Subregion East-West Economic Corridor (2010)
- JICA's Regional Cooperation in ASEAN (2012)
- Revisiting the GMS Economic Corridor Strategies and Action Plan (2015)
- GMS Transport Sector Strategy 2030 (TSS 2030): Toward A Seamless, Efficient, Reliable, And Sustainable GMS Transport System (2018)
- Review of Configuration of the Greater Mekong Subregion Economic Corridors (2018)
- Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS) 5-Year Master Plan (2018)

Overlapping Segments

The core route connects to the Trilateral Highway in the west and includes partial overlap with some sections of the southern route of the eastward Trilateral Highway extension.

Safety

TSS 2030 indicates that this corridor will complement and build on related ASEAN initiatives to develop road safety action plans. The plan aims to help coordinate road safety activities in the subregion, ensure that road safety considerations are incorporated when building the road transport infrastructure, and collect data on road safety performance. TSS 2030 also includes plans to integrate road safety features into GMS transport projects.

Climate resilience

Climate challenges, including changing frequency and intensity of extreme weather conditions, rising sea level, increasing temperature, and shifting rainfall patterns, are recognized in the TSS 2030. The plan also notes the need to consider climate resiliency in all phases of GMS transport projects, ensure the resiliency of vulnerable transport projects to climate change and extreme weather, and establish disaster risk management and emergency response mechanisms.

Performance-based Planning

A performance evaluation report of EWEC, released by ADB in 2008, provided comprehensive statistics on logistics measures, cross-border movements for goods and people, and trade and tourism, as well

as border community and market access surveys conducted during the evaluation.⁹ However, limited data, transparency, and quantitative benchmarks have remained an ongoing challenge.

TSS 2030 includes a results framework describing performance measures from 2018 to 2022. The measures include three levels of tracking indicators: impact (e.g., increased cross-border trade), outcomes (e.g., reduced time and cost of travel), and outputs (e.g., kilometers of roads upgraded or railway lines constructed). TSS 2030 highlights that quantitative data on outcomes and impact are difficult to obtain due to "the lack of timely, consistent, and comprehensive transport and trade statistics in the GMS."

Sustainable Financing

The EWEC SAP proposed approximately \$1.5 billion over a 5-year period (2008–2012) for implementing the EWEC Action Plan. 90% of the funding was designated for transport infrastructure, and the remaining 10% was intended for economic and social initiatives.

According to the TSS 2030, participating governments and multilateral and bilateral development institutions have been the primary financing sources for GMS transport projects. The GMS Regional Investment Framework Implementation Plan 2020 shows that roads and bridges have the largest number of projects, but railway projects cost the most.¹⁰ TSS 2030 suggests securing adequate financing for road maintenance and pursuing opportunities for private sector financing of some GMS projects.

Governance

The GMS-wide institutions involved in transport cooperation include the Subregional Transport Forum (STF), the Greater Mekong Railway Association (GMRA), and the Joint Committee and its supporting bodies for implementing the CBTA.

The STF reports to the GMS ministers and coordinates the implementation of TSS 2030. The STF meets at least once a year and involves the participation of key development partners and the private sector. It also coordinates with other closely related GMS bodies, such as the Economic Corridors Forum and working groups on environment, tourism, and urban development.

The GMRA was established in August 2014 as a non-legal intergovernmental organization for the purpose of increasing "railway connectivity to promote efficient, safe and environmentally sustainable rail transport of goods and people in and beyond the GMS countries."¹¹

The Joint Committee for the GMS CBTA is an advisory body. Its main tasks include coordinating, monitoring, and assessing the functioning of the CBTA and its annexes and protocols. The Joint Committee is supported by four subcommittees in charge of transport, customs, health, and immigration, and the national transport facilitation committees in all GMS countries.

⁹ Lao People's Democratic Republic and Socialist Republic of Viet Nam: Greater Mekong Subregion: East-West Corridor Project. ADB Performance Evaluation Report. Dec. 2008.

¹⁰ GMS Transport Sector Strategy 2030: Toward a Seamless, Efficient, Reliable, and Sustainable GMS Transport System, p19. <u>https://www.adb.org/documents/gms-transport-sector-strategy-2030</u>

¹¹ Memorandum of Understanding for the Establishment of the Greater Mekong Railway Association.

Stakeholder Engagement

GMS engages with the private sector through the GMS Business Council and the GMS Freight Transport Association (FRETA). One focus of TSS 2030 is to help energize FRETA and strengthen mechanisms for engaging the private sector.

Border Crossings

There are three border crossings on this route: Myanmar-Thailand at the Myawaddy/Mae Sot crossing; Thailand-Lao PDR at the Mukdahan/Savannakhet crossing; and Lao PDR-Vietnam at the Dansavanh/Lao Bao crossing.

Despite the advancement of the CBTA by ADB, World Bank, and JICA, "border crossings remain the weakest links in the GMS economic corridors in terms of time and costs, with improvements in physical infrastructure outpacing the implementation of Transport and Trade Facilitation (TTF) measures."¹² Some key performance measures target improving border crossings, such as reduction in time spent at border crossings, percentage reduction in cost incurred at border crossings, and number of border-crossing points implementing the single-step inspection scheme. Initial implementation of the single-stop inspection scheme has been undertaken in Dansavanh-Lao Bao and Mukdahan-Savannakhet.

Asset Management

Improving road asset management was defined as a strategic thrust in TSS 2030. The plan envisions a collaborative approach, which includes securing adequate financing for road maintenance, enhancing road management systems, improving road maintenance works, and strengthening implementation of vehicle and axle overload control systems.¹³

Multimodal Connectivity

The EWEC connects roads, railways, and ports. The EWEC road network links to Da Nang port, which is the third largest port system in Vietnam. The SAP indicates there are plans to establish a rail link in the Lao PDR along the EWEC border, which will run through Atsaphangthong, Phalarn, Phin, and Sepone to Lao Bao on the Vietnam border, with a link onward to the port of Da Nang. However, it is unclear whether the plans were implemented. The SAP also mentioned that feeder roads were constructed to link the corridor to hinterlands in Lao PDR and Vietnam in order to ensure equitable benefits from the EWEC.

Key Takeaways

 There are ongoing projects to improve to existing road segments (e.g., upgrading from 2 to 4 lanes for Tak-Mae Sot highway), but the EWEC is essentially completed in terms of its transportation infrastructure.

¹² GMS Transport Sector Strategy 2030: Toward a Seamless, Efficient, Reliable, and Sustainable GMS Transport System, p14. <u>https://www.adb.org/documents/gms-transport-sector-strategy-2030</u>

¹³ GMS Transport Sector Strategy 2030: Toward a Seamless, Efficient, Reliable, and Sustainable GMS Transport System, p15. <u>https://www.adb.org/documents/gms-transport-sector-strategy-2030</u>

- Many of the corridor's border facilities are still insufficient. The time and financial cost at customs and border crossings is high (e.g., 18 hours of the total 41.3 hours transit time is spent at customs or border crossings).¹⁴
- TSS 2030 includes six strategic thrusts to improve the efficiency and performance of all the three GMS economic corridors, including: 1) completing the economic corridor network and improving links with South Asia and Southeast Asia, 2) facilitating cross-border transport, 3) strengthening intermodal links, 4) promoting the development of logistics, 5) improving road asset management, and 6) enhancing road safety. Despite identification of these strategies, there is no corridor-specific plan with related financial plans and commitments to explain what policies and projects will be developed and implemented to achieve these goals.

¹⁴ <u>https://www.brookings.edu/research/economic-</u> corridors/#:~:text=Introduction,and%20high%2Dquality%20real%20estate

3.7.2 GMS Southern Economic Corridor



Figure 7: Alignment of the GMS Southern Economic Corridor

Corridor Summary

Alignment

The alignment of the GMS SEC is more complex than the other corridors in the region as it comprises a connected network of subcorridors. The Review of Configuration of the Greater Mekong Subregion Economic Corridors' definition of the sub-corridors is listed in the table below.¹⁵

Sub-Corridor Name	Alignment
Central Sub-corridor	Dawei–Bangkok–Phnom Penh–Ho Chi Minh City–Vung Tau
	Subcorridor (SEC-1)
Northern Sub-corridor	Bangkok–Siem Reap–Stung Treng–Pleiku–Quy Nhon Subcorridor
	(SEC-2)
Southern Coastal Sub-	Bangkok–Trat–Kampot–Ha Tien–Nam Can Subcorridor (SEC-3)
corridor	
Intercorridor Link	Sihanoukville–Phnom Penh–Kratie–Stung Treng–Dong Kralor (Tra
	Pang Kriel) – Pakse–Savannakhet Subcorridor (SEC-4), which links
	the three SEC subcorridors with the EWEC.

