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# POLICY PAPER ON INTEGRATED TRANSPORT SOLUTIONS IN ASEAN

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*Proposed Policy Paper to the  
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The Business Mission to the ASEAN Transport Ministers Meeting is an annual series of meetings of the US-ASEAN Business Council's Members with the ministries of transport at the sidelines of the ASEAN Transport Ministers Meeting. In the Mission, senior representatives from USABC member companies travel to the hosting country to engage with priority stakeholders and reinforce the importance of U.S.-ASEAN business relations in the transport sector. During the mission, the Council hopes to understand each government's key priorities, highlight how the U.S. private sector can support their agenda, and more importantly, forge sustainable and transformational partnerships for economic growth.

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## Executive Summary

As ASEAN continues to position itself as a globally competitive and dynamic regional economic hub that facilitates the freer movement of goods in international trade, it is crucial for the region's transport sector to evolve in tandem with the ambitious goals outlined in the Master Plan on ASEAN Connectivity 2025 ([MPAC 2025](#)). A connected ASEAN is pivotal for fostering economic growth, improving physical infrastructure, and ensuring sustainable and inclusive development.

This paper aims to provide strategic insights and recommendations to support the ongoing implementation of MPAC 2025, specifically focused on the transport sector's role in enhancing regional connectivity. The report highlights key achievements made under the current plan, addresses ongoing challenges, and outlines actionable steps for further improvements in transportation infrastructure post-2025.

*Key findings of this paper include:*

- **Progress and Overview of the MPAC 2025:** Significant strides have been made in improving transportation infrastructure and connectivity. The MPAC highlights the importance of physical connectivity within ASEAN, focusing on improving infrastructure such as roads, railways, and ports. Some key initiatives include the ASEAN Highway Network, the Singapore-Kunming Rail Link, and the ASEAN Roll-on/Roll-off Shipping Network & Short-Sea Shipping.
- **Overview of the Transport Master Plan of ASEAN Member States:** Southeast Asia's post-COVID economic growth continues to be supported by infrastructure investments made during and after the pandemic, enhancing its role in global manufacturing as companies diversify away from China. However, ASEAN faces challenges in regional connectivity, with governments prioritizing national projects despite frameworks like MPAC 2016-2025. Moreover, while there are plans for sustainable land transport and tourism collaboration, there is no comprehensive regional strategy for aviation and maritime connectivity, which still depend on bilateral agreements and external support for capacity building.
- **U.S. Department of Transportation's City Pairing Programs in ASEAN:** The U.S.-ASEAN Smart Cities Partnership (USASCP), launched at the 2018 ASEAN-U.S. Summit, promotes collaboration between U.S. and ASEAN cities on smart mobility solutions, focusing on 26 pilot cities under the ASEAN Smart Cities Network. Key program pillars include energy modeling, circular waste management, and sustainable transport. The U.S. Department of Transportation (DOT) pairs U.S. and ASEAN cities, like Phnom Penh with Boston and Jakarta with Los Angeles, to advance smart transit systems. Workshops and city exchanges, including those in Los Angeles (July 2022) and Phnom Penh (December 2023), foster knowledge-sharing on urban planning, transit toolkits, and multimodal transport solutions. Workshops were also held in Jakarta, Los Angeles, Phuket, and Boston, supported by the US-ASEAN Business Council.
- **Challenges to Transport Master Planning:** ASEAN member states face significant challenges in developing their transport infrastructure. Infrastructure gaps remain a pressing issue, with most major cities struggling with inadequate public transport systems. Policy barriers further complicate cross-border transportation infrastructure development due to differences in regulations, standards, and priorities among ASEAN member states. These regulatory discrepancies impact the transportation of people and goods, creating challenges for investors and obstructing the development of integrated transportation networks. Land-use planning is another major concern, as rapid urbanization in ASEAN cities has resulted in inadequate infrastructure.



Environmental and social considerations also pose challenges as transport planning must balance infrastructure growth with ecological sustainability. Finally, funding and investment for large transport infrastructure projects is difficult to secure. ASEAN states largely rely on public funding and development assistance, but limited government resources, rigorous vetting processes, and regulatory risks deter private investment. Public-private partnerships (PPPs) offer a potential solution, though success depends on clear frameworks and risk-sharing mechanisms.

- **Policy recommendations:** This policy paper stresses the need for more integrated approaches to developing transportation solutions across the region, emphasizing the importance of sustainability, adaptability, and technological advancement in achieving these goals. The ASEAN region is focusing on advancing sustainable and efficient transport systems through various strategies. Governments are encouraged to promote smart city infrastructure to optimize economic growth and enhance connectivity. For instance, Singapore's Smart Nation initiative and Da Nang City's Smart Traffic Center in Vietnam serve as examples of how real-time traffic monitoring and intelligent transport systems can improve transportation efficiency.

Moreover, ASEAN governments are urged to prioritize sustainable design in major transport projects, integrating energy and material-efficient technologies from the design stage to ensure long-term resilience. To foster sustainability in the transport sector, the region must incentivize the use of electric vehicles (EVs) for both commercial and personal transport through tax incentives, subsidies, reduced registration fees and the conversion of existing vehicles to electric. The development of supportive EV infrastructure, in partnership with the private sector, is essential for expanding EV adoption. Additionally, policies promoting Transit-Oriented Development (TOD) should focus on optimizing public transport, enhancing pedestrian connectivity, and integrating various modes of transportation. Successful examples include Kuala Lumpur Sentral Station, which consolidates different transport services in one hub, and Jakarta's MRT stations, which connect with other transportation networks. ASEAN member states are also encouraged to implement green public procurement practices, as seen in the Philippines, to prioritize the acquisition of sustainable products and services in transport and infrastructure projects. By incentivizing green procurement, the region can promote climate resilience and raise market competitiveness while aligning with global sustainability goals.

In addition to enhancing transport infrastructure, ensuring the safety and security of transportation systems is critical. Road safety can be improved by implementing standardized traffic systems, regular vehicle testing, and public education on safe driving practices. Similarly, aviation safety should be prioritized through investments in advanced air traffic management technologies, continuous training for aviation personnel, and the adoption of international safety standards for airports and air carriers. Strengthening maritime and port security is also vital, with a focus on adopting International Maritime Organization (IMO) regulations and enhancing regional cooperation for maritime border control. To address the high costs of infrastructure investment, public-private partnership (PPP) frameworks can provide innovative funding solutions. By pooling risk and leveraging private sector expertise, these frameworks can unlock significant investment opportunities for Southeast Asia's infrastructure development.

Institutional investors are placing increased emphasis on Environmental, Social, and Governance (ESG) investments, which prioritize human rights, environmental due diligence, and business resilience. ESG investments, alongside PPP frameworks, offer complementary tools for encouraging private sector involvement in the region's infrastructure projects. The modernization

of customs and logistics operations is also key to enhancing ASEAN's global competitiveness. Emerging technologies like blockchain, artificial intelligence, and digital certificates can accelerate customs procedures, reduce trade costs, and improve supply chain resilience. Better logistics connectivity in key sectors such as healthcare, agriculture, automotive, and semiconductors can drive economic growth and promote regional competitiveness.

For instance, developing digital supply chain platforms and cold chain infrastructure can mitigate disruptions in healthcare logistics, while smart logistics for agriculture can optimize delivery routes and boost productivity.

Finally, capacity-building initiatives are essential to fostering a skilled workforce capable of supporting the region's evolving transport and infrastructure systems. Upskilling in emerging technologies and enhancing technical skills will ensure that ASEAN member states can meet the demands of a rapidly changing global economy. These integrated strategies, aligned with the Master Plan on ASEAN Connectivity (MPAC) 2025, are crucial for building a sustainable, innovative, and resilient transport network in Southeast Asia.

