International Transport Forum

SIPA
Sustainable Infrastructure Programme in Asia

STAKEHOLDER SURVEY ANALYSIS

Southeast Asia (incl. Cambodia, Indonesia, Philippines, and Thailand)

Supported by:

Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

based on a decision of
the German Bundestag

IKI INTERNATIONAL CLIMATE INITIATIVE

Disclaimer

This report summarises direct responses from national stakeholders across the project countries, providing average scores by country, sector, and for the region overall. These scores reflect the subjective perceptions of the respondents and are complemented by analytical interpretations from the authors. The findings do not represent the ITF's expert position on transport connectivity, resilience, sustainability, or digitalisation in the region.

It is important to note that the results of the stakeholders' self-assessment may vary based on individual or institutional perspectives and may not fully align with objective evaluations. Consequently, any benchmarking between countries based on these scores should be approached with caution, as the results are inherently subjective and may not provide a reliable basis for direct comparison.

OUTLINE

- INTRODUCTION
- REGIONAL OVERVIEW
- INFRASTRUCTURE AND CONNECTIVITY
- SUSTAINABILITY
- RESILIENCE
- NATIONAL TRANSPORT PLANNING
- CONCLUSION

International Transport Forum

SIPA
Sustainable Infrastructure Programme in Asia

INTRODUCTION

About ITF

The International Transport Forum (ITF) is an intergovernmental organisation with 69 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers. The ITF is the only global body that covers all transport modes. It is politically autonomous and administratively integrated with the OECD.

The ITF works for transport policies that improve people's lives. Our mission is to foster a deeper understanding of the role of transport in economic growth, environmental sustainability and social inclusion and to raise the public profile of transport policy.

The ITF organises global dialogue for better transport. We act as a platform for discussion and pre-negotiation of policy issues across all transport modes. We analyse trends, share knowledge and promote exchange among transport decision makers and civil society. The ITF's Annual Summit is the world's largest gathering of transport ministers and the leading global platform for dialogue on transport policy.

About SIPA-T

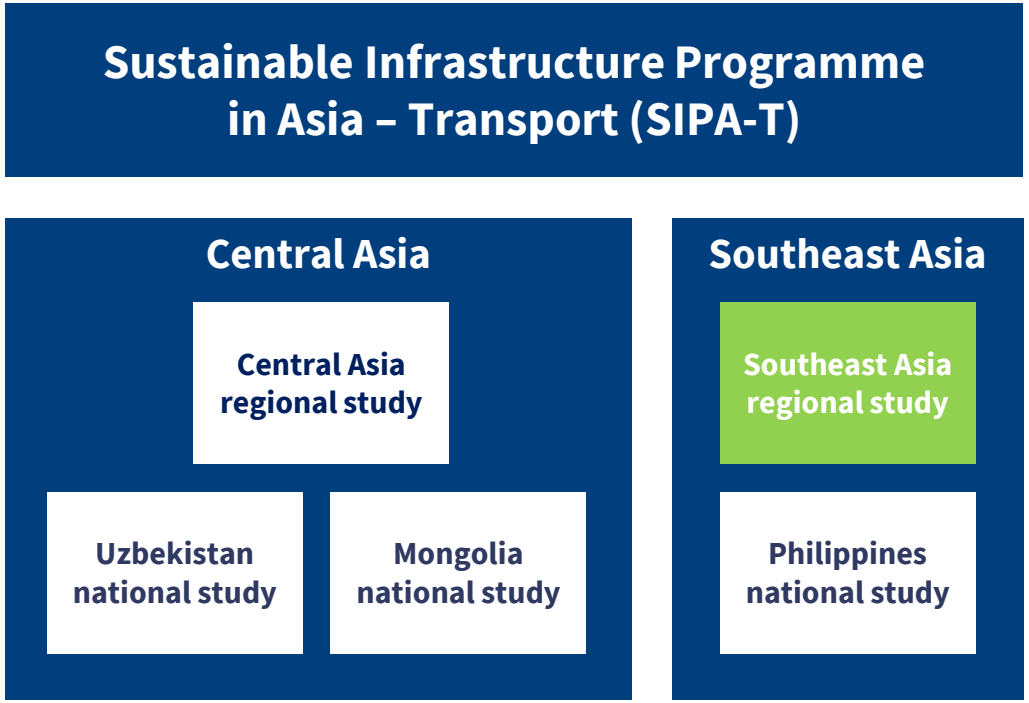
The Sustainable Infrastructure Programme in Asia (SIPA) is a four-year programme supporting the development of cleaner infrastructure in Central and Southeast Asia.

It is led by the OECD and funded by the International Climate Initiative (IKI) of Germany's Ministry for the Environment.

The ITF leads the transport component of the SIPA programme (SIPA-T). It aims to provide transport policy guidance with a focus on the efficiency and sustainability of transport networks at both national and regional levels.

SIPA-T outputs include two regional studies that explore opportunities to improve the connectivity, sustainability, and resilience of freight transport systems in Central and Southeast Asia.

Access more information: https://www.itf-oecd.org/sustainable-infrastructure-programme-asia-transport



Acknowledgements

This stakeholder survey analysis was prepared by Varun Shankar (independent consultant) and Emrecan Erdogan (independent consultant).

At the ITF, Nicholas Caros and Diego Botero coordinated the survey distribution and data collection. Yaroslav Kholodov, Nicholas Caros, Guineng Chen and Takahiro Nomoto edited and provided feedback on the draft analysis report. Takahiro Nomoto assisted with data processing and visualisation. Mila Iglesias and Apostolos Skourtas provided administrative support.

Renaud Madignier (independent consultant) created the visual identity for the overall project.

Nicholas Caros is the project manager, and Diego Botero is the project coordinator of the SIPA Southeast Asia regional study. Yaroslav Kholodov is the project manager, and Xiaotong Zhang is the project coordinator of the SIPA Central Asia regional study. Guineng Chen is the lead of the overall SIPA-T research programme.

This analysis report is part of the SIPA programme led by the OECD. The ITF would like to thank Virginie Marchal, Peline Atamer, Douglas Herrick, Soojin Jeong, and the entire OECD SIPA team for their valuable contributions and collaboration on this project.

Survey objectives

Project overview: The project involves a comprehensive review of the current state of regional freight transport and an examination of policy commitments aimed at enhancing the connectivity, sustainability, and resilience of freight transport.

Survey objective: The primary objective of the survey is to collect information and viewpoints from local stakeholders with experience in regional freight transport.

Survey findings and implications: The survey responses contribute to the project outputs in the following ways:

- **Contextual information and gap identification:** Responses regarding current regional freight transport challenges and practices provide valuable contextual information. This allows the project team to identify existing gaps in the freight transport systems.
- **Quantitative modelling inputs:** Data sources provided by respondents serve as critical inputs for the quantitative modelling process, enhancing the accuracy and reliability of the model.
- **Policy and infrastructure scenario design:** Insights on opportunities to improve the freight transport systems inform the design of alternative policy and infrastructure scenarios. These scenarios are subsequently tested within the model to evaluate their potential effectiveness.

Survey structure

The survey was designed to cover the following four key areas:

Connectivity

This section assesses current policy directions, highlights key bottlenecks, identifies priorities for future development, and recognises the region's top five critical infrastructure projects.

Sustainability

This section critically assesses the environmental impact of regional freight transport, aiming to identify key challenges and opportunities for enhancing sustainability practices and ensuring long-term environmental stewardship.

Resilience

This section delves into understanding the vulnerabilities and threats faced by freight transport systems, aiming to identify the most challenging risks that can disrupt the flow of goods and services.

National transport planning

This section delves into the intricate dynamics of freight transport planning, examining hurdles in policy formulation, project prioritisation, financing mechanisms, private investment mobilisation, and the roles of NGOs.

Survey intended audience

Governments

Policymakers responsible for transport, logistics, infrastructure, commerce, trade, economic development, or international relations at all levels of government

Public operators and SOEs: ports, airports, railroads, logistics, postal services

Customs and border crossing agencies

Regulatory bodies

Private Sector

Private sector freight carriers, freight forwarders, logistics providers and customs brokers

Industry associations of shippers and forwarders

Trade financing and lending partners

International / Regional organisations

International or regional development and cooperation organisations (e.g. ASEAN, CAREC)

Survey design and processing

Survey structure:

- 22 questions (multiple choice and open-ended).
- Focus on connectivity, sustainability, resilience, and freight planning.