Border crossings

- Central Subcorridor
 - Aranyaprathet/Poipet (Thailand/Cambodia)
 - Bavet/Moc Bai (Cambodia/Vietnam)

¹⁵ Review of Configuration of the Greater Mekong Subregion Economic Corridors (2018), p17

- Northern Coastal Subcorridor
 - O Yadov/Le Thanh (Cambodia/Vietnam)
- Southern Coastal Subcorridor
 - Klong Yai/Koh Kong (Thailand/Cambodia)
 - Preak Chak (Lork)/Xa Xia (Cambodia/Vietnam)
- Intercorridor Link
 - o Dong Kralor (Tra Pang Kriel)/Veun Kham (Lao PDR/Cambodia)

Relevant Plans

- Strategy and Action Plan (SAP) for the Greater Mekong Subregion Southern Economic Corridor (2010)
- JICA's Regional Cooperation in ASEAN (2012)
- Revisiting the GMS Economic Corridor Strategies and Action Plan (2015)
- GMS Transport Sector Strategy 2030: Toward A Seamless, Efficient, Reliable, And Sustainable GMS Transport System (2018)
- Review of Configuration of the Greater Mekong Subregion Economic Corridors (2018)

Overlapping Segments

The majority of the Trilateral Highway Eastern Extension's Southern Route is on the SEC. There are a number of segments that are on SEC that are not included on any identified corridors, but there is only one segment on Trilateral Southern route that is not on SEC (Myawaddy—Tak—Nakhon Sawan—Bangkok).

Overview

The SEC SAP has four major thrusts: 1) strengthen infrastructure and connectivity; 2) promote and facilitate trade and investment; 3) address environmental and social concerns; and 4) enhance private sector participation and public-private sector collaboration.¹⁶

When describing the current status of the corridor, almost all of the sections of the Action Plan are disaggregated into country sub-headings. For example, a section on natural resources includes subsections for Cambodia, Thailand, and Vietnam, followed by a section on foreign direct investment with similar country-based subsections. Since the plan is written through the lens of each country, it indicates that the analysis is not being done at the multi-national corridor level. Consequently, metrics cannot be tracked, investments cannot be prioritized or coordinated at the corridor level, nor is it apparent that there is management to improve the performance of the overall corridor. However, when describing the region's opportunities, the SAP does use the corridor as a whole as its unit-level of analysis.

¹⁶ Revisiting the GMS Economic Corridor Strategies and Action Plan (2015). <u>https://www.adb.org/sites/default/files/related/33507/revisiting-the-gms-strategies-and-action-plans.pdf</u>

Safety

Safety was only mentioned vaguely as a key measure for achieving objectives of the SAP. There was no indicator defined to measure safety, or performance targets, nor was there a clear discussion of how to address safety issues in the SAP.

Climate Resilience

The SAP includes discussion on key environmental challenges that SEC countries are facing. The potential effects of climate change could influence food security and the lives of the people in SEC countries. Key effects could be loss of agricultural land and rising sea levels, falling crop yields, increasing frequency and intensity of typhoons and natural disasters, and decreasing groundwater quality. The plan includes one climate-related project, which focuses on scoping and mapping climate change related risks for Lao PDR and Vietnam.

Performance-based Planning

As with the EWEC, GMS forums and working groups are the entities responsible for monitoring the implementation of the SEC SAP. A monitoring and evaluation system with a relatively small number of quantitative indicators was proposed in the SAP. Once SEC countries approve the system, the countries plan to establish a tracking system. Transportation and trade-related performance indicators include volume of trade and traffic at the main border checkpoints, processing time for passengers and freight, and kilometers of roads or railways constructed, upgraded, or rehabilitated.

Sustainable Financing

The estimated cost for implementing the GMS SEC SAP was approximately \$3.3 billion over 5 years. The estimated cost for transport infrastructure was 1.6 billion. The SAP indicates that more than half of SEC transport projects (53.3%) have commitments or indicative commitments. Similar to the EWEC SAP, the traditional sources of finance for GMS projects have been the participating governments, as well as multilateral and bilateral development institutions (e.g., ASEAN, ACMECS, the Emerald Triangle Cooperation Framework, the Japan-Mekong Cooperation, and GMS development partners).

Governance

The ECF serves as the primary promoter of GMS corridor development and is responsible for reviewing the progress of the implementation of the SEC SAP and recommending actions to resolve major policy and implementation issues. The recommendations are considered by the GMS ministerial meeting, senior officials' meeting, forums, and working groups.

Border Crossings

There are seven border crossings on this corridor:

- Myanmar-Thailand at the Ban Phu Nam Ron crossing
- Thailand-Cambodia at the Aranyaprathet, and Cham Yeam crossings
- Cambodia-Vietnam at the Kep, Bavet, and An Dong Pech crossings
- Cambodia-Lao PDR at the Dong Kralor crossing

The Aranyaprathet border checkpoint (Central Subcorridor) accounted for about half of the total cross-border exports from Thailand to Cambodia, followed by the Cham Yeam border checkpoint (Southern Coastal Subcorridor), with about one-third.¹⁷

The SAP provides good summary-level data on cross-border trade disaggregated by country pairs. Largely framed as an economic, import/export issue, the plans provide no information regarding performance at the borders. As the metrics to evaluate the cross-border traffic and trade are absent at both the macro level and the individual border crossing level, it is challenging to identify bottlenecks and specific investment opportunities to improve border crossing operations.

Asset Management

Road assets are described at a high level in the SAP. Several road improvement projects are included in the list of key projects and programs; however, the plan takes a descriptive, backward-looking approach, rather than a forward-looking, proactive one. In general, there is a lack of discussion of an approach to asset management to finance, operate, and maintain road infrastructure.

Multimodal Connectivity

The SAP recognizes that road transport infrastructure along the SEC areas varies by country. The road condition is good in Thailand, while road sections in Cambodia have been or are being upgraded. Roads in the Northern and Coastal Subcorridors in Vietnam are in poor condition, and Lao PDR has a noteworthy lack of transport infrastructure. There are two rail assets described in the SAP plan: one in Cambodia and the other in Thailand-Vietnam. These two railways do not connect to each other. It is unclear whether there are any additional railways under development along the SEC corridors. The plan also discusses water transport. The SEC plans to link three national metropolitan centers (Bangkok, Ho Chi Minh City and Phnom Penh) to several major port cities, including Laem Chabang, Vung Tau, and Sihanoukvile. Two of the subcorridors in Vietnam have a water transport system. Water transport is available from Phnom Penh to Siem Reap through the Mekong River in the Central Subcorridor in Cambodia.

Key Takeaways

- Compared with the EWEC, the SEC is a less-developed network of road infrastructure. The review conducted by ADB in 2015 showed that approximately 71% of road projects listed in the SEC SAP were completed.
- The SEC connects several major metropolitan regions in the Mekong region, but the road condition varies across countries. Coordination among countries across this region is a major challenge.
- Regular monitoring of cross border trade is one key ongoing project that could benefit from additional support.
- There are several SEC development challenges highlighted in the SAP. These include fully integrating the less-developed areas with the more-developed areas so that the benefits of

¹⁷ Strategy and Action Plan for the Greater Mekong Subregion Southern Economic Corridor (2010) p.18. <u>https://www.adb.org/publications/sharing-growth-and-prosperity-strategy-and-action-plan-greater-mekong-subregion</u>

developing the corridor can be distributed in a meaningful way, and effectively addressing social and environmental concerns, especially related to climate change.