The policy recommendations outlined in this paper will not only contribute to ASEAN's long-term connectivity goals but also aim to serve as a foundation for guiding national and regional transport policies beyond 2025.

## Introduction and Key Objectives

As ASEAN member states work towards achieving the ambitious goals of the Master Plan on ASEAN Connectivity 2025 (MPAC 2025), the importance of an integrated and efficient transport system across the region has become increasingly apparent to realize the vision of a seamlessly connected ASEAN. Quality physical infrastructure and efficient transport connectivity are vital for economic growth and enable sustainable and inclusive development.

This paper aims to provide strategic inputs to the successor to the MPAC 2025, the ASEAN Connectivity Strategic Plan ([ACSP](#)), focusing on the transport sector's role in driving greater connectivity and integration across ASEAN. By outlining the progress made under MPAC 2025, identifying key challenges, and considering the dynamic environment, this report seeks to identify actionable recommendations to guide ASEAN's transport policies and infrastructure development beyond 2025. These recommendations are also intended to support the national master planning of ASEAN member states, ensuring that transport infrastructure project planning are aligned with regional priorities and global best practices.

Moreover, this paper addresses the need for integrated transport system solutions including smart city planning, sustainable freight transportation, service integration, and intermodal safety. Through a comprehensive review of existing transport master plans, funding sources, and the U.S. Department of Transportation's city-pairing programs in ASEAN, this report offers insights into current challenges and potential opportunities for enhancing transport connectivity in the region.

In summary, the policy paper aims to contribute to actualizing a connected, sustainable, and resilient ASEAN with seamless integration of transport systems to facilitate the region's economic growth and resilience in the years ahead.

## Overview of Master Plan on ASEAN Connectivity (MPAC) 2025

### *Key Takeaways:*

- **Infrastructure and Connectivity:** MPAC 2025 aims to improve physical infrastructure, such as the ASEAN Highway Network, Singapore-Kunming Rail Link, and the ASEAN RoRo Shipping Network, to enhance transport, logistics, and trade across Southeast Asia, though challenges like inconsistent quality and regulatory barriers persist.
- **Digital and Supply Chain Integration:** Integrated digital systems are crucial for streamlining operations, especially in e-commerce and trade, while reducing high logistics costs and inefficient customs procedures that hinder supply chain connectivity.
- **Sustainability and Collaboration:** ASEAN must prioritize green infrastructure and sustainable transport solutions, with collaboration between governments and the private sector being essential for funding and implementing projects while ensuring transparency to attract investment.

The MPAC 2025 has been serving as a strategic framework to enhance ASEAN's connectivity across infrastructure, digital networks, and people-to-people ties. Adopted in 2016, it focuses on promoting sustainable and inclusive development by improving physical infrastructure, fostering economic integration, and strengthening digital connectivity.

The plan emphasizes collaborative efforts among ASEAN Member States (AMS) to create a seamless and efficient transport system, enhance logistics and supply chains, and facilitate a more integrated digital economy, ultimately driving economic growth and enhancing the quality of life for citizens in the region.

One of the key pillars of the MPAC 2025 is the region's physical connectivity. Despite significant improvements in infrastructure and major projects making great strides, such as roads, railways, and ports, challenges remain in achieving seamless connectivity across the region.

- **ASEAN Highway Network:** A network encompassing over 23,000 kilometers of roads connecting major cities, facilitating the movement of goods and people across Southeast Asia. While significant progress has been made in developing and upgrading the highway infrastructure, challenges such as inconsistent quality, regulatory barriers, and maintenance issues remain, necessitating ongoing collaboration among member countries for effective implementation.
- **Singapore-Kunming Rail Link:** Stretching over 3,000 kilometers, this rail link seeks to enhance trade connectivity between Southeast Asia and China. By further improving rail infrastructure and reducing travel time, the rail link could strengthen economic ties and foster greater collaboration among the participating countries.
- **ASEAN Roll-on/Roll-off (RoRo) Shipping Network and Short-sea Shipping:** The RoRo Shipping Network allows vehicles and cargo to be loaded directly onto ships, making it easier to transport goods across the region's numerous islands and coastal areas without extensive handling. This method reduces transit times and logistics costs. Meanwhile, Short-sea Shipping uses smaller vessels for intra-regional trade, promoting more efficient and environmentally friendly transport solutions. Together, these initiatives aim to strengthen regional supply chain, improve trade routes, and enhance economic integration within ASEAN, addressing the challenges posed by the region's complex geography.

Supply chain connectivity in Southeast Asia is still marked with high logistics costs and cumbersome customs procedures affecting the speed and cost of moving goods. Integrated digital systems are necessary to streamline operations, especially to support e-commerce and digital trade. As ASEAN gears toward its post-2025 agenda, businesses call on the member states to harmonize regulations and standards to facilitate smooth trade and travel. Emphasis should also be given to green infrastructure and environmentally friendly transportation options to address climate change and promote sustainable development. Collaboration between governments and the private sector is key to fund and develop infrastructure projects, however, transparency and streamlined inter-agency processes are also crucial to be able to attract investment into the region.



## Overview of Transport Master Plan of ASEAN Member States

### Key Takeaways:

- **Southeast Asia's Post-COVID Economic Growth:** ASEAN countries benefit from infrastructure investments made during and after the pandemic, positioning themselves to capture a larger share of global manufacturing as firms diversify away from China.
- **Challenges in ASEAN Regional Connectivity:** Despite the adoption of regional frameworks like the MPAC 2016-2025 and sub-regional initiatives, ASEAN governments continue to prioritize national over regional transport and logistics connectivity.
- **Lack of Comprehensive Aviation and Maritime Connectivity:** While there are regional strategies for sustainable land transport and cross-sectoral cooperation in tourism and transport, ASEAN has yet to establish strategic plans for regional aviation and maritime connectivity, instead relying on bilateral agreements and external capacity-building assistance.

In a post-COVID world with travel reopening and a bid for economic recovery amidst greater tensions between the United States and China, governments in Southeast Asia are now reaping the benefits of their pandemic infrastructure construction and taking an increasing share in global manufacturing as more firms diversify their production bases or shift production away from China. However, ASEAN governments continue to prioritize their national transport and logistics over ASEAN regional connectivity despite adopting the MPAC 2016-2025 and having sub-regional initiatives like the ASEAN-Mekong Basin Development Cooperation (AMBDC) and the Brunei Indonesia Malaysia East Asia Growth Area (BIMP-EAGA) (ASEAN Secretariat, 2011; BIMP-EAGA, 2024). Furthermore, while there has been a clear articulation of the ASEAN Regional Strategy for Sustainable Land Transport, which supports the MPAC strategic goal of increasing green transport infrastructure in the region, and ASEAN Transport and Tourism cross-sectoral cooperation to promote sustainable travel, there have not been equivalent strategic plans to achieve the ASEAN Single Aviation Market and the ASEAN Single Shipping Market (ASEAN Secretariat, 2019; BIMP-EAGA, 2023). Thus far, ASEAN governments focus on bilateral air agreements to achieve aviation connectivity and have been the subject of maritime gaps assessment and capacity-building efforts with development partners like the [IMO](#), [UNCTAD](#), [USAID](#), and [the Government of Australia \(International Maritime Organization, 2023; United Nations Trade and Development, 2022; U.S. Agency for International Development; Partnerships for Infrastructure\)](#). But ASEAN has yet to agree on a regional maritime connectivity plan.