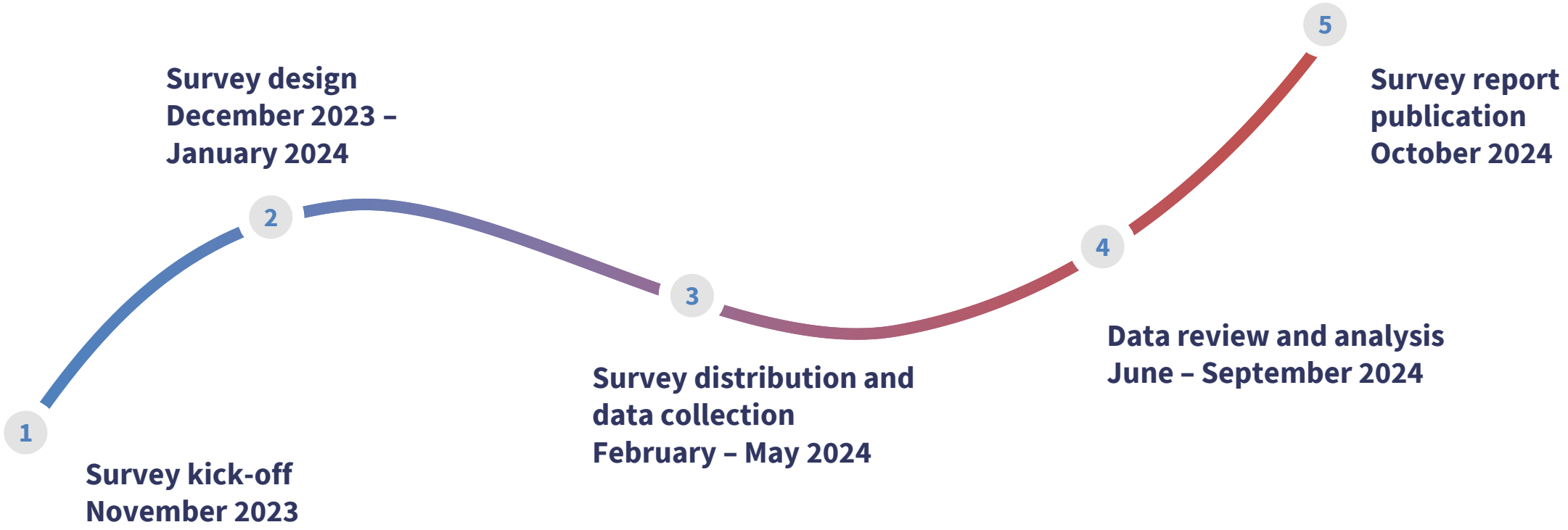
Country analysis:

- Calculate the average response rate for each question across all countries.
- Identify common patterns in the region.
- Determine differentiated priorities by country.
- Responses are limited to Cambodia, Indonesia, the Philippines, and Thailand.

Sectoral analysis:

- Compare the public sector with the private sector. The public sector is represented by the average of the two aggregate response rates from governments and SOEs.
- Identify differences and joint perspectives.

Survey timeline



REGIONAL OVERVIEW

Section summary

Analysis of response quantity: examining the number of responses obtained from each country, highlighting contributions from both the public and private sectors. This analysis will offer insights into the level of engagement and involvement from diverse stakeholders, aiding in understanding the breadth of perspectives.

Assessment of the state of freight transport: evaluating the present condition of freight transport in each country, with respondents assigning overall ratings to their country's freight sector.

Insight on policy prioritisation: prioritising different performance indicators selected by countries to evaluate upcoming projects and policies. This insight sheds light on the criteria used by nations to gauge the effectiveness and feasibility of future endeavours, facilitating informed decision-making and resource allocation.

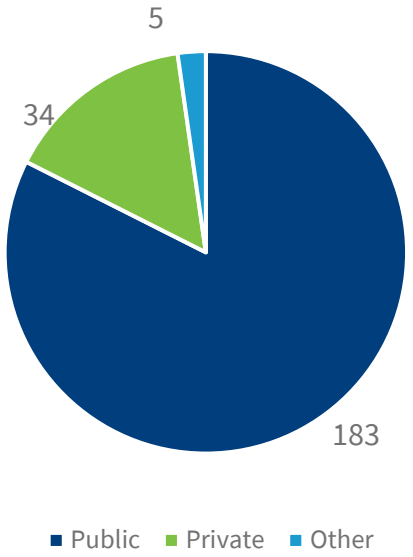
Discussion on environmental and resilience tools: examining environmental and resilience methodologies employed to assess potential projects across the region's countries. This discussion highlights the strategies and tools utilised to ensure sustainability and adaptability in infrastructure development, contributing to long-term resilience and environmental stewardship.

Regional overview of responses

Response countries

Note: only project countries with responses have been labelled.

Respondents



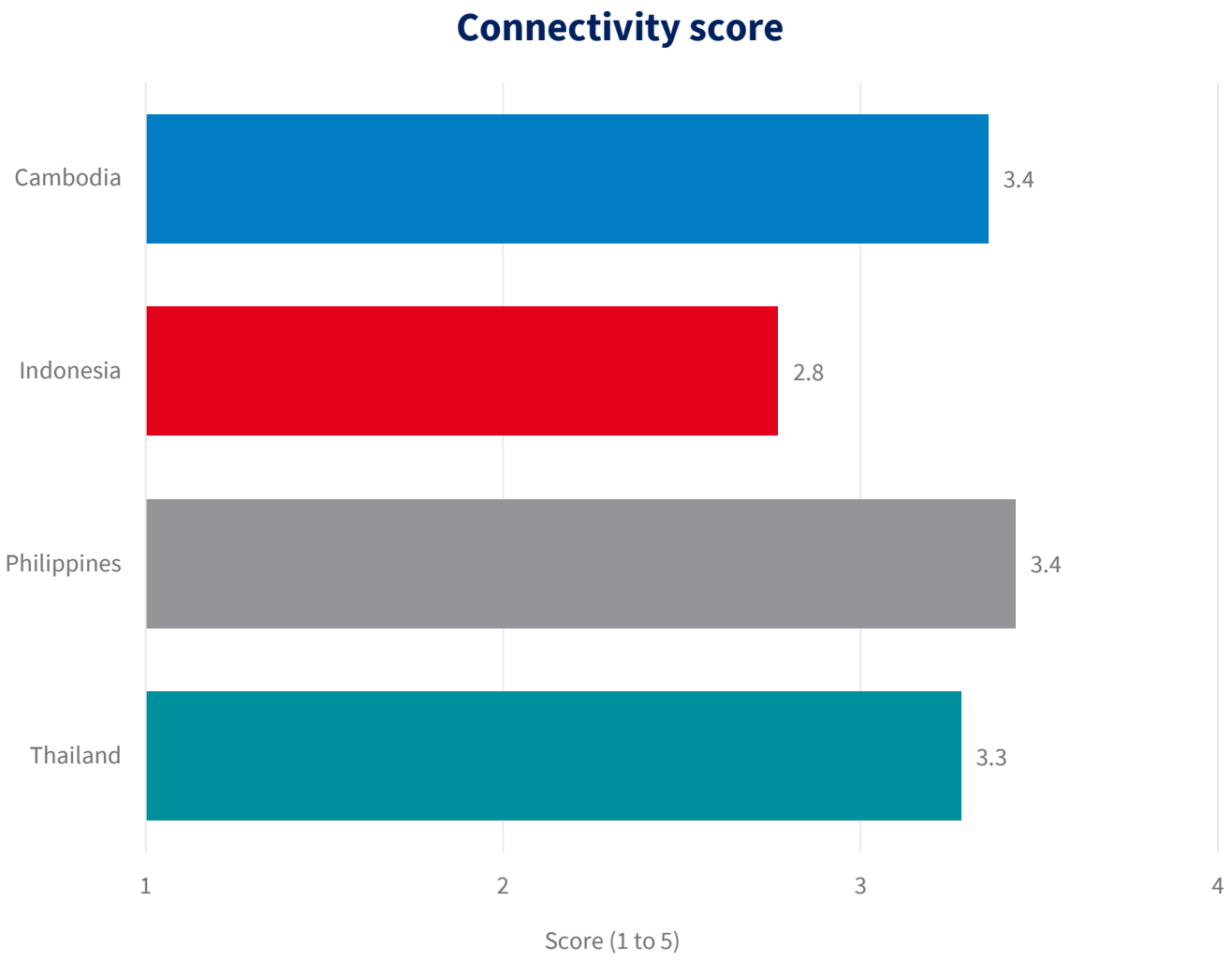
The average response number for the region is 55.