3.7.3 India-Myanmar-Thailand Trilateral Highway Proposed Eastern Extension (Southern Route)



Figure 8: Alignment of the India-Myanmar-Thailand Trilateral Highway Proposed Eastern Extension (Southern Route)

Corridor Summary

Alignment

The southern extension connects to the southern node of the original alignment at Mae Sot and travels south along the western edge of Thailand, Cambodia, and Vietnam, ending in the coastal city of Vung Tau.

End points

• Mae Sot (Thailand) to Vung Tau (Vietnam)

Border crossings

- Aranyaprathet/Poipet (Thailand/Cambodia)
- Bavet/Moc Bai (Cambodia/Vietnam)

Nodes

- Thailand
 - Mae Sot Tak Nakhon Sawan Bangkok (–Laem Chabang) Hinkong Kabinburi Aranyaprathet
- Cambodia
 - Poipet Sisophon Battambang Pursat Kampong Chhnang Preach Kdam Phnom Penh (–Sihanoukville) – Neak Loung – Bavet
- Vietnam

• Moc Bai – Go Dau – Ho Chi Minh City – Ba Ria – Vung Tau

Relevant Plans

• The India-Myanmar-Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia and Vietnam: Challenges and Opportunities (2020)

Overlapping Segments

The southern route of the eastward extension overlaps with the EWEC from Mae Sot to Tak, the NSEC from Tak to Bangkok, and the SEC from Bangkok to Ho Chi Minh City in Viet Nam via Cambodia. Additionally, segments from Bangkok to Laem Chabang and from Phnom to Sihanoukville are also parts of SEC subcorridors. There is also overlap between this corridor and AH-1 and MPAC projects.

Safety

Safety is generally referenced in relation to the goods being transported across borders, or concerns about illegal immigration, informal trade, or terrorism. There is limited discussion of road safety, although it is noted that the registration of trucks under cross-border transport agreements could both reduce the overall number of trucks and allow for improved axle load control enforcement.

Climate Resilience

While climate resilience is not a focus of planning for this corridor, there are some references to environmental concerns, specifically with regard to border crossing considerations and contractor issues. For example, there have been some delays in the improvement of specific road segments along the corridor's original configuration due to a lack of compliance on environmental issues. Additionally, as noted previously, Bhutan declined to move forward with the BBIN-MVA due to the potential pollution implications of increased truck traffic. The ERIA analysis also references the GMS-CBTA's requirements for vehicle environment protection certificates but does not provide further detail.

Resiliency is also discussed in terms of overall connectivity, emphasizing that alternative routes are key to strong supply chains during natural disasters and other emergencies. Thus, some of the Trilateral Highway's potential would be realized through improved connections to multimodal transportation networks.

Sustainable Financing

Both the original route and proposed extensions of the TLH overlap with several other corridor initiatives, including GMS economic corridors and the Asian Highway Network. The plan notes that areas that fall under ADB or ASEAN MAPC projects, as much of the southern extension does, are likely to have access to external financing sources. Additionally, unlike the proposed northern extension, the road segments that comprise the southern extension are generally in good condition and will not require significant funding for infrastructure improvements (see Figure 9 below for condition ratings by segment of the TLH Eastern Extension (Southern Route).

Country	Start	End	GMS	AH	NR	Distance	Condition	
Thailand	Mae Sot	Tak	EWEC	AH-1	NH-12	7.0	Good	
Thailand	Tak	Nakhon Sawan	NSEC-1	AH-1	NH-1	181.0	Good	
Thailand	Nakhon Sawan	Bangkok	NSEC-1	AH-1	NH-1A 32	15.0	Good	
Thailand	Bangkok	Chachoengsao	SEC-1	AH-1	NH-7	84.6	Good	
Thailand	Chachoengsao	Sakao	SEC-1	AH-1	NH-304, 359, 33	120.0	Good	
Thailand	Sakao	Aranyaprathet	SEC-1	AH-1	NH-33	57.7	Good	
Border T/C	Aranyaprathet	Poipet	SEC-1	AH-1	Border belt	0111	Cood	
Cambodia	Poipet	Sisophon	SEC-1	AH-1	NR-5	47.0	Good	
Cambodia	Sisophon	Battambang	SEC-1	AH-1	NR-5	70.0	Fair	Road is being widened from 2-lane to 4-lane
Cambodia	Battambang	Pursat	SEC-1	AH-1	NR-5	104.0	Fair	Development of new road segments to bypass down
Cambodia	Pursat	Kampong Chhnang	SEC-1	AH-1	NR-5	95.0	Fair	towns of Battambang, Pursat, Kampong Chhnang, and
Cambodia	Kampong Chhnang	Preach Kdam	SEC-1	AH-1	NR-5	61.0	Fair	Preach Kdam is ongoing with expected completion in 2018.
Cambodia	Preach Kdam	Phnom Penh	SEC-1	AH-1	NR-5	30.0	Good	
Cambodia	Phnom Penh	Neak Loeung	SEC-1	AH-1	NR-1	60.0	Good	
Cambodia	Neak Loeung	Svay Rieng	SEC-1	AH-1	NR-1	65.0	Good	
Cambodia	Svay Rieng	Bavet	SEC-1	AH-1	NR-1	42.0	Good	
Border C/V	Bavet	Moc Bai	SEC-1	AH-1	Border belt			
Viet Nam	Moc Bai	Go Dau	SEC-1	AH-1	QL-22	10.0	Good	
Viet Nam	Go Dau	An Suong (HCMC)	SEC-1	AH-1	QL-22	48.0	Good	
Viet Nam	An Suong (HCMC)	J [AH-1/AH-17]	SEC-1	AH-1	QL-1A	31.0	Good	
Viet Nam	J [AH-1/AH-17]	Ba Ria	SEC-1	AH-17	QL-51	77.6	Good	
Viet Nam	Ba Ria	Vung Tau	SEC-1	AH-17	QL-51	14.0	Good	
[Branch rou	ute]							
Thailand	Bangkok	Laem Chabang	SEC-3	AH-19	NH-7	127.0	Good	
Cambodia	Phnom Penh	Thnol Toteung	SEC-4	AH-11	NR-4	30.0	Good	
Cambodia	Thnol Toteung	Kampong Speu	SEC-4	AH-11	NR-4	18.0	Good	
Cambodia	Kampong Speu	Sihanoukville	SEC-4	AH-11	NR-4	182.0	Good	

Annex Table 3.3. Current Status of the TLH: Southern Route of Eastward Extension

Note: GMS = Greater Mekong Subregion; AH = Asian Highway; NR = National Road, National Route, etc.); IMFH = India Myanmar Friednship Highway; MKH = Monywa Kalewa Highway; YME = Yangon Mandalay Expressway; MKR = Myawaddy Kawkareik Road; NSEC = North South Economic Corridor; EWEC = East West Economic Corridor; and SEC = Southern Economic Corridor. Source: Author's assesment in December 2019 and January 2020; ADB (2018b-h); and the Asian Highway Database (UNESCAP).

Figure 9: Current Status and Condition of the TLH Eastward Extension (Southern Route)

The ERIA study does not indicate a coordinated approach to financing corridor development efforts. Rather, individual road segments or infrastructure projects are funded by a combination of governments and donor organizations (e.g., ADB, JICA, etc.). ERIA recommends establishing a mechanism to ensure sustainable financing for road construction and maintenance as a key component of future policy coordination.

Performance-based Planning

In general, the assessment of this corridor focuses on potential economic development impacts from the perspective of each country in the region. The study notes that institutional and policy changes, in addition to infrastructure development, will be essential. Specifically, ERIA states that:

"[the] smaller than expected economic impacts of the TLH and its eastward extension do not mean that the project is not worth implementing. Rather, it implies the importance of implementing policies beyond the scope of infrastructure development and institutional arrangements for cross-border transport facilitation, for example (1) private sector development policy, including industrial policy to promote specific industries based on endowments such as resource-based industry and special-purpose tourism and; (2) spatial development policy to upgrade selected cities as business and logistic hubs with effective connectivity to the surrounding regions by various modes of transportation; and (3) domestic security policy to improve security conditions as an integral element of business environments."¹⁸

Specific performance metrics are not identified, but the study references the need to consider both traditional return on investment issues, as well as the distribution of economic impacts.