ASEAN governments have been investing in infrastructure as part of their economic development plans, though the pace and focus vary. Some countries prioritize mass or urban transit, seaport development, rail linkages, and airport upgrades, depending on factors such as economic drivers, domestic political considerations, and strategic objectives. Most of the funding comes from the government's national budgets, with some loans and development assistance and public-private partnerships in the form of joint ventures and Build-Operate-Transfer mechanisms. Some notable national programs and projects include:

- The **Brunei Darussalam MTIC 2020-2025 Strategic Plan**, which aims to increase the number of jobs in each transport sector by 2025: 4,800 jobs in land, 1,800 jobs in aviation, and 2,000 jobs in maritime (Brunei Darussalam, 2020). The Plan also aims to liberalize airport services and increase the number of airlines in Brunei from 6 to 12, achieving 32 city pairs, and increasing passenger traffic by 6%.
- However, it does not provide details on the planned Public Transit System Upgrade, Electric Vehicle Pilot Project, smart transport, and increase in the number of maritime ports. The **Brunei Ministry**

of Transport and Infocommunications (MTIC; Malay: *Kementerian Pengangkutan dan Infokomunikasi*) oversees civil aviation, land and maritime transport, telecommunications and meteorology in the country. Brunei based Brunergy Utama Sdn Bhd announced that the 1,620-kilometer Trans Borneo Railway project, set to shorten the travelling distances between Kalimantan, Sarawak, Sabah and Brunei, would be implemented in two (2) phases. The first phase will connect cities from West to the East coast, beginning in Pontianak, West Kalimantan, and ending in Kota Kinabalu, Sabah, which is an economic focal area (MalayMail, 2024). The second phase would involve North and East Kalimantan connecting the main route with Samarinda and to the new capital of Indonesia, Nusantara.

- The **Cambodia Comprehensive Intermodal Transport Master Plan (CIT-MP) 2023-2033**, a roadmap to modernize and upgrade infrastructure and logistics systems nationwide and transform Cambodia into a regional investment hub. It prioritizes 174 projects in the next 10 years, with an estimated total investment value of \$36.68 billion, and an anticipated annual investment of \$3.985 billion for the short-medium term phase from 2023 to 2027. The comprehensive plan encompasses various sectors, including 94 road development projects, 23 river waterway projects, 20 sea transport projects, 10 air transport projects and 15 other major logistics development projects. Former public works minister Sun Chanthol – currently deputy prime minister and first vice-chair of the Council for the Development of Cambodia (CDC) – noted that the country is on track to strengthen and expand its road network, particularly with international border checkpoints with adjoining nations. Project highlights include the \$1.7 billion Funan Techo Canal (FTC), the first project in Cambodia’s history to connect the Mekong River system and the sea. The 180 km man-made canal will connect Prek Takeo to Prek Ta Ek and Prek Ta Hing of the Bassac River System and onto Kep province. Once completed, the canal will pass through Kandal, Takeo and Kampot.

The CIT-MP also envisions the establishment of a new railway to Vietnam from Phnom Penh through Prey Veng and Svay Rieng by 2030, with three more railways planned for 2050, connecting to Vietnam from Kampong Cham province, Kampong Cham to Laos via Kratie and Stung Treng, and a high-speed train from Kampong Cham to Thailand via Banteay Meanchey. Taken together with the completion of three new expressways, including from Phnom Penh to Kep, Phnom Penh to Stung Treng, and an expressway connecting Ratanakiri to Koh Kong, the Master Plan invests heavily in the modernization and upgrade of the Cambodia’s infrastructure and logistics system. Cambodian manufacturers looking to export their products internationally still face higher average transportation costs than neighboring countries and a significant portion of Cambodia’s traders are also reliant on transit via Vietnamese ports, adding to costs of delivery. It is hoped that upon completion of major projects under the CIT-MP, more efficient transportation of goods from Cambodia’s extensive special economic zone (SEZ) networks to their final destinations could be ensured. The CIT-MP is largely funded by state-to-state initiatives like the Phnom Penh-Sihanoukville Expressway, a government-to-government project under the Belt and Road Initiative (BRI) and the Sihanoukville Autonomous Port which represents Cambodian and Japanese state cooperation. It also has joint ventures such as the new Techo International Airport (“TIA”) in Phnom Penh, developed by Cambodia Airport Investment Co., Ltd. (“CAIC”), a joint venture between the Cambodian conglomerate Overseas Cambodia Investment Corporation and the Cambodian Government represented by the State Secretariat of Civil Aviation. To allay fears and concerns with Chinese and foreign funds dominating infrastructure projects, the FTC project will proceed under a Build-Operate-Transfer (BOT) contract between Sihanoukville and Phnom Penh Autonomous Ports, a private company holding a 51 % stake, and foreign investors.

- **A key legacy of President Jokowi’s one-decade administration of Indonesia** connects more closely the world’s biggest archipelagic country with a record construction of 1.9 million meters of village bridges, 366 thousand km of village roads, 2,700 km of toll roads, 43 dams, 1.1 million hectares of irrigation networks, 27 new airports in various regions, expansion and modernization of seaports, and the construction of new railway lines and improvements to existing lines (Thenniarti, 2024). Inter-regional activities were also strengthened by the construction of the Trans-Papua, Trans-Kalimantan, and Trans-Sumatra lines. Setting aside uncertainties over the new Indonesian Capital City (IKN) moving to East Kalimantan, Indonesia’s Ministry of Transportation (Kementerian Perhubungan Republik Indonesia) claims to have successfully brought Indonesia out of Java-centric transportation infrastructure development (Antara News, 2023). The construction of twenty-five (25) new airports located in relatively less populous locations such as Fakfak (West Papua), Nabire (Central Papua), and Mandailing Natal (North Sumatra) and the repair and upgrade of 38 existing airports bode well for the country’s infrastructure investment. Public transport models and urban transit options have been innovated to include the Jakarta-Bandung High-Speed Railway and light rail transit (LRT) systems in Jakarta and South Sumatra, the construction of new Type A bus terminals and programs like Buy The Service BTS Teman Bus program. This a digitalization app-based service to increases accessibility wherein a government subsidy buys urban transportation services from operators based on the distance traveled per kilometer, so that the rates are more affordable for the community (ITDP, 2023). Newly inaugurated President Prabowo appointed Dudy Purwagandhi [as Minister of Transportation](#) and is expected to announce before the end of 2024 the specifics of his economic agenda and his 5-year plan for transport and logistics.
- The Ministry of Public Works and Transport and National Road Safety Committee of the **Lao People’s Democratic Republic** through their 2021-2030 National Road Safety Strategy and 2021-2025 Action Plan is set to implement the transport goals of the country’s National Socio-Economic Development Plan (Lao PDR). The landlocked country depends heavily on road transport for economic development. In a bid to transform the country from land-locked to “land-linked”, the country’s Transport Policy aligns with the Greater Mekong Subregion Strategy and seeks to boost connectivity with neighbors (Kattignasack, 2022). Lao PDR has set forth as its main priority to develop infrastructure that connects the regional South East Asia Regional Economic Corridor and domestic economic-corridors and the Laos China Railway (LCR) with production areas and service industries. It also aims to modernize customs and border crossings, transport systems including smart city development, logistic parks, and dry ports. Laos recently inaugurated with Thailand an international train journey on the Krung Thep Aphiwat-to-Vientiane (Khamavath) route which aims facilitate seamless travel and tourism and cargo transport between the two nations. Development partners like the Asian Development Bank (ADB) have made a substantial contribution to building the country’s transport infrastructure (Asian Development Bank, 2010). As of 2023, the ADB has committed 365 public sector loans, grants, and technical assistance totaling \$2.7 billion to the Lao PDR. In its 2024-2028 Country Partnership Strategy, ADB will continue investment projects that develop border areas through strengthened trade, urban development, and transport connectivity along major transport corridors and have synergies with inclusive tourism development. The ADB will also be seeking non-sovereign investment opportunities to help Lao PDR’s transport and logistics. The World Bank recently approved in early October the \$56 million Lao PDR Climate Resilient Road Connectivity Improvement Project, which will support government works to improve around 300 kilometers of district and rural roads in Khammuan, Saravan, and Savannakhet provinces (World Bank, 2024). The three provinces were chosen for this project because they have poor road networks, show the country’s highest poverty counts, are most vulnerable to flooding, and are among the top producers in the agriculture sector.