The regional average data presented for each figure in this analysis only accounts for these four countries: **Cambodia, Indonesia,** the **Philippines,** and **Thailand**.

The uneven distribution of responses across countries may affect the data interpretation in this analysis.

Over 80% of the respondents are from the public sector.

Current state of freight transport connectivity



Freight connectivity refers to a complex network of infrastructure and services that ensure goods are moved efficiently and reliably across various transportation modes, both within countries and across international borders. This network also includes digital and socio-economic links that boost efficiency of economic growth.

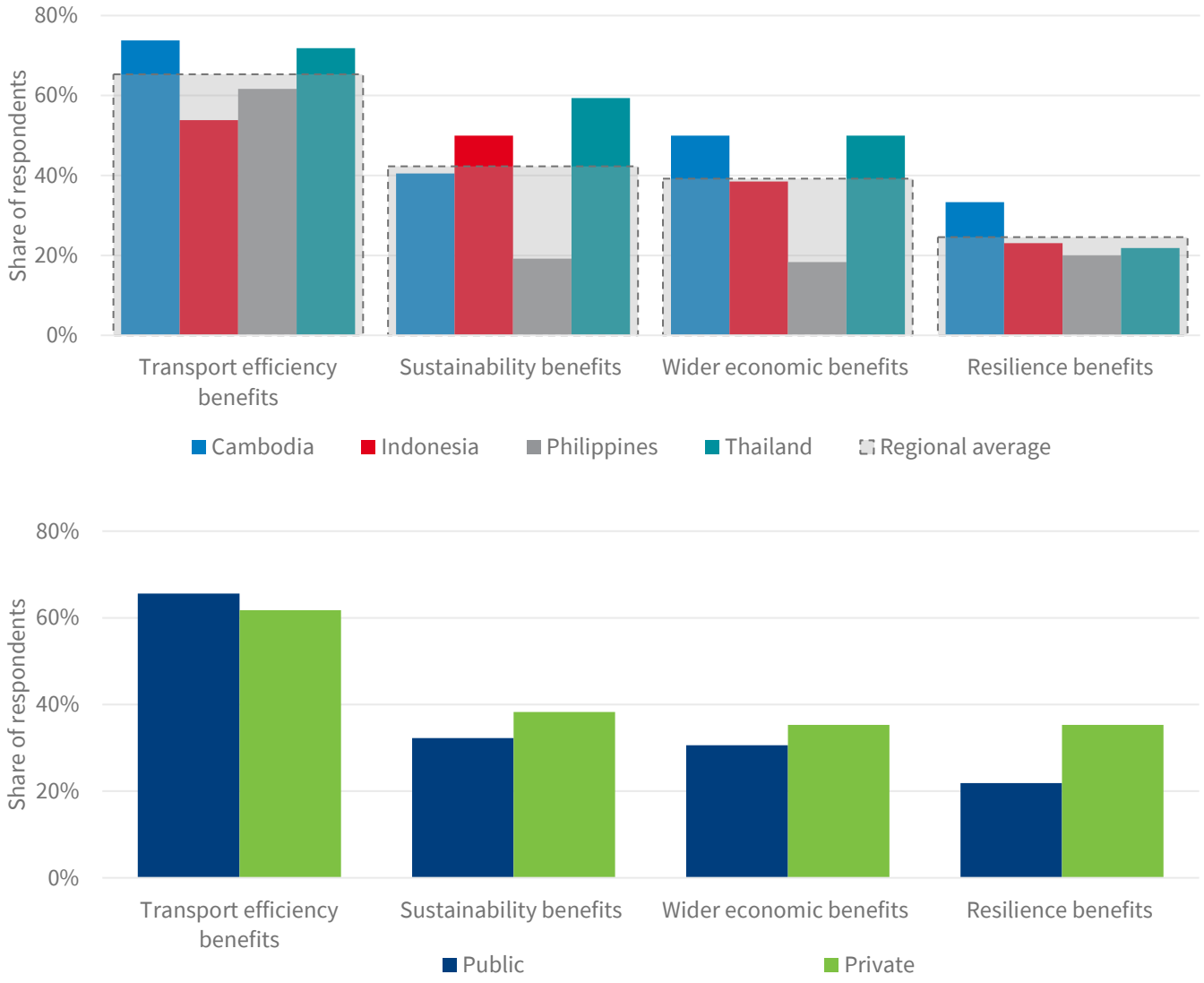
Respondents provide self-evaluation scores on the state of connectivity in their respective countries.

The region's average connectivity score is 3.23. **Indonesian** stakeholders assess their current connectivity below this average. As the world's largest archipelago, **Indonesia** faces unique challenges in freight transport, particularly in achieving efficient inter-island connectivity.

The other three countries in the study report scores greater than the average. Interestingly, while **Cambodian** stakeholders give their freight connectivity a relatively high self-evaluation, the 2023 Logistics Performance Index (LPI) by the World Bank records **Cambodia** with a lower score (2.4) compared to the other countries in this study, primarily due to underdeveloped infrastructure. **Indonesia**'s LPI score is 3, negatively impacted by a lower assessment of customs procedures.

Aligning with the findings of this survey, both **Thailand** and the **Philippines** also have high LPI scores relative to other countries in the region, which can be attributed to their improved infrastructure and timeliness, respectively.

Criteria for policy and project prioritisation



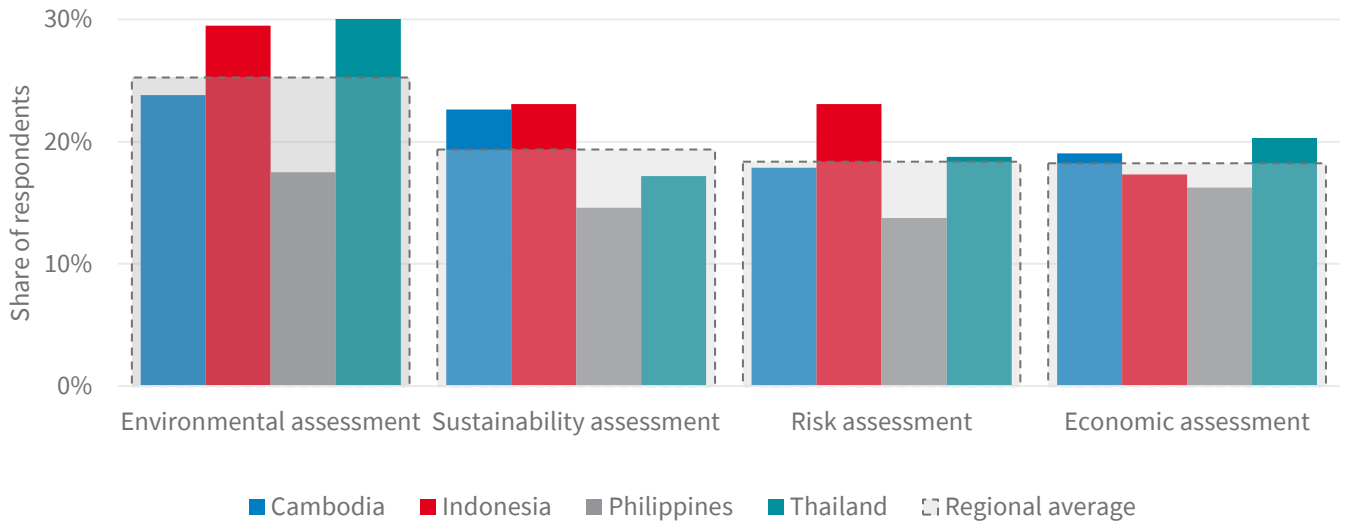
The data from this study highlight regional differences in how stakeholders prioritise various performance indicators when evaluating freight infrastructure policies and projects.