Governance

ERIA emphasizes the need for coordination among institutions, especially for the sections of the corridor that overlap with ADB or ASEAN-financed projects. The study also provides specific, implementation-focused recommendations for further development of the corridor. These include completing or restarting ongoing and planned projects, facilitating cross-border transportation via the establishment of National Transport Facilitation Committees, assessing different options and models for transport facilitation agreements, and formalizing border administration processes.

Stakeholder Engagement

There is no comprehensive engagement strategy noted for this corridor, but perspectives from country-level stakeholders, primarily regarding economic development and trade, are included in a series of background papers that inform the ERIA analysis.

Border Crossings

ERIA discusses three foundational cross-border agreements as potential enablers for the Trilateral Highway extensions: 1) GMS-CBTA, 2) BBIN-MVA, and 3) Trilateral Motor Vehicle Agreement (TLH-MVA). As discussed in Section 3.5, several principles of the first two agreements have been successfully negotiated, but practical implementation of these principles has been challenging due to issues such as security, regulatory harmonization, protectionism, and environmental impacts, among others. To improve cross-border transport on the Trilateral Highway between India, Myanmar, and Thailand, the Government of India has proposed a BBIN-MVA-style agreement, but Myanmar and Thailand had not responded as of the publication of the ERIA report.

All countries on both the proposed northern and southern extension have ratified the World Trade Organization Trade Facilitation Agreement (WTO-FTA), which would be closely related to an eventual TLH-MVA. As with the other transport agreements, there have been challenges in implementing the WTO-FTA, particularly in Myanmar.

In addition to addressing policy and institutional concerns, ERIA recommends improving infrastructure at border areas as a key step forward in the development of the Trilateral Highway.

Asset Management

Road condition data is readily available for road segments that overlap with the Asian Highway network or GMS economic corridors. Reports published by ABD in 2018 provided an update on GMS corridor condition, and more detailed information can be found in UNESCAP's AH database, which is

¹⁸ The India–Myanmar–Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia, and Viet Nam: Challenges and Opportunities, Chapter 7-9, <u>https://www.eria.org/uploads/media/Research-Project-Report/2020-02-Trilateral-Highway-Report/Trilateral-Highway-Integrative-Report.pdf</u>

updated biennially. However, the database relies on voluntary submissions, so the quality, availability, and timeliness of the data varies by country.

Multimodal Connectivity

The ERIA analysis includes multimodal connectivity as a key focus area for future corridor development efforts, including the need to link the Trilateral Highway with networks of ports, railways, airports, dry ports, and depots. Additionally, ERIA recommends further developing logistics infrastructure along route, including developing dry ports and logistics hubs. The southern extension would include a connection to Sihanoukville, Cambodia's largest international port, as well as the Laem Chabang Port in Thailand, and Vung Tau Port in Vietnam.

Key Takeaways

- Since the proposed route of the southern extension overlaps with three of the GMS economic corridors, it is important to consider this corridor in the broader perspective of the regional planning process.
- Road segments along the route are generally in good condition, but the lack of institutional arrangements for planning, operating, or maintaining the corridor would seem to reduce the potential performance of the overall corridor.
- The ERIA report focuses primarily on the economic benefits to each of the countries along the Trilateral Highway, and its recommendations center more on policy development and coordination and less on infrastructure development or comprehensive corridor planning. These recommendations would likely apply to any corridor development initiative in the region.

3.7.4 India-Myanmar-Thailand Trilateral Highway Proposed Eastern Extension (Northern Route)



Figure 10: Alignment of the India-Myanmar-Thailand Trilateral Highway Proposed Eastern Extension (Northern Route)

Corridor Summary

Alignment

The northern extension connects to the original route at Meiktila, Myanmar and runs due east to the coast, ending at the port city of Hai Phong, Vietnam on the coast of the South China Sea.

End points

• Meiktila (Myanmar) to Hanoi and Hai Phong (Vietnam)

Border crossings

• Keng Lap/Xieng Kok (Mynamar-Lao PDR Friendship Bridge)

Nodes

- Myanmar
 - Meiktila Loilem Keng Tong Tarlay Keng Lap
- Laos
 - Xieng Kok Muang Sing Louang Namtha Nateuy Oudomxay Muang Khua Pang Hok
- Vietnam
 - Tay Trang Dien Bien Phu Son La Hoa Binh Hanoi Hai Phong

Relevant Plans

• The India-Myanmar-Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia and Vietnam: Challenges and Opportunities (2020)

Overlapping Segments

All sections of this corridor, except the segment from Xieng Kok and Luang Namtha via Muang Sing, overlap with projects led by ADB, UNESCAP, or the MPAC

Safety

As with the southern extension, safety insofar as it pertains to road fatalities, injuries, and crashes on this corridor is not addressed by ERIA, although it is briefly considered in relation to security at border checkpoints. Security issues related to cross-border transport between Myanmar, Laos, and Vietnam are cited as a key challenge in the development of the northern extension.

Climate Resilience

Similar to the analysis of the southern extension, resiliency is briefly referenced with regard to the need for alternative routes and connections to multimodal transport networks to ensure strong supply chains during natural disasters and other emergencies. Potential climate impacts resulting from increased freight traffic are also a concern for countries along this corridor.

Sustainable Financing

While there is no clearly defined approach to financing the northern extension, ERIA notes that this corridor is less likely to have access to external funding than the southern extension due to the lack of overlap with any GMS economic corridors. Segments that overlap with MPAC transport infrastructure projects may be eligible for co-financing from ASEAN dialogue partners or international organizations.

Performance-based Planning

The analysis of this corridor's success focuses on trade and overall economic development and suggests that only Myanmar would benefit more from the northern route than the southern. The ERIA report includes a comprehensive simulation of potential economic impacts under different scenarios.

Governance

ERIA refers to the trilateral highway as an "important subset" and enabler of the MPAC 2025, and close cooperation with ASEAN is encouraged. The policy and institutional-focused recommendations provided for the southern extension also apply to this corridor.

Stakeholder Engagement

In the plans reviewed, there is no comprehensive engagement strategy noted for this corridor, but perspectives from country-level stakeholders, primarily regarding economic development and trade, are included in a series of background papers that inform the ERIA analysis.

Border Crossings

There are two border crossings on this corridor: Myanmar-Lao PDR at the Myanmar Laos Friendship Bridge, and Lao PDR-Vietnam at Sop Hun border crossing. The ERIA analysis also refers to border crossing operations at the Tay Trang border checkpoint on the Lao PDR side of the Lao PDR-Vietnam border, noting hours of operation and number of staff. The document notes metrics related to average clearance time and average daily number of vehicles. Taken together, these data represent the beginning of a useful analysis of border operations; however, the plan lacks a comprehensive overview of the performance of border crossings. In terms of future coordination, the same institutional and policy recommendations provided for the southern extension would apply.

On Lao PDR's border with Myanmar, the construction of the Myanmar-Laos Friendship Bridge in May 2015 shows that the two countries are not only thinking strategically about bilateral transport and trade, but also collaboratively investing the resources necessary to improve it. Before the construction of the bridge, there was no direct land connection between the two countries, as the border in this region is defined by the Mekong River. It was necessary for people and cargo to travel south into Thailand to get between Myanmar and Lao PDR. The connection now provides travelers and cargo with a more direct and streamlined route between the two countries.

The lack of bilateral border crossing agreements and border restrictions due to security concerns are citied as mitigating factors for this corridor's overall performance.

Asset Management

The ERIA study does not provide an analysis of the approach to asset management for the corridor; however, it does include several references that provide insight on the approach. In general, references to investments such as bridge construction and road widening and improvement projects suggest an ad hoc, uncoordinated, international donor-financed approach to asset management. These projects seem to be one-time, high-profile projects. If there is a formal approach to regular and routine maintenance, it is not clearly referenced by ERIA.

The study includes detailed condition information, segment by segment, along the entire route. This information is the first step in establishing the baseline condition of the corridor but could be enhanced through a more formal program to collect data on road and bridge condition and traffic analysis.

Multimodal Connectivity

The corridor route includes a connection to the port city of Hai Phong, Vietnam.