- **Malaysia's** National Transport Policy (NTP) 2019-2030 provides the overarching policy guide to relevant federal ministries and agencies as well as state governments and local authorities to develop and streamline transport initiatives across land, rail, maritime, and aviation toward a common goal, resulting in effective and efficient use of resources (Ministry of Transport of Malaysia). It aims to improve logistics connectivity to leverage the e-commerce boom, ports upgrade and expansion plans, as well as enhance productivity and increase competitiveness. In response to a parliamentary query last May 2023, Transport Minister Anthony Loke stated that 99 initiatives, or 40% of the total 247 initiatives of the NTP have been completed (Chung, 2023). Another 123 initiatives (50%) are still ongoing, while the medium-term initiatives for the year 2023 to 2025 and long-term initiatives for the year 2026 to 2030 (consisting of 23 initiatives or 10%) have not yet begun. A comprehensive plan to enhance public transportation in Malaysia will be introduced in July 2025, with a special emphasis on improving connectivity in the Klang Valley and achieving 80 per cent railway track utilization in the peninsula by 2030 (Daim, 2024). Furthermore, to promote FDI to the logistics sector, the Malaysia Investment Development Authority (MIDA) grants international integrated logistics services (IILS) status to companies capable of seamless door-to-door logistics along the value chain as one entity on a regional or global scale. While public-private partnerships are encouraged, Malaysia mainly funds transport infrastructure through government spending. In 2023, transport accounted for roughly 4.5% of total expenditure (US\$ 3.9 billion), specifically to build and upgrade roads and highways and upgrade existing roads, airports, and ports. However, the country's priciest infrastructure project to date, the East Coast Rail Link, which is laying 400 miles of train tracks connecting shipping ports on Malaysia's east and west coasts, is debt-funded under China's Belt and Road Initiative (Feng, 2023; Malaysia Rail Link).
- **Myanmar** has invested significantly in rail networks and currently has the longest national rail network in all of ASEAN (Stimson, 2021). Road transport dominates long-distance travel in Myanmar, but 60 % of the main road networks are in poor or bad condition. Over 90 % of the total international trade cargo, including 75 % of import goods, are transported via Yangon's ports. The Myanmar Ministry of Transport and Communications prioritizes IT infrastructure and projects that improve connectivity with ASEAN in aviation and navigation (Oxford Business Group, 2015). Infrastructure development projects such as deep-sea ports, inland ports, inland navigation channels and port access channels are considered vital for improving connectivity with the ASEAN bloc. Myanmar is constructing a 566-ha special economic zone in the seaport town of Kyaukphyu, along with a deep-sea port, which will become an important trading center in Asia, connecting the economies of China, India and Southeast Asia. The Dawei deep-sea port development project has the potential to be a gateway for trade with the western side of ASEAN and can promote trade between Southeast Asia and other countries in the region. Prior to the return to military control in February 2021, there were a wealth of countries and international financial institutions helping to address Myanmar's infrastructure gap. Most of the international projects have halted and Myanmar faces funding challenges. It needed \$60 billion in transport infrastructure investment in 2016-2030 according to the Asian Development Bank (Asian Development Bank, 2016). The World Bank undertook a transport and logistics monitoring report in 2022 tracking the dual impact of the Covid pandemic and the February 2021 return to military control (World Bank, 2022). It found that all transport sectors were severely down while export and import via containers are expected to recover gradually due to agricultural and garment industry-led demand.
- The **Philippines** Department of Transportation (DOTr) is seeking a \$3.1-billion budget for 2025, up by 144 % compared to the current year, to fund big-ticket infrastructure projects in railways and airports, among others, to improve mobility and connectivity across the country (Philippine Daily Inquirer, 2024). 74 % would go to capital outlays as the DOTr realizes several mass transport

projects. However, the latest budget report of the Congressional Policy and Budget Research Department (CPBRD) of the House of Representatives found a heavy bias for road networks in the 2025 proposed budget, a trend in the past 10 years. On average, road networks accounted for 36 % of the entire public infrastructure outlay which is significantly higher than the budget share for railways at 3.5 %, airports at 0.8 %, and seaports at 0.2 %. Some experts argue that the country's transport system, which is car-centric rather than a mass-oriented one, creates more demand for cars and private vehicles and exacerbates the traffic congestion problem in urban areas, especially in Metro Manila. Despite the infrastructure gaps and challenges, the transport and logistics industry has become one of the most powerful economic engines in the country contributing 4 to 6 % to the country's gross domestic product (GDP). The Philippine logistics market is expected to grow at a compound annual growth rate of 8.2 % from 2022 to 2027, reaching a market size of \$20.1 billion by 2027 (BusinessWorld, 2023).

To fast-track the country's big-ticket projects, the Philippines adopts a list of Infrastructure Flagship Projects (IFPs) under the Build-Better-More program (National Economic and Development Authority). In February 2024, [President Ferdinand R. Marcos Jr., approved](#) the addition of 23 new projects and delisting of 36 projects bringing the total number of IFPs to 185 projects, with a total value of \$158.4 billion. As of the fourth quarter of 2023, 74 IFPs were already being implemented, 30 had been approved for implementation, 10 were awaiting government approval, and 83 were undergoing either project or pre-project preparation. The Samar Pacific Coastal Road Project was completed in 2023 while the Davao City Bypass Construction Project got a supplemental loan of \$253 million in 2024. Notable rail projects include the ADB and JICA-funded rail projects \$3 billion North-South Commuter Railway Project (Philippine National Railway [PNR] North 1) and the \$12 billion North-South Commuter Railway Extension (PNR North 2 South Commuter) Project, and the Japan International Cooperation Agency (JICA) funded \$7 billion Metro Manila Subway Project Phase 1. Key airport projects include the rehabilitation, operation, and expansion of the airside and landside facilities of the Ninoy Aquino International Airport (NAIA), a brownfield facility and main international gateway, and the \$14 billion New Manila International Airport in Bulacan, a greenfield PPP project with a design capacity of up to 200 million passengers annually and plans for four parallel runways (National Economic and Development Authority, 2024). Funding sources for the Flagship Infrastructure Projects are roughly distributed as follows: 40 % through foreign aid; 31 % by the Philippine government's budget; and 20 % via public-private partnerships (PPP). Other projects are/will be funded by a combination of foreign aid, government budget and/or PPP (International Trade Administration, 2024).