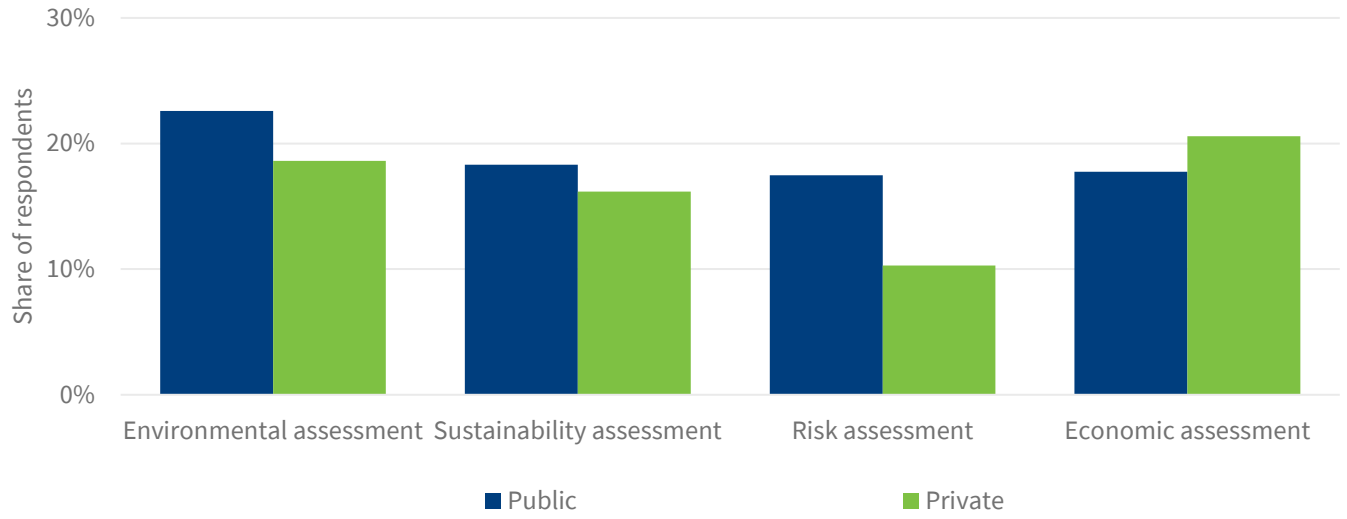
Across the region, freight connectivity and transport efficiency remains a top priority, as evidenced by high stakeholder responses from **Cambodia**, the **Philippines**, and **Thailand**. However, resilience benefits are less considered when evaluating infrastructure projects and policies. **Cambodia**, shows a higher than average emphasis on resilience benefits, reflecting the country's vulnerability to climate-related infrastructure damage. According to **Cambodia**'s Master plan on Intermodal Transport, recurring flooding and rapid infrastructure deterioration, particularly in certain geographical locations, have caused transport infrastructure to suffer damage faster and on a larger scale than anticipated, leading to increased maintenance and repair costs, which have become an escalating burden on the national budget year after year.

Stakeholders from the **Philippines** highly prioritise transport efficiency and connectivity benefits. This aligns with the country's strategic initiatives, such as the Ten Commitments launched by the Department of Trade and Industry (DTI) and the Department of Transportation (DOTr), which focus on automating logistics, cutting unnecessary costs, and enhancing infrastructure to create an efficient transport network, ensuring timely delivery and boosting overall transport efficiency.

Both the public and private sectors place equal priority on transport efficiency, sustainability, and economic benefits, though the private sector emphasises resilience more strongly to ensure long-term operational stability

Environmental and resilience tools for evaluating projects





Environmental assessment tools are the most widely used across countries, with the Environmental Impact Assessment (EIA) being popular. Over 40% of respondents in **Indonesia** and **Thailand** (compared to the regional average of around 25%) utilise EIA when evaluating future projects. These results reflect the ongoing efforts by United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and others to facilitate the use of EIA in the ASEAN region according to the Technical report and recommendations to strengthen EIA procedures in ASEAN.

In contrast, other tools like climate impact assessments, greenhouse gas (GHG) emissions models, and life cycle assessments (LCA) are much less commonly employed, reducing the average use of environmental assessment tools to just 25% across the region.

Sustainability assessment tools including the integration of environmental, social, and governance (ESG) indicators, as well as monitoring, reporting, and verification (MRV), are more heavily emphasised by **Cambodian** and **Indonesian** stakeholders, who report usage above the regional average.

Risk assessment tools, such as climate and natural disaster risk, are used by 21% of respondents. Geopolitical or economic risks are considered less frequently, with only 12% of respondents employing these tools. Economic assessment tools like cost-benefit analysis (CBA) are used by around 30% of respondents, while natural capital accounting are only used by approximately 8%.

The public sector prioritises environmental assessments, while the private sector focuses more on economic assessments.

CONNECTIVITY

Section summary

Identification of major bottlenecks: understanding the primary challenges and obstacles encountered in freight transport across the region provides valuable context for addressing critical areas for improvement. By pinpointing these bottlenecks, effective solutions can be provided to enhance overall connectivity in the region.

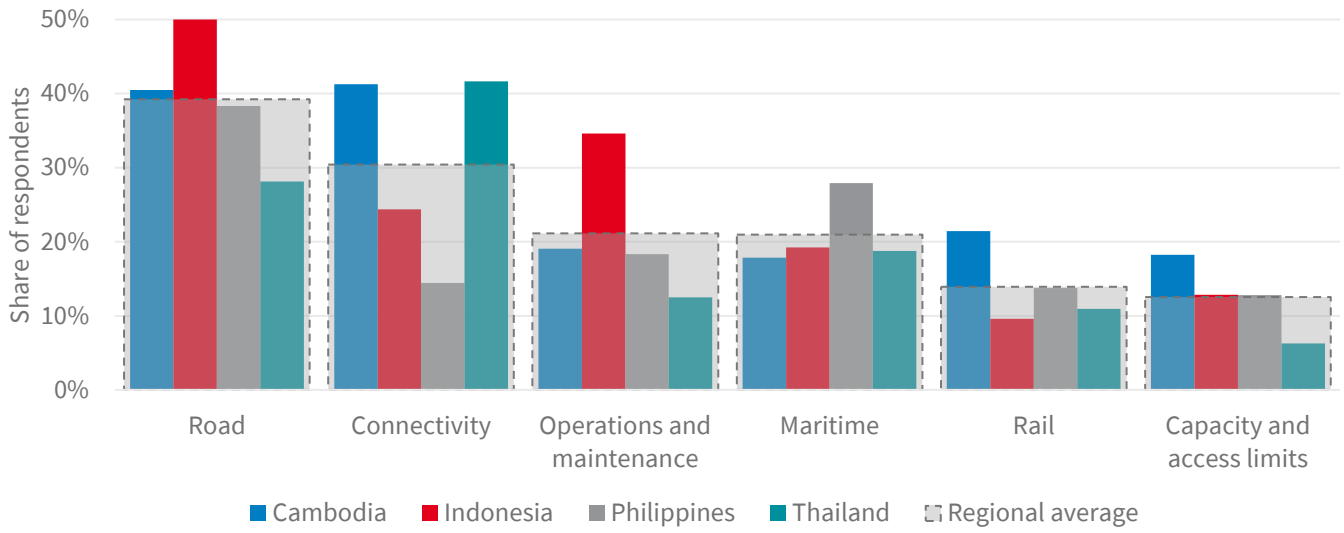
Assessment of connectivity policies: exploring the operational efficiency policies already integrated into organisations' freight transport strategies offers valuable insights into existing approaches and their effectiveness. This enables the identification of different mentalities of countries and sectors, informing future policy adjustments or enhancements.