Key Takeaways

- The proposed northern extension is similar to the southern extension in terms of many of the key planning criteria; however, this corridor has many significant challenges, including mountainous terrain, border crossing security issues, and lower overall road quality.
- The lack of significant overlap with other coordinated developments, such as the GMS economic corridors, could pose challenges for identifying and securing sustainable financing.
- From available plans, it appears that there are opportunities to enhance asset management for the overall corridor.
- The corridor will likely benefit from ASEAN development initiatives in cases where specific segments have been identified as MPAC pipeline projects.



3.7.5 SASEC Road Corridor 3 (India-ASEAN East-West Connector)

Figure 11: Alignment of SASEC Road Corridor 3, India-ASEAN East-West Connector

Corridor Summary

Alignment

SASEC Road Corridor 3 helps connect landlocked Bhutan and eastern Nepal, linking to both India's "East-West Corridor," which links northeastern India to the remainder of the country, and the Trilateral Highway, providing a land-based route between South and Southeast Asia.

End points

• Kolkata, India and Myawaddy, Myanmar

Border crossings

• Moreh/Tamu (India/Myanmar)

Nodes

- India
 - o Kolkata Siliguri Guwahati Dimapur Imphal Moreh
- Myanmar
 - Tamu–Mandalay–Bago–Myawaddy, including spur roads 3a: Hasimara–Phuentsholing– Thimphu and 3b: Bago–Yangon

Relevant Plans

• South Asia Subregional Economic Cooperation (SASEC) Operational Plan 2016–2025 (2016, ADB)

• South Asia Subregional Economic Cooperation (SASEC) Operational Plan 2016–2025 Update (2020)

Overlapping Segments

SASEC Road Corridor 3 overlaps with BIMSTEC Trade Route 1 from Kolkata–Siliguri–Guwahati– Imphal–Moreh and the Trilateral Highway original configuration from Moreh/Tamu – Mandalay – Bago – Myawaddy/Mae Sot.

Safety

The SASEC Operational Plan does not include a clearly defined overarching approach to safety, but some identified corridor development projects do include a safety focus. For example, a planned project on SASEC Road Corridor 3 includes \$91,000,000 of funding for 530 km of safety improvements on the Yangon-Mandalay Expressway.

Climate resilience

While there are some references to climate change and other environmental impacts with regard to energy sector projects, these issues are not discussed with respect to proposed transport projects. Mitigating climate change is identified as a key SASEC priority in the initial iteration of the 2016-2025 Operational Plan.

Sustainable Financing

This plan includes a comprehensive overview of financing by project, as well as a summary of financing by country. SASEC Road Corridor 3 includes 12 proposed or potential projects with identified funding (\$1,305M), and 2 without (\$62M). It is unclear if there is an overall coordinated funding approach, as individual road segments are funded by different governments, donor organizations (primarily ADB), and public-private partnerships.

Performance-based Planning

The SASEC Operational Plan does not identify clear performance measures, but it does provide information regarding the selection and prioritization of corridor projects, which are expected to begin implementation no later than 2025. In general, multi-modal and cross-border connectivity is a key goal, and identified projects play important roles in existing multimodal transport networks and enhance connectivity between industrial centers and transport nodes. The plan also outlines overall strategic objectives and road sector-specific priorities, which are included below: ¹⁹

- Overall strategic objectives:
 - Enhancing physical connectivity through multimodal transport systems that are aligned more closely with the development of markets
 - Following a comprehensive approach to transport and trade facilitation that will expand the current focus to include seaborne facilitation, to complement investments in multimodal networks

¹⁹ South Asia Subregional Economic Cooperation Operational Plan 2016–2025 Update, p. 2-3, <u>https://www.adb.org/sites/default/files/institutional-document/551061/sasec-operational-plan-2016-2025-update.pdf</u>

- Enhancing electricity trade and expanding and diversifying energy supply to meet energy needs and secure power reliability, and
- Promoting synergies between economic corridors being developed in individual SASEC countries and optimizing development impacts of economic corridor investments through improved cross-border links
- Road sector priorities:
 - "The aim is to upgrade and expand the road network along major trade routes, with measures covering 1) upgrade of key routes to Asian Highway Class I standards, 2) upgrade of road links to primary SASEC routes and key borders, and 3) upgrade of access roads to borders and ports to address "last mile" connectivity."

Potential SASEC road corridors were based on SAARC roadway and railway corridors, which in turn were selected in accordance with the following criteria:²⁰

- Volumes and trend of existing traffic and the potential of the corridor to carry future traffic
- Potential to provide direct connectivity by enabling through movement across the region
- Ability to provide access for landlocked countries/states to ports or to other major transport networks
- Potential to provide short cut routes that would bring major transport cost savings
- Need to revitalize historical links or provide linkages for meeting socio-political requirements.

Governance

The SASEC Program is a project-based association that includes Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, and Sri Lanka. As with the GMS, ADB is the SASEC secretariat, as well as the organization's primary developer and financer. The Operational Plan notes that SASEC "has simple institutional arrangements...[consisting] of annual modal officials' meetings for setting strategic directions, and regular meetings of SASEC working groups and subgroups to review progress and agree on future work plans."²¹

The SASEC Operational Plan emphasizes the importance of institutional mechanisms to facilitate coordination and collaboration during throughout the corridor development process. SASEC activities are also closely aligned with other regional associations, and its priority projects are informed by the SAARC Multimodal Transport Study (SRMTS), the SAARC Regional Energy Trade Study (SRETS), the BIMSTEC Transport Infrastructure and Logistics Study, and BBIN MVA discussions.

https://www.sasec.asia/uploads/publications/SRMTS Final.pdf

²⁰ SAARC Regional Multimodal Transport Study (2006), p18.

²¹ South Asia Subregional Economic Cooperation Operational Plan 2016-2025 Update (2020), p.1. <u>https://www.adb.org/sites/default/files/institutional-document/551061/sasec-operational-plan-2016-2025-update.pdf</u>

The Operational Plan also states that each country on the corridor route should have a development plan for the corridor "included and published in a national, SAARC, or other regional initiatives or development partner programs."²²

Stakeholder Engagement

The plan notes engagement with other regional initiatives (e.g., SAARC, BIMSTEC), and recommends designing mechanisms to facilitate stakeholder coordination and collaboration.

Border Crossings

Trade facilitation is one of the plan's three priority areas, and several recommendations are made for improved cross-border transport processes. The plan promotes the adoption of international standards and best practices for harmonization and identifies the following priorities:²³

- Customs-related measures covering both land- and sea-based operations
- Border and inland facilities, improved logistics, port processes, and automation
- Improvements in the operations of other border agencies, particularly in the implementation of sanitary and phyto-sanitary standards (SPS) and technical barriers to trade (TBT) measures, and the integration of all border clearance processes through the development of national single windows (NSWs)

The plan also includes strategies for implementing the WTO-FTA and for supporting capacity building efforts, particularly in Myanmar. Additionally, the plan identifies specific border crossing challenges on Road Corridor 3, such as prohibitions on through-transport of freight vehicles and poor road conditions.

The BBIN-MVA is also cited as a key enabler of SASEC corridor development, with a potential role for SASEC to provide technical assistance and implementation funding.

Multimodal Connectivity

SASEC includes the need for multimodal transport systems as a key part of its approach towards overall physical connectivity, and links to transport and trade nodes are a primary selection criterion for priority transport projects. As part of its overall strategy, SASEC emphasizes the need to connect industrial centers with ports and other logistical centers. Road Corridor 3 provides connectivity to Indian ports.

Key Takeaways

• SASEC Road Corridor 3 plays an important role in land-based connectivity between South and Southeast Asia, and supports trade with Bhutan, eastern Nepal, and India.