- **Singapore** transport and logistics infrastructure supports a global maritime hub with the Port of Singapore leading container transshipment port in the world in terms of tonnage, with more than 100,000 vessel calls annually (Maritime and Port Authority of Singapore). It is also the top bunkering port in the world. Connected to more than 600 ports globally, Singapore's annual vessel arrival tonnage crossed 3 billion Gross Tonnage in 2023, with a total container throughput of 39.0 million 20-foot equivalent units (TEUs). To remain competitive, Singapore is developing Tuas Port, which officially opened in September 2022 and when fully completed in the 2040s will consolidate container port operations in a single location and will be able to handle 65 million TEUs per annum. Singapore has two cruise terminals and three ferry terminals, namely: (1) Regional Ferry Terminal at HarbourFront Centre (Singapore-Batam and Karimun islands, Indonesia), (2) Tanah Merah Ferry Terminal (Singapore-Batam and Bintan islands, Indonesia), (3) Singapore-Desaru Coast and Tanjung Pengelih, Malaysia). Singapore has also launched decarbonization blueprints and strategies across maritime, land, and aviation sectors (Maritime and Port Authority of Singapore, 2022; Ministry of Transport of Singapore). Under the Singapore Green Plan 2030, Singapore promotes Walk Cycle



Ride modes of transport, while enabling the transition to cleaner energy vehicles and aiming to switch to cleaner-energy vehicles by 2040 (Ministry of Transport of Singapore). Singapore targets the expansion of the rail network to about 360 km by the early 2030s, connecting eight in 10 households to within 10 minutes of a train station. Seven MRT lines are coming up during 2020-2032 (Land Transport Authority). The Singapore and Malaysia RTS Link is slated to commence passenger service by end-2026. The RTS Link will be a standalone Light Rail Transit (LRT) System with capacity to serve up to 10,000/hr. commuters during peak periods, in each direction, crossing the Straits of Johor via a 25m-high bridge from Woodlands North Station (LRT) in Singapore to the Bukit Chagar Station in JB, the Johor Bahru – Singapore Rapid Transit System (RTS). There will be co-located Customs, Immigration and Quarantine (CIQ) facilities and passengers will clear at the point of departure and will not go through immigration clearance again at the point of arrival.

- In October 2024, **Thailand** launched an extensive \$80.6B investment initiative to Thailand's transportation infrastructure and support sustainable logistics as part of the country's Nationally Determined Contributions (NDC) Action Plan for 2021–30, aligning with Thailand's climate objectives under the Paris Agreement (Viet Nam News, 2024). The initiative will focus on electrification of public transportation introducing 3,100 electric buses in Bangkok by the end of this year, with an additional 1,520 to be deployed by 2025 and expanding the electric train network in Bangkok and its metropolitan areas, aiming for 554 km of rail coverage by September 2025. A unified ticketing system and a flat-rate fare policy of 20 baht per journey will be rolled out for electric public transport after further study and coordination between the Finance Ministry and Transport Ministry. Part of the green transport strategy are key double-track railway expansions and high-speed train links such as the Bangkok–Nakhon Ratchasima high-speed rail and the three-airport high-speed rail project connecting Don Mueang, Suvarnabhumi, and U-Tapao airports. Light rail transit systems in key regional cities such as Chiang Mai, Khon Kaen, and Phuket are also being planned. To enhance logistics efficiency, the Ministry has already completed 4,044 km of double-track rail lines and plans to add another 1,479 km by 2029. The high-speed rail blueprint features the three-airport link, a 220 km route with a budget of 226.7 billion baht, and the Thai-Chinese high-speed railway from Bangkok to Nakhon Ratchasima, which is currently under construction. Thailand is also set to construct smart ports and cruise ports (Sawasdee Thailand). Thailand Deputy Prime Minister and Transport Minister Suriya Juangroongruangkit continues to lead the Ministry of Transport as part of Prime Minister Paetongtarn Shinawatra's Cabinet. He unveiled early this year 57 new investment projects for 2025, 64 transport projects set to become operational and 31 new projects to be constructed in 2024, with a combined investment value close to \$8 billion (The Nation, 2024). Notable is the Eastern Economic Corridor (EEC) high-speed rail network which will connect the EEC with major cities in Thailand and neighboring countries. The EEC-China high-speed rail line, which will connect Bangkok with Kunming, China, is expected to begin this year and be completed in 2030. The EEC-Laos high-speed rail line, which will connect Bangkok with Vientiane, Laos, and the EEC-Malaysia high-speed rail line, which will connect Bangkok with Kuala Lumpur, Malaysia are still under discussion. Funding sources vary: China Railway Construction Corporation leads a consortium to build the Bangkok-Ubon Ratchathani high-speed railway and Thailand will be seeking official development assistance (ODA) from the Government of Japan to develop airports nationwide such as new terminals at Suvarnabhumi and Don Mueang airports in Bangkok and the construction of Lanna International Airport in Chiang Mai (Southeast Asia Infrastructure, 2024).

- In April 2021, the **Vietnam** Ministry of Transport announced its transport infrastructure master plan 2021-2030, which is estimated to cost between US\$43 billion and US\$65 billion (Vietnam Briefing, 2021). Under the master plan, Vietnam will build over 5,000 km new expressways including a 1,372 km north to south highway costing \$14 billion, 25 new high-speed rail routes spanning 6,354 km and invest roughly \$18 billion for deepwater ports and \$13.5 billion for new international airports (Source of Asia, 2023). The government hopes Vietnam could achieve a cargo transportation capacity of 4.4 billion tons per year, and a road transport capacity capable to move 2.76 tons of cargo and 9.43 million passengers per year. Key projects that have been completed include the North-South Expressway section from Cam Lo to La Son, the Truong Luong-My Thuan Expressway connecting the Southwest region with Ho Chi Minh City, and the Lach Huyen International Gateway Port in Hai Phong capable of receiving container ships up to 12,000-18,000 TEU. In early 2024, Vietnam Prime Minister Pham Minh Chinh urged delegates from 46 provinces and cities at the ninth session of the Steering Committee for Key National Transport Projects to accelerate the construction of 34 major transport infrastructure projects being built nationwide, including five rail and two airport projects (APFL Partners, 2024). He highlighted some of the challenges facing major transport infrastructure projects such as long investment procedures, slow site clearance, poor coordination, and bottlenecks in the disbursement of ODA. The Prime Minister heads the State steering committee for national important transport projects and renewed his call for urgency on October 16 for the completion of transport projects in the Mekong Delta region (Vietnam Plus, 2024). He urged all players to report their own difficulties and to propose solutions. The region hosts nine key national transport projects with a combined investment of about \$4.25 billion. Eight construction projects are ongoing, with six to be completed in 2025, and the My An-Cao Lanh expressway to be opened in early 2025. Vietnam is also taking steps in integrating green energy measures in the transport sector. The Ministry of Transport's recent Decision No. 1679/QD-BGTVT outlines a comprehensive plan toward transport decarbonization to achieve net-zero emissions by 2050, marking a significant move towards the execution of the Prime Minister's Decision No. 876/QD-TTg on the transition to green energy and the reduction of carbon dioxide and methane emissions in the transport sector (NDC, 2024; NDC, 2022). Vietnam aims to [phase out fossil fuel vehicles](#) by 2050 (NDC, 2022).

## U.S. Department of Transportation's City-Pairing Programs in ASEAN

### *Key Takeaways:*

- **City Pairing Model for Smart Mobility Solutions:** The U.S. Department of Transportation (DOT) uses city pairings (e.g., Phnom Penh and Boston, Jakarta and Los Angeles) to share expertise in urban planning, technology, and policy for advancing sustainable and smart transportation.
- **Workshops and Knowledge Sharing:** In-person workshops (e.g., in Los Angeles, Jakarta, and Phuket) facilitate discussions on modal integration, pedestrian safety, and public engagement in transportation, offering practical insights from U.S. and ASEAN case studies.
- **Focus on Local Engagement and Infrastructure Development:** Through site visits, like the one in Los Angeles, ASEAN cities gain exposure to operational best practices, and efforts are being made to extend transit solutions to underserved areas, as seen in Johor Bahru's collaboration with Portland, Oregon.