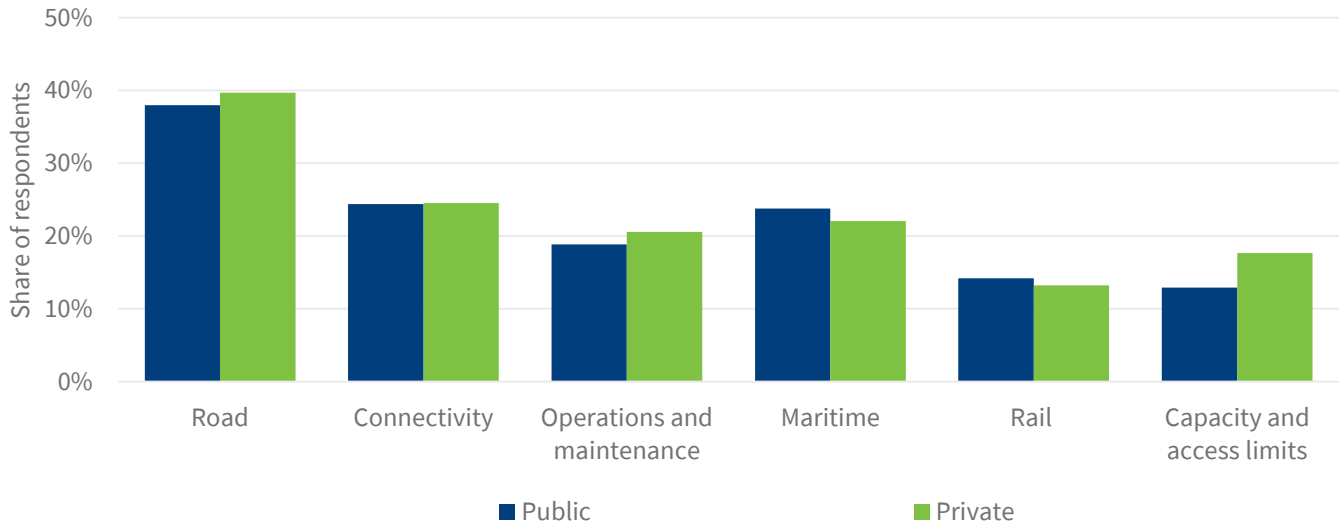
Recommendations for prioritised freight Infrastructure policies: gathering recommendations for prioritised freight infrastructure policies highlights areas where future policies can yield the greatest impact. By understanding stakeholders' perspectives on the most pressing needs, decision makers can align strategies with key priorities to optimise resource allocation.

Comparison of current and recommended policies: comparing the current policies with recommended ones allows for a comprehensive evaluation of potential gaps or discrepancies. This comparative analysis sheds light on areas where adjustments are needed to bridge the gap between existing practices and desired outcomes.

Identification of top 5 infrastructure projects: highlighting the top five infrastructure projects deemed critical for the region offers valuable insights into the infrastructure development priorities of stakeholders. Understanding which project areas are considered most important in which country enables the optimisation of resources and efforts on initiatives with the highest potential for regional impact.

Major freight transport bottlenecks in the region





Improvements in the road sector, especially addressing congestion on major highways, is the main bottleneck in the region. This is influenced by the positive responses from **Indonesian** stakeholders, which may be due to the diverse but underdeveloped road networks in rural and remote areas and congestion in the urban areas.

The second most significant bottleneck is cross-border connectivity, with stakeholders from **Cambodia** and **Thailand** highlighting issues related to border crossing points (BCPs). Delays and overcomplicated customs procedures are the main contributing factors. **Thailand**, ranked 62nd in the Trading Across Borders' index, is actively working to streamline its customs processes.

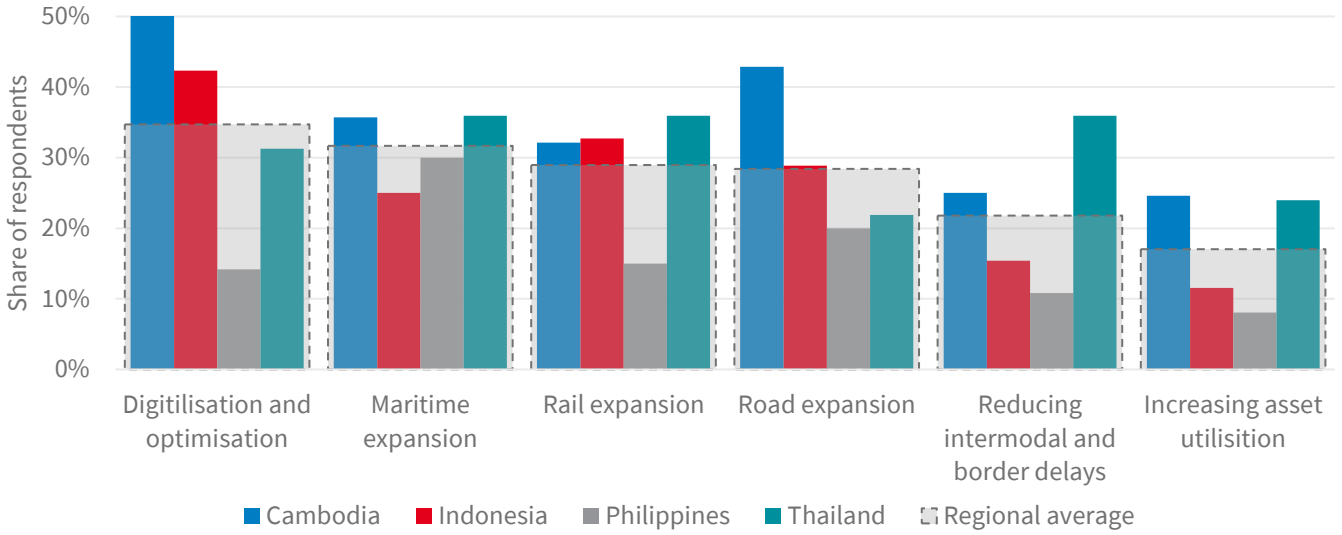
Indonesian stakeholders also highlight operational and maintenance issues, including the poor maintenance of terminals and facilities as well as freight corridors, as a key bottleneck.

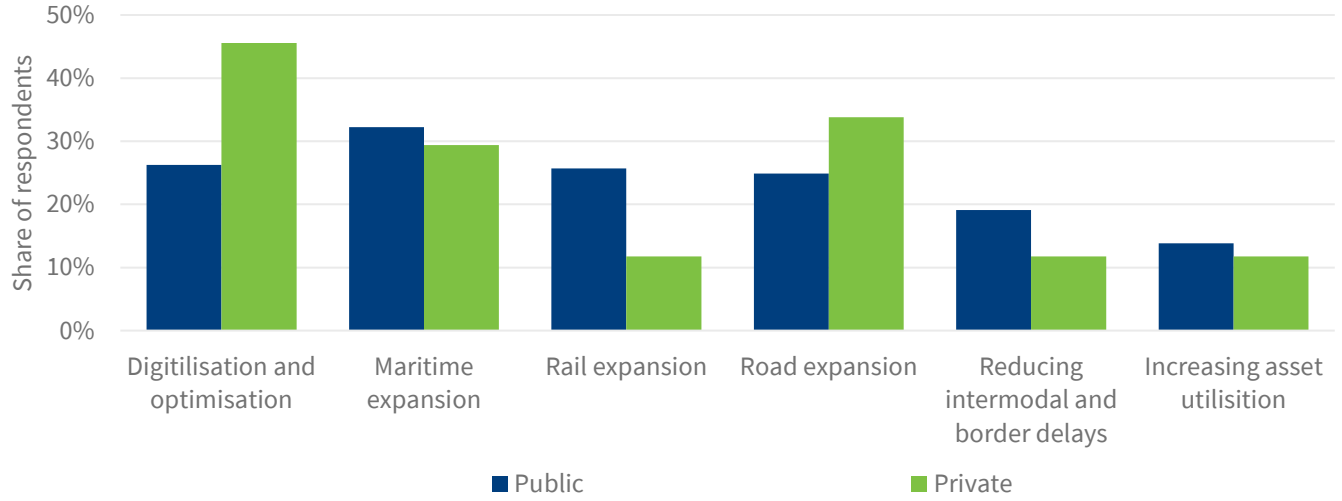
In the **Philippines**, congestion at maritime or inland ports is identified as one of the key transport bottlenecks.

For connectivity bottlenecks, whilst the public sector reports a lack of intermodal terminals and border crossing delays, the private sector points to overcomplicated customs procedures as the most pertinent issue.

The public sector also emphasises monopolised freight sector or limited access to the network as important capacity constraints.

Current freight connectivity policies





Regionally, digitalisation and optimisation, through enhanced digital connectivity and automation, is a key policy to improve operational efficiency. According to the ASEAN logistics framework, a major barrier to freight connectivity in the region is the lack of digital infrastructure in rural areas, particularly in **Indonesia**, with its dispersed islands, and **Cambodia**, with large underdeveloped rural zones.

Maritime network and fleet expansion, with a greater focus on port infrastructure, is included in the policies for all countries in this survey, though there is less emphasis on expanding fleets.