²² South Asia Subregional Economic Cooperation Operational Plan 2016-2025 Update (2020), p.7. <u>https://www.adb.org/sites/default/files/institutional-document/551061/sasec-operational-plan-2016-2025-update.pdf</u>

²³ South Asia Subregional Economic Cooperation Operational Plan 2016-2025 Update (2020), p.3. <u>https://www.adb.org/sites/default/files/institutional-document/551061/sasec-operational-plan-2016-2025-update.pdf</u>

- Significant development is underway with 24 nearly completed or ongoing road projects, as well as 14 proposed or potential projects, 12 of which have identified financing.
- The SASEC Road Corridors are being developed as part of a broader ADB-initiated strategy to promote physical and multimodal connectivity, facilitate trade, and promote synergies between country-based economic corridors.
- Although the Operational Plan encourages individual countries to produce development plans for national segments of the corridor, it would be useful to investigate interest in or progress in coordinating to further plan for the corridor as a connected whole.

3.7.6 BIMSTEC Trade Route 1



Figure 12: Alignment of BIMSTEC Trade Route 1

Corridor Summary

Alignment

BIMSTEC Trade Route 1 links South Asia and Southeast Asia, with the central section overlapping with the original route of the TLH. This route also includes alignment with the SAARC Highway Corridor and the Bangladesh-China-India-Myanmar Economic Corridor (BCIM-EC).

End points

• Kolkata, India and Laem Chabang, Thailand

Border crossings

- Moreh/Tamu (India/Myanmar)
- Myawaddy/Mae Sot (Myanmar/Thailand)

Nodes

- India
 - o Kolkata Siliguri Guwahati Dimapur Imphal Moreh
- Myanmar
 - o Tamu Mandalay Bago Myawaddy
- Thailand
 - Mae Sot Tak Bangkok Laem Chabang

Relevant Plans

- Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Transport Infrastructure and Logistics Study (BTLIS) (2008)
- Updating and Enhancement of the BIMSTEC Transport Infrastructure and Logistics Study (2018)

Safety

Safety was briefly mentioned in the 2008 plan under the section on upgrading of border link roads. Border roads have been low priority for investment within national road programs in member states. Although the poor condition of many roads serving the border crossings could lead to congestion and major road safety issues, the plan did not propose any strategies to improve safety.

Performance-based Planning

Two major limitations were mentioned in the 2018 BIMSTEC study. The first is BIMSTEC's limited specialist resources available to monitor implementation, and the second is the absence of a performance indicator mechanism. Although it was recognized as important, there was no suitable mechanism to measure progress in implementation. A proposed solution was to have fewer and more focused policies and strategies tied to specific projects.

Governance

BIMSTEC has been defined as a "regional pressure group" and its role in relation to BTILS is to promote regional policies and strategies designed to enhance regional connectivity, particularly between South and Southeast Asia. It has limited implementation capacity, and the national governments of its member states are responsible for implementing policies and plans. The 2018 BIMSTEC study recommended relying on the formation of a single combined BIMSTEC transport connectivity working group consisting of nominated national experts. ADB may be requested to provide technical assistance as required.

Border Crossings

Many border roads in BIMSTEC member states (e.g., India and Bangladesh) were not designed for border activities and significant traffic flow. The 2018 BIMSTEC study includes policies and strategies to upgrade border roads and implement transport agreements in order to reduce costs and promote intra-regional trade. Thailand is the only BIMSTEC country with an identifiable international road transport sector; however, there is no negotiated agreement between Thailand and Myanmar finalized under the GMS CBTA. The plan recommends developing transport access agreements and supporting initiatives that promote cross-border transport arrangements.

Multimodal Connectivity

The 2018 study indicates that connectivity, particularly in India, needs to be enhanced between ports and the connecting road networks to reduce costs. The development of rail links was proposed to improve connections between India and landlocked Bhutan and Nepal. However, many national plans tend to be mode-specific, largely because different ministries are often responsible for specific transport modes.

Key Takeaways

- Due to its membership, BIMSTEC is seen as the only regional development forum which focuses on linking South and Southeast Asia.
- BIMSTEC is neither a funding nor implementation agency, and therefore its influence over the execution of the plan may be limited.
- Only around 40% of the cost of implementing the identified BIMSTEC projects appears to be covered by indicative funding sources.
- The absence of a monitoring arrangement under the BTLIS and the consequent lack of knowledge within BIMSTEC could make it difficult to track the execution of the plan and provide transparent results.
- There may be opportunities to move beyond national modal plans to a coordinated, corridor-level multimodal planning process.

3.8 SECOND PRIORITY CORRIDORS

This section includes summary information for an additional five corridors. As mentioned in Section 3.6, the original set of 11 corridors was prioritized into two groups based on the application of the planning criteria, overall relevance to East-West connectivity, and level of corridor development. However, further review of these second-priority corridors may be warranted based on information gathered in future phases of the project. As in the previous section, there is a general overview of each corridor, which includes the basic geography, relevant plans, and the identification of road segments that are shared with other corridors. This is followed by a brief summary of the planning criteria, with an emphasis on areas that are notably different from similar first-priority corridors.



3.8.1 GMS North-South Economic Corridor (NSEC)

Figure 13: Alignment of GMS North-South Economic Corridor

Corridor Summary

The NSEC consists of three major routes. According to the NSEC SAP, the "NSEC serves the main land route for trade between the People's Republic China (PRC)'s Yunnan province and Thailand and a direct trade conduit between southern PRC and northern Vietnam. The corridor covers some of the least developed and most ecologically sensitive areas in the GMS."²⁴

²⁴ Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor (2010), p. 7. https://www.adb.org/sites/default/files/publication/28005/gms-north-south-action-plan.pdf

Corridor Element	Description
Alignment	 Kunming-Chiang Rai-Bangkok via the Lao PDR or Myanmar (Western Subcorridor) Kunming-Hanoi-Hai Phong (Central Subcorridor) Nanning-Hanoi via Pingxiang in the PRC and Dong Dang in Viet Nam, or via Fangcheng and Dongxing in the PRC and Mon Cai in Viet Nam (Eastern Subcorridor)
Relevant Plans	 GMS Transport Sector Strategy 2030: Toward A Seamless, Efficient, Reliable, And Sustainable GMS Transport System (2018) Review of Configuration of the Greater Mekong Subregion Economic Corridors (2018) Revisiting the GMS Economic Corridor Strategies and Action Plan (2015) Strategy and Action Plan for the Greater Mekong Subregion North- South Economic Corridor (2010)
Overlapping Segments	• Partial overlap with some sections of the southern route of the eastward Trilateral Highway extension

Planning Criteria Summary

According to the evaluation of the progress of GMS corridors conducted in 2015, most of the road projects in the Western and Central Subcorridors have been completed, but two out of three road projects in the Eastern Subcorridor have not been implemented. Several rail projects (six out of eight) and water transport projects (one out of three) were also not completed. The NSEC serves as a conduit for ASEAN-PRC trade, which could expand with the support of the free trade agreement (FTA). In terms of overall planning criteria, this route is similar to all other GMS corridors. The SAP highlights several social concerns associated with developing NSEC, including trafficking of women and children and illegal trade, equity issues due to increased land prices, and road safety. There is no discussion of addressing climate change issues, but the SAP lists deforestation and environmental degradation as key environmental concerns related to corridor development.



3.8.2 India-Myanmar-Thailand Trilateral Highway (Original Configuration)

Figure 14: Alignment of the India-Myanmar-Thailand TLH (Original Configuration)

Corridor Summary

The original configuration of the Trilateral Highway is contained almost entirely within Myanmar, connecting India at the Moreh/Tamu border to Thailand and Myawaddy/Mae Sot.

Corridor Element	Description							
Alignment	End points:							
	 Moreh, India and Mae Sot, Thailand Border crossings: 							
	 Moreh/Tamu (India/Myanmar) Myawaddy/Mae Sot (Myanmar/Thailand) Nodes: 							
	 Myanmar (Tamu – Kygone – Kalewa – LarPoh – Yargyi – Monywa – Mandalay – Nay Pyi Taw – Bago (–Yangon) – Thaton – Eindu – Hpa-An – Kawkareik – Myawaddy) 							
Relevant Plans	• The India-Myanmar-Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia and Vietnam: Challenges and Opportunities (2020)							
Overlapping Segments	• Combination of portions of the North-South Economic Corridor and the East-West Economic Corridor; Asian Highway No.1 (AH-1); MPAC Pipeline Project: Yangon – Mandalay Expressway (589km)							

Planning Criteria Summary

While the ERIA study primarily focuses on the potential northern and southern extensions, there also is some discussion of the original configuration, and many of the overall planning processes are similar for each of the three routes. The original route is almost entirely within Myanmar, so connections to other corridors would be critical in improving overall connectivity between South and Southeast Asia. The route is also shared with other established corridors and an MPAC pipeline project, so there is a need for a coordinated approach to planning and implementation.