On November 15, 2018 at the 6th ASEAN-U.S. Summit in Singapore, the United States announced the new U.S.-ASEAN Smart Cities Partnership (USASCP) initiative, a key deliverable of the U.S. Indo-Pacific Strategy that seeks to harness U.S. public and private sector expertise to collaborate with the 26 pilot cities of the ASEAN Smart Cities Network (ASCN) (USASCP). The ten pillars of USASCP programming are the Business Innovation Fund (BIF), Business Promotion and Cybersecurity, Circular Waste Management, Green Buildings Innovation, Circular Entrepreneurship, Integrated Urban Services (IUS), Energy Modeling, Research & Innovation, Smart Sustainable Transport, and Water Smart Engagements (WiSE).

For the Sustainable Transport program under the USASCP initiative, the U.S. Department of Transportation (DOT) employs a city pairing model to promote policy, planning, and technology to advance smart mobility solutions. The program includes several local ASEAN university partnerships and the following city partnerships: Phnom Penh, Cambodia, and Boston, Massachusetts; Jakarta, Indonesia and Los Angeles, California; Hanoi, Vietnam and Dallas, Texas; Phuket, Thailand, and Las Vegas, Nevada; Johor Bahru, Malaysia, and Portland, Oregon. Activities include a series of regional webinars in 2020 and 2021 focused on U.S. and ASEAN case studies which highlighted the importance of integrated urban planning for multi-model transport and strategic use of technology when working to improve transportation operations.

In July 2022, the USASCP-DOT partnership hosted participants from their U.S.-ASEAN city pairings in Los Angeles, CA, to discuss challenges, opportunities, and best practices for the development of transit systems in smart cities. Nina Hachigian, former Deputy Mayor of International Affairs of Los Angeles, and former U.S. Ambassador to ASEAN, opened the workshop and emphasized the value of urban planning at the sub-national level to improve the livelihood of residents. Experts from the ASEAN partner cities of Jakarta, Johor Bahru, and Phuket joined their peer counterparts from Los Angeles, Portland, Las Vegas, and Boston in discussions around modal integration, pedestrian safety, bus rapid transit design, and ridership behavioral patterns. The workshop highlighted the importance of public engagement in the development of transportation policy, planning, and technology, and helped advance the respective city pairs transit toolkits. A site visit to Los Angeles DOT facilities, including its signaling operation center and multi-modal infrastructure, provided direct experiences for learning and knowledge-sharing across international regions as well as among the U.S. and USASEAN cities. A delegation from Johor Bahru, Malaysia, recently visited their peer city partners in Portland, Oregon, to discuss efforts to extend transportation to communities beyond the main transit pipelines, filling the gap between the last stop and people's homes with solutions such as bike and scooter shares. In December 2023, U.S. DOT representatives traveled to Phnom Penh to advance the city's pairing work with

Boston. A representative from the City of Boston accompanied the DOT team, where they met with the Vice Governor of Phnom Penh, the City Bus Authority, Office of Urban Planning, the Department of Public Works, the Traffic Control Center, and the Traffic Policy Office.

The program held in-person workshops in Jakarta (December 2022), Los Angeles (July 2023), and Phuket (March 2024), with a fourth workshop scheduled for September 2024 in Boston. The US-ASEAN Business Council supports these programs in coordination with DOT where possible.

## Overview of Challenges in Transport Master Planning

### Key Takeaways:

- **Infrastructure Gaps:** Many ASEAN Member States (AMS) face significant infrastructure disparities, particularly in road, rail, port infrastructure, and public transit systems.
  - **Policy and Regulatory Barriers:** Cross-border transport is hindered by differing regulations and standards across AMS, affecting investor perceptions and delaying the development of integrated transportation networks. Countries like Myanmar need streamlined transport laws to enhance planning.
  - **Funding and Investment Challenges:** Securing adequate financing for large-scale infrastructure projects remains a major hurdle, with reliance on public funds, official development assistance, and public-private partnerships. Political instability and regulatory risks further discourage private investors.
1. *Infrastructure Gaps:* Many ASEAN Member States continue to encounter disparities in the development of road, rail, port infrastructure, and public transit systems, not only in rural areas but also in developed cities. For instance, Metro Manila, which has a population of approximately 13.5 million, relies heavily on jeepneys (which were repurposed from the army Jeeps that were left after World War II) (Philippine Statistics Authority, 2021). The proportion of buses in Hanoi, the main mode of transport, is 12%, which is relatively low for a city with a population of 8 million (JICA, 2020). Infrastructure gaps, particularly those that impact the mobility of goods and people, can impede economic integration, trade, and regional connectivity.
  2. *Policy Barriers:* Cross-border transportation operations are frequently complicated by differences in regulations, standards, and priorities across AMS. Policy barriers include those governing local legislation, funding mechanisms, design guidelines, building codes, and customs procedures. These policies not only affect the movement of people and commodities, but they also alter investors' perceptions of potential opportunities, as these are essential channels for the development of integrated transportation networks within the countries and in the region. In Myanmar, for example, the ADB Transport Sector Policy Note recommends the passage of a sector-wide transport law to streamline the country's transportation planning (2016).
  3. *Land-Use Planning and Zoning Regulations:* Land use and zoning compatibility are essential for effective transport planning, yet rapid urbanization in many ASEAN cities has highlighted significant mismatches between zoning regulations and urban development needs. These inconsistencies have resulted in inadequate infrastructure that fails to meet the demands of growing populations. Regular reviews of zoning frameworks are crucial to ensure adaptability and support sustainable urban growth.
  4. *Environmental and Social Considerations:* Transport planning in AMS currently faces significant challenges due to the need to balance infrastructure development with environmental sustainability and the welfare of local and vulnerable communities.

Securing project right-of-way and addressing displacement concerns, often complicated by existing communities and the need for environmental impact clearances, frequently leads to



delays in project implementation. These obstacles are not confined to the planning stages but become even more pronounced during project execution, causing setbacks and impacting the timely delivery of essential transport projects across the region.

5. *Funding and Investments:* Securing adequate funding for big-ticket transport infrastructure projects remains a significant challenge. Many ASEAN countries depend on public funding and general appropriations, which are often constrained due to competing demands on government resources. Official development assistance from partner countries and multilateral financing institutions through grants and sovereign loans is also crucial; however, stringent vetting processes and the varying compliance capabilities of countries can cause further delays in project implementation (OECD, 2023). Private investment, while valuable, is frequently hindered by investors' concerns over political stability, regulatory risks, and the long payback periods. Public-private partnerships (PPPs) are promoted as a solution but require well-defined frameworks and effective risk-sharing mechanisms to be successful.

## Policy Recommendations

### Key Takeaways:

- **Smart City and Sustainable Transport Planning:** ASEAN member states should promote smart city infrastructure and sustainable transport systems, such as electric vehicles, integrated transit systems, and smart traffic monitoring, to optimize economic growth and improve citizens' quality of life.
- **Public-Private Partnerships (PPPs) and ESG Investments:** Expanding funding through innovative vehicles like PPPs and ESG investments can unlock private sector contributions for infrastructure projects in Southeast Asia, encouraging sustainable and resilient growth.
- **Customs and Logistics Digitalization:** ASEAN should modernize and digitalize customs and logistics systems, implementing technologies such as blockchain and AI, to reduce trade costs, streamline cross-border transactions, and enhance supply chain efficiency across key sectors like health, agriculture, and semiconductors.