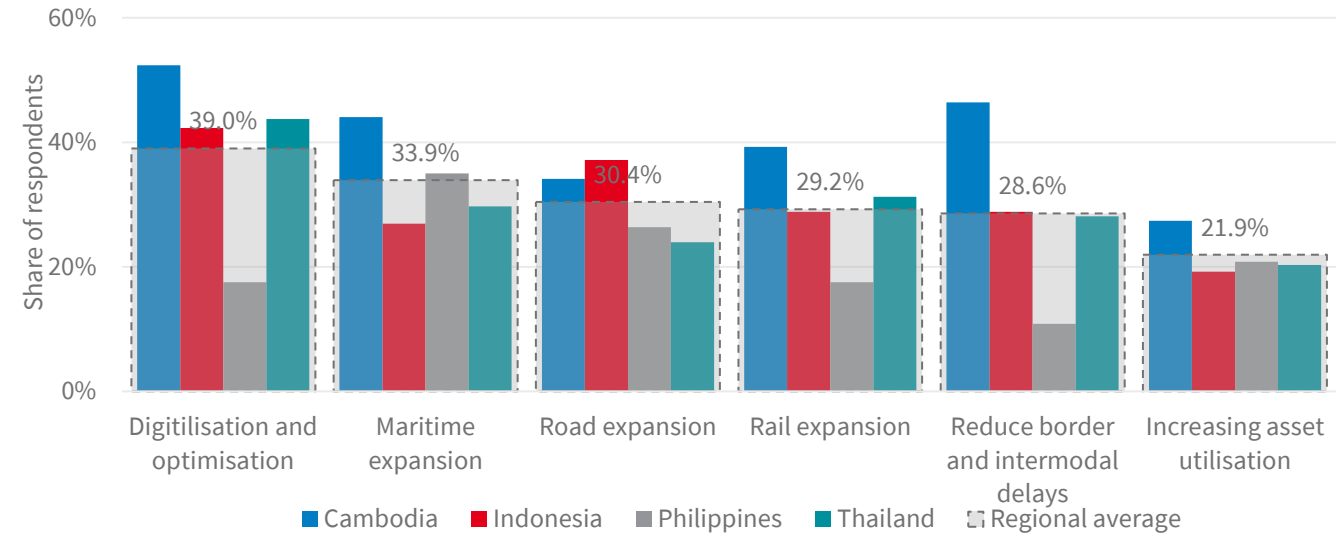
Road network expansion is a priority across the region, but less so for expanding road fleets. Over 55% of stakeholders in **Cambodia** highlight road network expansion to increase transit potential, especially due to the country's reliance on surface freight transport. With a relatively underdeveloped maritime sector and limited coastline, **Cambodia** depends on land transport for connectivity as a key transit hub between **Viet Nam** and **Thailand**.

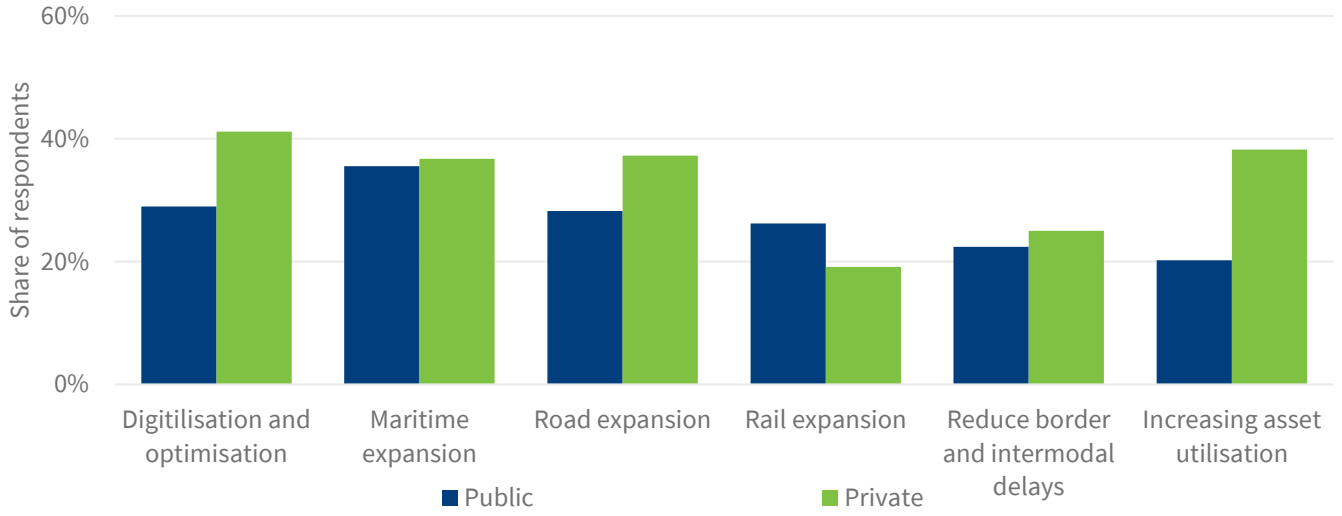
Rail network and fleet expansion policies are more common in **Cambodia**, **Indonesia**, and **Thailand** compared to the **Philippines**. **Indonesia** is aiming to increase rail's share in freight transport, targeting over 10% on Java by 2030, up from less than 2%.

Respondents from **Thailand** places a stronger focus on reducing intermodal and border delays than the other countries.

The private sector places more emphasis on digitalisation and optimisation, while the public sector prioritises rail expansion.

Desired freight connectivity policies





Improving digital infrastructure for freight management is a key regional priority, with less emphasis from the **Philippines**.

Maritime or inland port expansion is a high priority across the countries, with stakeholders from **Cambodia** and the **Philippines** placing more emphasis on these policies. The **Philippines** 2019-2028 Maritime Industry Development Plan (MIDP) focuses on port infrastructure upgrades and inland waterway development.

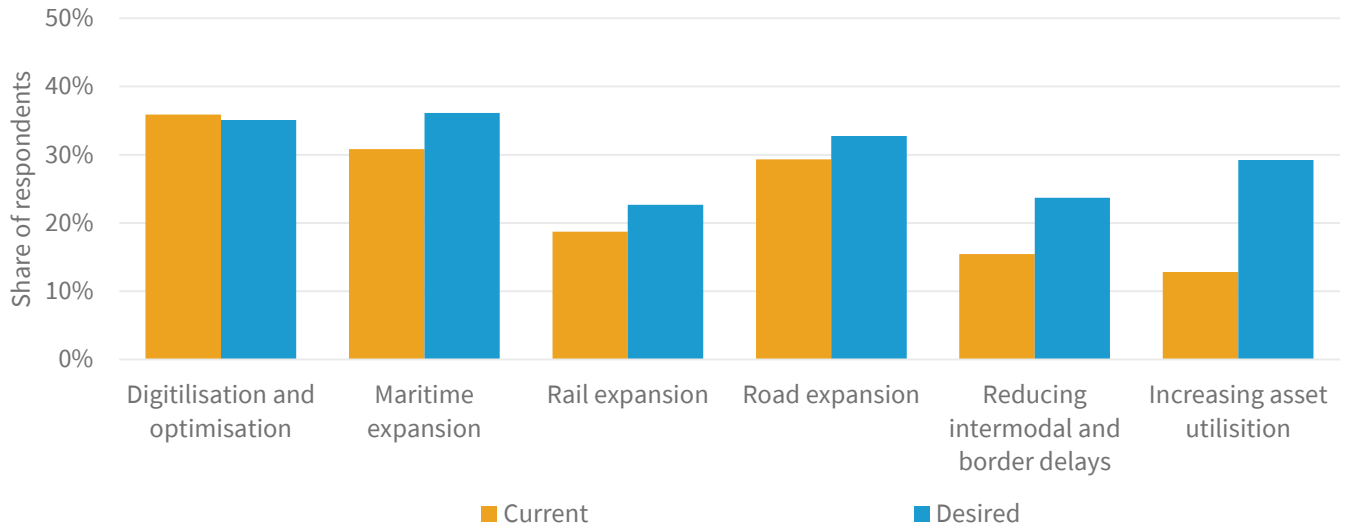
Expanding highways (39%), renewing and expanding road fleets (39%), and improving the quality of existing highways and roads (35%) are top priorities for **Indonesia** where over 90% of freight is transported via roads in the sub-region, according to the ESCAP Sustainable Freight Transport in ASEAN report.