As compared to the proposed extensions into Southeast Asia, the original alignment will need the most investment in infrastructure upgrades. However, this section is also the most established and has been supported by its inclusion in India's Look East Policy. The detailed criteria analysis for the potential northern and southern extensions also applies to the original route. This section should be considered as a key component of any further development as it provides the critical link through Myanmar in connecting South and Southeast Asia.

3.8.3 SASEC Road Corridor 5 (North Bangladesh-India Connector)



Figure 15: Alignment of SASEC Road Corridor 5 (North Bangladesh-India Connector)

Corridor Summary

SASEC Road Corridor 5 is a relatively short route, but it provides an important connection into Bangladesh that is often not included in other regional corridors.

Corridor Element	Description				
Alignment	End points				
	• Dhaka, Bangladesh to Guwahati, India and Silchar, India Border crossings				
	 Tamabil/Dawki (Bangladesh/India) Sutarkandi (Bangladesh/India) Nodes 				
	 Bangladesh (Dhaka–Sylhet–Tamabil and Sylhet – Sheola – Sutarkandi); India (Dawki–Shillong–Guwahati and Sutarkandi–Silchar) 				
Relevant Plans	 South Asia Subregional Economic Cooperation (SASEC) Operational Plan 2016–2025 Update (2020) 				
Overlapping Segments	• N/A				

Planning Criteria Summary

In comparison to SASEC Road Corridor 3, Road Corridor 5 is relatively less mature and is less critical to overall regional connectivity. However, this corridor provides a connection into Bangladesh that is

often not included in other regional corridor systems, as well as links to the Trilateral Highway in the north, and Bangladeshi ports in the south. While there were no completed or ongoing road projects identified as of 2018, SASEC did idenitfy four proposed or potential projects for the corridor (2 with funding, and 2 without). In terms of overall planning criteria, this route is similar to all other corridors in the SASEC corridor road network.

3.8.4 BIMSTEC Trade Route 2



Figure 16: Alignment of BIMSTEC Trade Route 2

Corridor Summary

BIMSTEC Trade Route 2 includes main road segments east and west of Dhaka, Bangladesh, which handle significant volumes of domestic and international trade traffic. If progress is made in bilateral discussions to create a link between the eastern end and Mynanmar, this corridor could provide an additional connection between South and Southeast Asia.

Corridor Element	Description			
Alignment	End points			
	 Kolkata, India to Chittagong, Bangladesh Border crossings 			
	 Petrapole/Benapole (India/Bangladesh) Nodes 			
	 India (Kolkata–Petrapole); Bangladesh (Benapole–Jessore–Dhaka– Chittagong) 			
Relevant Plans	• Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Transport Infrastructure and Logistics Study (BTLIS) (2008)			
	• Updating and Enhancement of the BIMSTEC Transport Infrastructure and Logistics Study (2018)			
Overlapping Segments	Partial overlap with BCIM Economic Corridor			

Planning Criteria Summary

While this corridor contains fewer priority projects in comparison to BIMSTEC Trade Route 1, it does include 11 priority road and rail sections. In terms of planning criteria, there is significant overlap with all other BIMSTEC trade routes due to the shared planning process.

3.8.5 BCIM Economic Corridor (EC)



Figure 16: Alignment of BCIM Economic Corridor

Corridor Summary

As of 2018, the exact route of the proposed corridor had not yet been finalized, but it was expected to connect Kolkata, India with Kunming, China via Jessore, Dhaka, and Sylhet in Bangladesh and Mandalay in Myanmar. This would require crossings at Bangladesh's border with India in both the west and east, as well as the India/Myanmar and Myanmar/China borders.

Corridor Element	Description
Alignment	• TBD
Relevant Plans	• Bangladesh–China–India–Myanmar (BCIM) Economic Corridor: Challenges and Prospects (2018)
Overlapping Segments	• Partial overlap with BIMSTEC Trade Route 2 and North-South Economic Corridor

Planning Criteria Summary

Due to political challenges, the BCIM EC is at a much earlier stage of development than many of the other corridors discussed in this report. From a review of available plans, there does not appear to be a formal planning process underway at this time, although some analysis is presented in independent feasibility analyses. The intent of the BCIM EC would be to improve links between China and South and Southeast Asia, with a focus on improving economic and cultural connectivity in alignment with the BCIM Forum's priority areas of trade, transport, and energy.

4 FINDINGS AND RECOMMENDATIONS

This section provides a summary of findings from the analysis of the identified priority and secondary corridors. This summary also includes recommendations for the next phases of the project to further refine candidate corridors and topics for engagement with South and Southeast Asian partners.

- **Safety:** In many corridor plans, safety is generally referenced in relation to road safety; goods transport across borders; or concerns about security, illegal immigration, or informal trade. There is limited discussion of strategies or investments to improve road safety at a corridor level. Key strategies related to road safety include upgrading roads, especially for road segments close to border checkpoints, and improved border crossing processes. Several plans listed road projects focused on reducing injuries and crashes, but without defining performance targets or discussing how to address safety issues strategically at the corridor level.
- **Climate Resilience**: Adapting corridor infrastructure and processes to climate change and reducing transport sector greenhouse gas emissions are referenced as focus areas in multiple plans, but often in broad policy terms or with regard to non-transport projects. In some cases, climate change is discussed in the context of border crossings, particularly in areas that could experience large increases in freight traffic. Advancing from policies to implementation by integrating adaptation and mitigation strategies in bi-national corridor planning appears to be an important opportunity, but its success depends on the shared political commitment of national and multinational stakeholders.
- **Performance-based Planning:** Performance-based planning may be an important emerging opportunity in regional road corridor development, as most plans and supporting transport planning processes appear to focus broadly on improving connectivity without adapting specific metrics of transportation performance outcomes to define, evaluate, and monitor performance beyond goals for economic growth. A performance-driven focus could incentivize cooperation and commitment of financial and staff resources to improve overall corridor performance and reflect a broad range of regional goals, from economic development to safety, security, energy efficiency, or climate resilience.
- **Sustainable Financing:** In many cases, there does not appear to be a coordinated approach to financing investments either at the corridor level or for major transport projects. This would require forecasting and then aligning estimates of capital and operating costs with revenue sources and amounts. Financial planning does not appear to be associated with the goal of improved corridor performance. While several plans do include detailed funding information, the overall approach appears to be project-focused and ad-hoc rather than a systematic approach to improving multimodal corridor connectivity. Financial realism and credible financial planning will be essential if plans are to be implemented.
- **Governance:** ADB is a critical partner for corridor planning and financing in the study area due to their role as a primary sponsor or financer of many key associations with transport interests in the

region. It is interesting to note the separation between ADB-backed organizations; for example, the SASEC and GMS plans do not appear to reference each other, even though they share a common author.

Various corridor plans identify existing models for regional cooperation, such as JICA and ADB's in Myanmar; however, the sheer number of overlapping organizations and corridors suggests that there may be a need for improved coordination throughout the planning process. This could take place through voluntary associations to identify agreed upon roles and responsibilities for existing organizations or through the establishment of an entity with responsibility for the corridor. This coordination could begin with memoranda of understanding and expand to enhanced roles and responsibilities for national and multinational stakeholders, mission statements, and perhaps later cooperative funding commitments and project implementation. There may also be opportunities to better emphasize the significance of ASEAN and MPAC pipeline projects and the process for developing and justifying these projects, and to leverage the leadership of ASEAN for cooperative approaches to the corridors.