### Integrated and Sustainable Design Development

- **Promote Smart City Transport Planning:** Governments are encouraged to invest in and implement smart city infrastructure to improve transport efficiency. This includes deploying real-time traffic monitoring, adaptive traffic signaling, and intelligent transport systems (ITS). For example, the Singapore government developed the Smart Nation program and promoted Smart Urban Living by establishing online monitoring systems, integrated environmental models, and holistic urban planning. Central Vietnam's Da Nang City, a leading smart city in the region, established a Smart Traffic Center to enhance public service supervision and manage traffic flow. By promoting smart cities, ASEAN member states can optimize economic growth and connectivity and improve the quality of life of their citizens.
- **Design Sustainable and Innovative Projects:** In terms of detailed engineering and architectural design of major transport projects, the ASEAN governments should prioritize the transition to technologies that enhance energy and material efficiency to promote a cost-efficient and climate-resilient infrastructure. This shift should be integrated from the procurement, conceptualization, and design stages to ensure long-term sustainability.
- **Incentivize Sustainable Freight Transport and Adoption of Electric Vehicles:** Promoting the use of electric vehicles (EVs) for the transportation of goods and services presents a valuable strategy for advancing sustainability within the transport sector. A comprehensive incentive program, aimed at both consumers and manufacturers, is essential for fostering broader EV adoption. This can be achieved through measures such as tax incentives, subsidies, converting existing vehicles to electric, and reduced registration fees for EV purchasers. For long-term sustainability, the government should actively explore partnerships with the private sector to develop the necessary infrastructure that supports the efficient use of EVs. For a more comprehensive policy recommendation, the US-ASEAN Business Council published a paper in 2023 on the [Electric Vehicle Ecosystem in ASEAN](#).

- **Implement Integrated Planning and Transit-Oriented Development (TOD):** Governments should focus on integrating land use and transport planning through policies that promote Transit-Oriented Development (TOD) networks. Policies and master plans should focus on the optimization of public transport and enhancement of pedestrian connectivity. Many ASEAN cities have been facilitating TOD around mass transit lines, major road networks and ports by connecting to major residential areas and business districts. However, these efforts require integration of services and physical infrastructure:
  - *Service Integration Strategies:* Governments should consider partnering with the private sector to promote service integration across various modes of transportation for people, commodities, and services. This can be accomplished by implementing an integrated automated fare collecting system (AFCS) for mass transit and toll roads, synchronizing timetables of transport networks, and integrating digital infrastructure to improve accessibility and encourage the use of public transportation. This way, major road networks can be used to move goods, decreasing traffic congestion caused by single automobile users.
  - *Physical Integration Strategies:* Governments are encouraged to allocate resources towards establishing intermodal transportation hubs or common stations consisting of roads, railways, buses, ports, and pedestrian walkways. Kuala Lumpur Sentral station stands out as an example of integrated infrastructure by consolidating transportation services in a central area providing commuters with convenient and effective travel options linked to the international airport and serving the city. Likewise, Jakarta's Metro Rail Transit (MRT) stations are strategically positioned to link up with transportation options such as Bus Rapid Transit (BRT) pedestrian walkways and cycling routes. By following a holistic approach to planning intermodal transport systems, ASEAN member states can reduce the time and cost of moving goods and enhance people's mobility.
- **Incentivizing Green Public Procurement:** Member states, like the Philippines, have adopted a [Green Public Procurement Roadmap](#) by prioritizing procurement of sustainable products and services, aligning with the ASEAN's commitment to a greener economy and the United Nations' Sustainable Development Goals (SDGs). The concept of incentivizing green public procurement for transport and infrastructure projects is not only essential for promoting sustainable growth and climate resilience but also for raising competitiveness and diversifying the profile of market players in the region.

## Intermodal Safety and Cross-border Security

Ensuring the safety and security of transportation systems across the region is paramount in achieving a resilient and secure environment for all users. This can be achieved through tailored strategies that prioritize infrastructure enhancements, regulatory compliance, and collaborative efforts in three (3) critical areas — road safety, aviation safety, and maritime and port security.

## Road Safety

- **Enhance infrastructure safety** by implementing standardized design for traffic flow systems, road markings, and signage that ensure accessibility and safety for all road users, including vehicles, pedestrians, and persons with disabilities.
- **Establish a comprehensive inventory system** to monitor the condition and maintenance needs of road infrastructure and pedestrian networks. This will ensure timely upkeep and enhance safety standards across the region.
- **Implement regular and stringent vehicle testing**, focusing not only on engine quality but also on adherence to standardized license plates, color models, and vehicle visibility requirements. This will improve overall road safety and uniformity across ASEAN member states.
- **Promote public education and strengthen licensing enforcement**, emphasizing safe driving practices and road-sharing principles. This initiative should target all road users—motorists, cyclists, and pedestrians—and be supported through collaborative efforts with the private sector to foster a culture of road safety in the region.

## Aviation Safety

- **Invest in Advanced Technologies** by prioritizing investment in interoperable data systems, reliable networks, and advanced air traffic management systems to enhance safety, efficiency, and airspace optimization.
- **Ensure Safety-Centered Design in Airports and Air Carriers** by means of designing airports and air carriers to meet international safety standards. Commercial and cargo air carriers must also comply with stringent regulatory requirements prior to certification.
- **Enhance Training and R&D in Aviation Education** by implementing continuous training and certification for all aviation personnel. Invest in research and development in aviation education to ensure personnel are trained with the latest safety practices and technological advancements.
- **Foster Collaboration for Aerospace Safety and Cross-border security** in strengthening cooperation between industry and government to ensure comprehensive safety standards across the global air transportation system.

## Maritime and Port Security

- **Invest in advanced port security technologies and infrastructure**, such as Automated Identification Systems (AIS) and surveillance systems, to ensure data security, interoperability, and prevent breaches or leaks in maritime operations, particularly in customs.
- **Adopt and enforce International Maritime Organization (IMO) regulations**, specifically the International Ship and Port Facility Security (ISPS) Code, to enhance secure port operations and streamline customs and immigration processes across ASEAN member states.

- **Strengthen regional cooperation on maritime border control**, including information sharing, joint patrols, and coordinated responses to both sovereign security and environmental threats. This will promote a unified approach to safeguarding ASEAN's maritime domain.
- **Partner with the private sector** to facilitate collaborative efforts with the government on public education initiatives, raising awareness and promoting best practices for maritime safety across the region.

## Development through Public-Private Partnership and Environmental, Social, and Governance Investments

Innovative funding vehicles can encourage increased development of infrastructure in Southeast Asia, as MPAC 2025 highlights. Given the high cost of infrastructure investments, expanding funding options with public-private partnership (PPP) frameworks can pool risk and increase investment from across sectors, including from institutional investors. PPP frameworks can also unlock additional benefits, such as private sector expertise, to bolster infrastructure development. Around the world and within Southeast Asia, PPP frameworks vary. Adjusting risk-sharing arrangements and project development can improve public-private partnership (PPP) frameworks in the region. Strong PPP frameworks can open additional investment opportunities for infrastructure in Southeast Asia.

- **Clear and institutionalized guidelines** to reduce risk for investors and increase ease of investment in infrastructure projects.
- **Evaluate demand and revenue risk balance on a case-by-case basis** that allows for flexibility and transparency for investors in supporting major infrastructure projects.
- **Standardize PPP transaction documents and publish project assessments** as best practices for private investors to more easily navigate investing in major infrastructure projects in partnership with governments.

In addition, Environmental, Social, and Governance (ESG) investments can open private sector channels for infrastructure investment in ASEAN. ESG investments recognize that environmental, social, and corporate governance issues influence challenges and opportunities for investors and can impact business resilience in the longer term (UNDP, 2024). Investors, especially from institutions, have increased emphasis on values such as human rights protections and environmental due diligence in major investments.