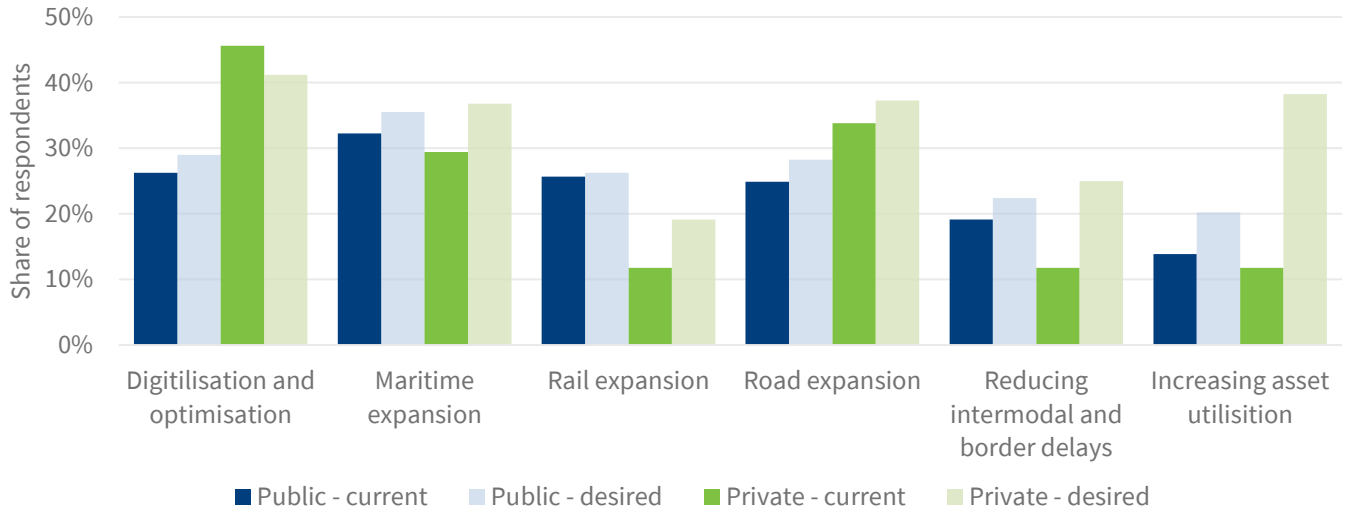
Cambodia's survey results show higher priority for railroad expansion (62%), though less focus is placed on railway stock renewal (17%). As stated by the Minister of Public Works and Transport, **Cambodia**'s railway development focuses on new infrastructure aiming to enhance connectivity through high-speed rail, while railway stock improvements remain underemphasised.

The private sector emphasise greater priority on digitalisation and optimisation as well as increasing asset utilisation compared to the public sector. Asset utilisation and the digital technology are integral to the core operations of private freight sector freight companies. This makes them more relevant than infrastructure development, a responsibility typically managed by the public sector.

The public sector prioritise railroad expansion for future investments, particularly driven by **Cambodia** and **Thailand**.

Comparison of current and desired policies





Comparing existing policies against desired policies for freight transport connectivity provides the following insights:

- There is a desire among respondents for greater policy ambition in enhancing the connectivity of freight transport across nearly all policy categories.
- The private sector places greater emphasis on reducing intermodal and border delays and increasing asset utilisation. The largest gaps between current and desired policies are in these areas, indicating the need for more border crossing capacity and enhanced intermodal terminal capacity.
- The private sector places more emphasis on digitalisation and optimisation than the public sector. Although this focus decreases slightly in the desired policies for the private sector, it highlights a gap that needs to be addressed to improve operational efficiency.
- Both the private and public sectors focus on maritime and road expansion in their recommended policies.
- More respondents from the public sector in **Cambodia** and **Thailand** recommend policies that promote rail expansion compared to the private sector, reflecting government-led infrastructure goals for long-term sustainability.
- Cross-border connectivity policies are emphasised in **Thailand**, where customs and border delays have been identified as a bottleneck, aligning with ASEAN's regional initiatives for trade facilitation improvements

Top 5 freight connectivity policies in the region

	Cambodia	Indonesia	Philippines	Thailand
Maritime or inland port expansion	1	1	1	1
Improved quality of existing highways and roads	3	2	2	2
Railroad expansion	2		3	3
Highway expansion	4		4	
Intermodal terminal capacity increase		3	5	
Digital infrastructure for freight management				4
Border crossing infrastructure improvements	5	4		
Road fleet renewal and expansion		5		
Railway rolling stock renewal and expansion				5

Respondents from across the region rank the most important freight project areas for future development.

There is a consistency with previous results showing the preference for maritime or inland port expansion and improving the quality of existing highways and roads unanimously across the countries that responded. This is due to the dominance of maritime transport and road transport in international trade flows between ASEAN countries and the rest of the world.

All countries, except **Indonesia**, prioritise railway expansion to improve efficiency, effectiveness, and regional integration of freight transport in a sustainable manner.

The region also has highway expansion among its top 5 freight infrastructure projects, particularly for countries like **Cambodia** which is connected by land to other countries in the region.

Stakeholders from **Thailand** focus on expanding rail and intermodal infrastructure as part of its Integrated Logistics and Intermodal Transport (ILIT) Plan. This includes developing inland dry ports and integrated logistics facilities with rail terminals to streamline production, warehousing, and customs clearance. These expansions are crucial for improving freight efficiency and reducing border delays.

Other priority policies focus on improving efficiency through incorporating digital infrastructure, increasing intermodal terminal capacity, and improving border crossing infrastructure.

SUSTAINABILITY

Section summary

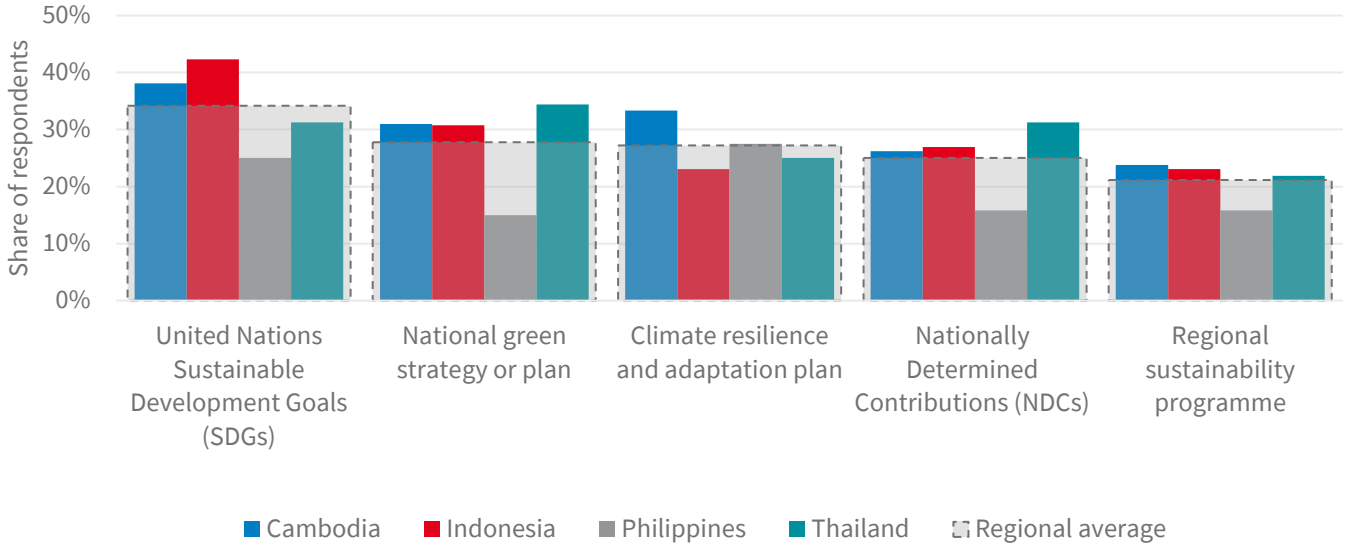
Strategic frameworks for freight infrastructure planning: by exploring the strategic frameworks utilised to guide freight infrastructure planning, the aim is to understand the overarching principles and priorities driving the sustainable development of regional freight. Understanding these frameworks provides valuable context for assessing the alignment of current practices with broader sustainability goals.