- **Stakeholder Engagement**: The participation of a broad range of public and private sector stakeholders at the local and regional level is important to help shape the plans, ensure support for implementation, and share extensive knowledge of problems to be addressed and potential solutions. One key lesson learned through the development of the GMS corridors is that plans were not widely communicated and disseminated to all stakeholders, especially at the local level. It is recommended that plans be treated as "living documents" and communicated widely to promote ownership and participation.
- **Border Crossings:** Both border crossing infrastructure and institutional arrangements were cited as key issues for each corridor reviewed in this study. Although significant progress has been made in the development and adoption of multilateral transport facilitation agreements, including the GMS-CBTA and the BBIN-MVA, the implementation of these agreements has been very limited and remains an ongoing challenge. This appears to be a well-known issue, as it is cited by multiple organizations in multiple plans published over more than a decade. There appear to be opportunities to expand planning processes to move forward implementation of these important initial commitments.
- Asset Management: UNESCAP's Asian Highway Database includes comprehensive road condition data for many corridors in South and Southeast Asia, but this database often relies on individual countries for accurate and timely information, resulting in inconsistent quality. In many cases, asset management appears to be largely ad-hoc, with ongoing financing for maintenance cited as a challenge. There appear to be important opportunities to enhance asset management specifically to finance, operate, and maintain the corridors as connected systems. This could entail strengthened corridor level financial planning, coordinated road condition and traffic data collection across the corridor, and the ability to conduct modeling to set investment and maintenance priorities to maximize corridor performance.

• **Multimodal Connectivity:** Multimodal connectivity appears to be a key priority for many corridors, especially those focused on economic development. Within cross-sector economic development plans as well as transport sector plans, there is a consistent emphasis on the need to better connect roads to ports, railways, and multimodal transportation networks. There is a good discussion of multimodality as a contributing factor to resiliency in the ERIA report, which suggests there may be opportunities to identify and develop more holistic corridor planning strategies that address multiple modes and planning criteria. Despite the number of competing interests, examples of coordination between donors (e.g., formal agreements between JICA and ADB) seem to provide a potentially positive foundation for enhancing corridor planning.

APPENDIX 1 LIST OF KEY DOCUMENTS REVIEWED

Resource	Author	Type of Plan	Corridors	Date
GMS Transport Sector Strategy 2030	Asian Development Bank	Strategic or Long Range	GMS EWEC / SEC/ NSEC	2018
Review of Configuration of the Greater Mekong Subregion Economic Corridors	Asian Development Bank Institute	Vision or Scenario	GMS EWEC / SEC / NSEC	2018
Revisiting the GMS Economic Corridor Strategies and Action Plan	Asian Development Bank	Other	GMS EWEC / SEC / NSEC	2015
Strategy and Action Plan for the Greater Mekong Subregion East-West Economic Corridor	Asian Development Bank	Implementation Plan	GMS EWEC	2010
Strategy and Action Plan for the Greater Mekong Subregion North-South Economic Corridor	Asian Development Bank	Implementation Plan	GMS NSEC	2010
Strategy and Action Plan for the Greater Mekong Subregion Southern Economic Corridor	Asian Development Bank	Implementation Plan	GMS SEC	2010
Ayeyawady-Chao Phraya- Mekong Economic Cooperation Strategy (ACMECS 5-Year Master Plan)	ACMECS	Strategic or Long Range	GMS EWEC / SEC	2018
JICA's Regional Cooperation in ASEAN	Japan International Cooperation Agency (JICA)	Vision or Scenario	GMS EWEC / SEC	2012
The India-Myanmar-Thailand Trilateral Highway and Its Possible Eastward Extension to Lao PDR, Cambodia and Vietnam: Challenges and Opportunities	Economic Research Institute for ASEAN and East Asia	Feasibility Plan/Study	India-Myanmar- Thailand Trilateral Highway (TLH) Original/East- extension Northern/East- extension Southern	2020
South Asia Subregional Economic Cooperation Operational Plan 2016-2025	Asian Development Bank	Implementation Plan	SASEC Road Corridor 1/2/3/4/5/6	2016

Resource	Author	Type of Plan	Corridors	Date
South Asia Subregional Economic Cooperation Operational Plan 2016-2025	Asian Development Bank	Implementation Plan	SASEC Road Corridor 1/2/3/4/5/6	2020
Updating and Enhancement of the BIMSTEC Transport Infrastructure and Logistics Study	Asian Development Bank	Strategic or Long Range	BIMSTEC Trade Route 1/2/3	2018
Bangladesh-China-India- Myanmar (BCIM) Economic Corridor: Challenges and Prospects	The Korean Journal of Defense Analysis	Vision or Scenario	Bangladesh-China- India-Myanmar Economic Corridor (BCIM EC)	2018
BIMSTEC Master Plan on Transport Connectivity	BIMSTEC	Strategic or Long Range		Publication pending
<u>Master Plan on ASEAN</u> <u>Connectivity 2025</u>	ASEAN	Strategic or Long Range	Singapore- Kunming Rail Link (SKRL) & Asian Highway Network (AHN)	2016
<u>Kuala Lumpur Transport</u> <u>Strategic Plan (ASEAN</u> <u>Strategic Transport Plan</u> 2016-2025)	ASEAN	Strategic or Long Range	SKRL & AHN	2015
GMS Cross-Border Transport Facilitation Agreement (CBTA)	Greater Mekong Subregion	Other		2004
BBIN Motor Vehicle Agreement	Ministers of Transport of Bangladesh, Bhutan, India, and Nepal	Other		2015
Lao PDR and Viet Nam: Greater Mekong Subregion: East-West Corridor Project	Asian Development Bank	Feasibility Plan/Study	GMS EWEC	2008
Evaluating the Impacts of Cross-Border Transport in the Greater Mekong Subregion: Three Approaches	Asian Development Bank Institute	Other	GMS EWEC / SEC / NSEC	2017
OECD Forum of the Southeast Asia Regional Programme: Connecting Southeast Asia	OECD Southeast Asia	Other		2019

Resource	Author	Type of Plan	Corridors	Date
UNESCAP: Comprehensive Planning of Eurasian Transport Corridors to Strengthen the Intra- and Inter-Regional Transport Connectivity	United Nations Economic and Social Commission for Asia and the Pacific	Strategic or Long Range	Eurasian Southern Corridor	2017
Issues and Prospects of Land Transport Corridors of South Asia	United Nations Economic and Social Commission for Asia and the Pacific	Other		2018
Initiative for ASEAN Integration Work Plan	ASEAN	Implementation Plan		2017
ASEAN Single Window	ASEAN	Other		2018
ASEAN Economic Community (AEC) 2025 Consolidated Strategic Action Plan (CSAP)	ASEAN	Implementation Plan		2018
Strengthening Transport Connectivity between CLMV- T and India: Opportunities and Challenges	ASEAN-India Center, Research and Information Systems for Developing Countries	Other		2018
One Belt One Road-Greater Mekong Sub-Region Economic Corridors and Myanmar	Aung Myo, Yangon University	Other	Silk Road Economic Belt	2017
Silk Road Economic Belt	The People's Republic of China, The State Council Information Office	Vision or Scenario	China-Indochina Peninsula Economic Corridor (CICPEC) & Bangladesh-China- India-Myanmar Economic Corridor (BCIM EC)	2020
Korea's New Southern Policy	ROK, Presidential Committee on New Southern Policy	Vision or Scenario		2019
Look East Policy	India	Vision or Scenario		
Emerging Trans-Regional Corridors: South and Southeast Asia	Observer Research Foundation	Vision or Scenario	BCIM EC	2017

Resource	Author	Type of Plan	Corridors	Date
Comprehensive Asia	Economic Research	Strategic or		2015
Development Plan (CADP)	Institute for ASEAN	Long Range		
<u>2.0</u>	and East Asia			
Revised Mekong-Japan	Governments of	Implementation	Asian Cargo	2012
Action Plan for realization of	Japan, Cambodia, Lao	Plan	Highway and	
the "Tokyo Strategy 2012"	PDR, Myanmar,		others	
	Thailand, and Vietnam			
Preparatory Survey for the	Ministry of	Feasibility		2016
Project for Strengthening	Construction, Republic	Plan/Study		
Connectivity of International	of the Union of			
Highway in Mekong Region:	Myanmar			
Preliminary Feasibility Study				
Regional Transport	Asian Development	Other		2015
Infrastructure: Mapping	Bank			
Projects to Bridge South Asia				
and Southeast Asia				