- **Opening green, social, and other types of bonds** to fund sustainable projects can expand options for private investors to support infrastructure projects while prioritizing investor goals.
- **Harmonizing regulations and reporting standards** can support infrastructure for ESG investments.
- **Expanding human rights and environmental due diligence of major infrastructure and transport projects**, particularly in high-risk industries, can allow investors to more comprehensively understand and confidently invest.

Unlocking innovative funding vehicles through PPP and ESG investments are complementary tools that can spur private sector buy-in and subsequent growth for Southeast Asia's infrastructure development.



In both PPP and ESG investments, clearer guidelines on risk and reporting can open new opportunities and interest from private sector actors. By clarifying risk and guidelines for such investments, including downstream evaluation for ESG funders, private sector actors may more confidently collaborate with governments to boost infrastructure investment.

## Reforming Customs and Logistics Systems for Trade and Transport

The MPAC 2025 cites that the region's customs and logistics costs remain far higher than international benchmarks. Customs reform and modernization are then critical to supporting the seamless operations of integrated transport solutions in ASEAN for several reasons: facilitating cross-border trade, reducing trade costs, encouraging investments, enhancing compliance, and boosting supply chain resilience. AMS should take advantage of emerging technologies that accelerate innovation driven by the 2020 pandemic and invest in the digitalization of logistics, border clearance, and supply chain management. These technological concepts include digital and paperless clearance of goods, non-intrusive inspection devices, blockchain, artificial intelligence, and other technological advances that offer data collection, sharing, and analysis. Improving competitiveness through digitalization has the potential to improve speed and reliability of supply chains in each and across ASEAN Member States.

- **Harmonized customs procedures** to reduce trade costs, improve processing times, promote cross-border transactions, and enhance data accuracy.
- **Digitalization of customs operations through the implementation of blockchain technology and digital certificates** to enhance the reliability of customs documentation and tracking, as well as to simplify trade verification.
- **Data analytics for decision-making** to improve risk assessments, enhance compliance, identify trade patterns, and optimize customs operations.
- **Capacity building in digital skills** to equip customs personnel with the necessary skills to manage and optimize digital tools for operational efficiency and service quality.

In addition, effective logistics connectivity is vital to the development of key industries including health, agriculture, automotive and semiconductors. In ASEAN, improving logistics operations across these sectors will not only enhance economic growth but also promote regional competitiveness. To achieve this, targeted policy interventions are essential, particularly through the adoption of digital platforms and smart logistics solutions, ensuring that ASEAN remains resilient and responsive to global supply chain challenges.

- **Health:** Developing digital supply chain platforms and cold chain infrastructure to [mitigate](#) disruptions in health logistics, health programs, and epidemic responses.
- **Agriculture:** Enhancing rural connectivity and smart logistics for agriculture to optimize routes, improve delivery time, reduce post-harvest losses, open access to other markets, ultimately boosting agricultural productivity and income.

- **Automotive:** Supporting initiatives for the adoption of green logistics practices (such as the use of EVs) to achieve environmental goals and reduce costs in the long term.
- **Semiconductors:** Facilitating better cross-border coordination among semiconductor manufacturers, suppliers, and logistics providers by harmonizing standards and regulations to avoid bottlenecks in delivery components because the semiconductor industry relies heavily on a global supply chain.

The digital adaptation of customs and logistics operations across ASEAN is essential for reducing costs, enhancing efficiency, and improving supply chain reliability. These proposed innovations will accelerate trade processing times and foster seamless cross-border transactions. Digitalization is key to reducing trade costs and boosting competitiveness, ensuring that ASEAN can meet the demands of an increasingly interconnected global economy while fostering sustainable growth in key sectors such as health, agriculture, automotive, and semiconductors. Through targeted investments in technology and capacity-building, ASEAN can achieve greater operational efficiency and cost savings, positioning the region as a leader in global trade and logistics.

## Upskilling and Capacity Building

In alignment with MPAC 2025, developing technical skills in emerging technologies is critical for fostering an integrated, innovative, and sustainable transport network across the region. MPAC 2025 emphasizes digital innovation and smart infrastructure as key pillars for enhancing regional connectivity. To meet these goals, AMS are encouraged to invest in skill-building programs focused on the Internet of Things (IoT), artificial intelligence (AI), and big data, enabling transport professionals to design and operate intelligent transport systems. These technologies are essential for improving real-time traffic management, enhancing logistics efficiency, and creating more resilient urban transport solutions. By prioritizing the upskilling of workers in these areas, ASEAN can ensure that its transport infrastructure evolves in line with global smart-city trends and effectively supports regional integration.

The push for sustainable transport solutions is also at the heart of MPAC 2025's objectives, which aim to promote environmentally responsible growth and low-carbon infrastructure. Technical training in EV development and maintenance, renewable energy integration, and sustainable urban mobility will empower ASEAN nations to meet their sustainability goals while addressing the growing demand for greener transport options. By equipping the workforce with the expertise to develop and maintain EV and charging networks, integrate renewable energy sources into transport systems, and manage energy-efficient infrastructure, ASEAN can lead the transition toward a low-carbon economy. This not only aligns with MPAC 2025's focus on sustainable infrastructure but also enhances the region's global competitiveness by promoting innovation and environmental stewardship in transport development.

Advancing technical skills development in emerging technologies and sustainable transport solutions is crucial for the successful implementation of the Master Plan on ASEAN Connectivity 2025. By equipping the region's workforce with the necessary expertise, ASEAN can accelerate the deployment of smart transport infrastructure and sustainable mobility solutions, ensuring that the region remains competitive and environmentally conscious. The integration of IoT, AI, big data, and renewable energy into transport systems will not only strengthen regional connectivity but also support broader goals of economic growth and climate resilience.

## Strengthening of Stakeholder Consultations and Public Advocacy & Outreach

To ensure the successful implementation of integrated transport solutions under MPAC 2025, it is essential to institutionalize inclusive stakeholder consultations. This approach requires involving a diverse range of stakeholders—including government agencies, the private sector, civil society organizations, and local communities—in the planning and decision-making process. By institutionalizing these consultations, AMS can ensure that transport policies and projects are aligned with the needs and concerns of all affected parties. Transparent and participatory dialogues foster trust and buy-in from stakeholders, minimizing potential conflicts and delays in project implementation. Moreover, such consultations can help identify innovative solutions and build consensus on key issues such as regulatory harmonization, environmental sustainability, and regional integration, ensuring that projects meet both local needs and broader regional goals.

Equally important is the adoption of multi-channel public outreach and community engagement strategies to raise awareness and support for transport initiatives. Public advocacy efforts should leverage various platforms, such as public forums and targeted community outreach programs to engage citizens and stakeholders. By using a multi-channel approach, governments and transport agencies can reach a wider audience, ensure continuous engagement, and tailor communication strategies to different demographic groups. Drawing on best practices from global case studies, such as Singapore's Land Transport Master Plan 2040 or the European Union's Sustainable Urban Mobility Plan framework, ASEAN can adopt methods like early stakeholder involvement, public awareness campaigns, and the use of digital platforms to disseminate information (European Commission, 2024). These approaches will ensure that the public remains informed and actively engaged, fostering greater public support for sustainable and smart transport initiatives across the region.

In short, strengthening stakeholder consultations and public outreach is key to realizing MPAC 2025's goals and ensuring the seamless implementation of integrated transport solutions in ASEAN. Institutionalizing inclusive consultations and using multi-channel engagement will promote transparency, accountability, and collaboration, building stronger partnerships between governments, the private sector, and communities. These efforts will boost public trust, drive innovation, and ensure transport solutions are sustainable and aligned with the region's needs.

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