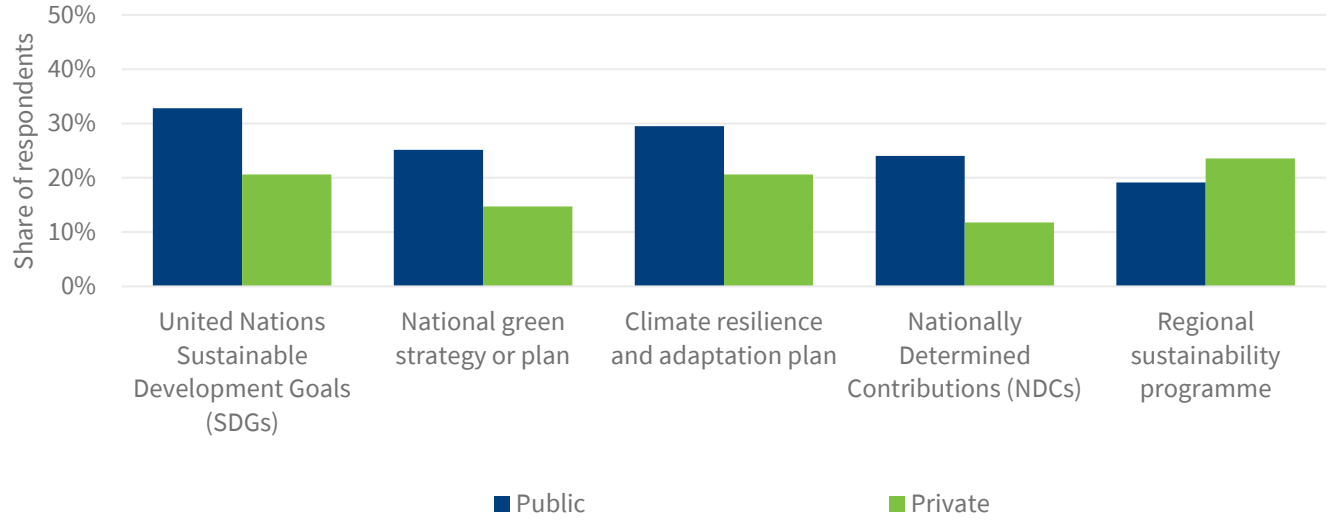
Current sustainability policies in freight transport strategies: examining the sustainability policies already integrated into organisations' freight transport strategies offers insights into existing approaches and their effectiveness.

Recommended sustainability policies to minimise environmental impact: gathering recommendations for sustainability policies to minimise environmental impact highlights opportunities for advancing sustainability efforts within the region's freight networks. These recommendations offer valuable insights into stakeholders' perspectives on key strategies for mitigating environmental externalities and promoting sustainable practices.

Comparison of current and recommended policies: comparing current sustainability policies with recommended ones allows for a comprehensive evaluation of potential gaps or discrepancies. This comparative analysis sheds light on areas where adjustments are needed to bridge the gap between existing practices and desired sustainability outcomes, facilitating informed decision-making and policy formulation.

Strategic frameworks for freight infrastructure planning





The stakeholders indicate that the United Nations (UN) Sustainable Development Goals (SDGs) are the most commonly used framework for guiding infrastructure planning.

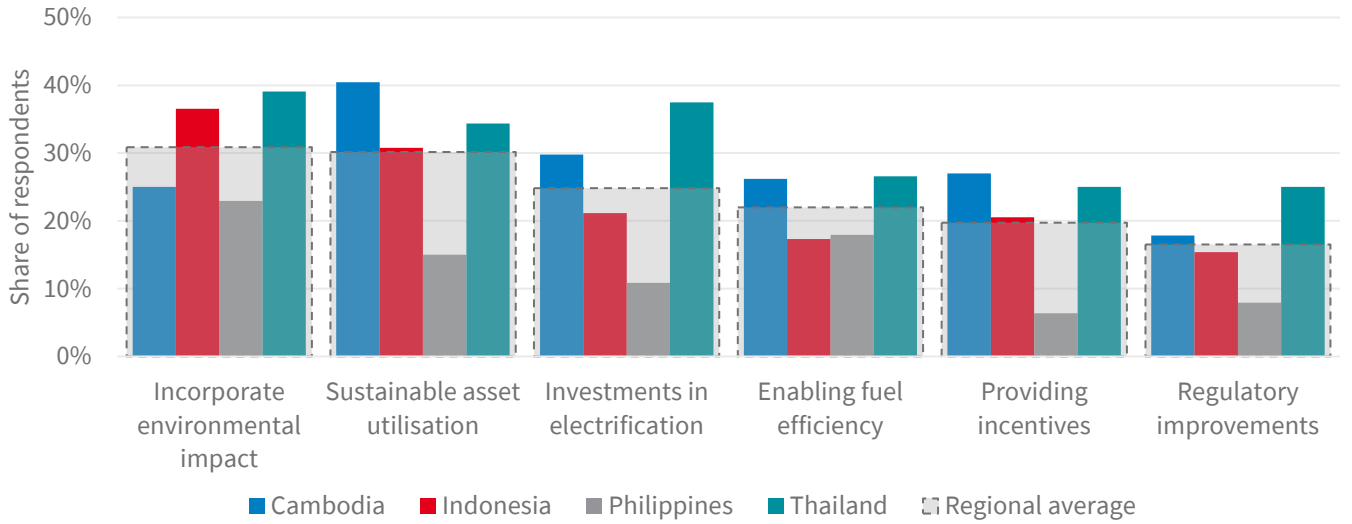
Regional sustainability programmes are the least used framework, highlighting an opportunity for region-wide programmes like the ASEAN strategy for sustainable transport. National green strategies and environmental policies also rank high as key strategic components of national agendas.

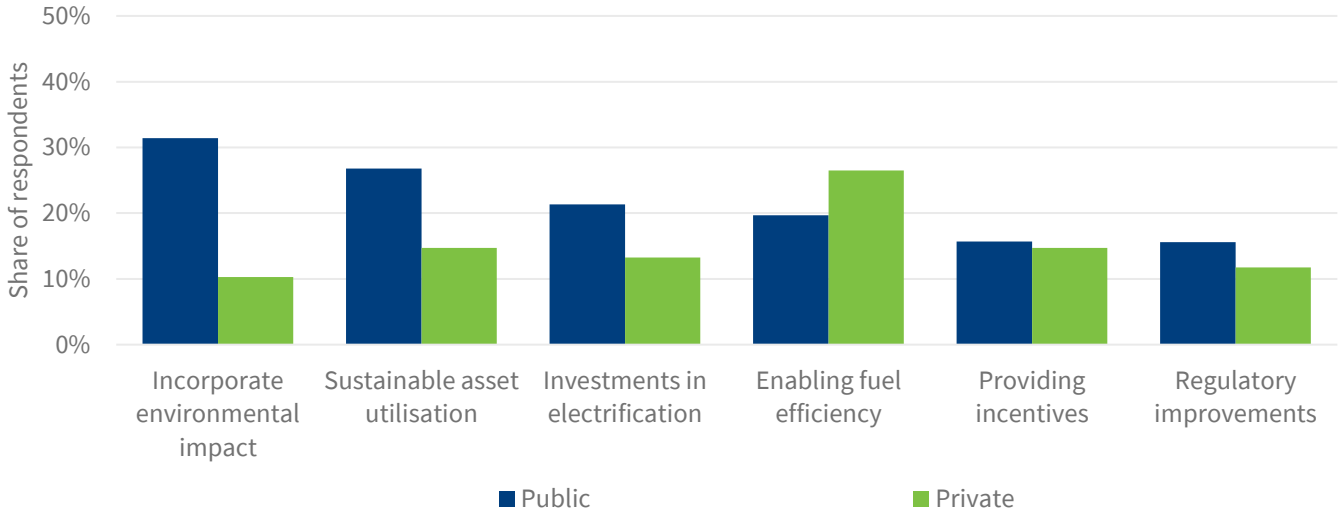
Thailand has a greater than average focus on nationally determined contributions (NDCs) at 31%, but a lower than average response for climate resilience and adaptation plans (23%).

The Philippines reports lower than average responses for NDCs (17%) and national green strategy (18%), highlighting the need for a stronger national vision on sustainable transport. The country is in the process of developing a national transport master plan, and the ITF SIPA project provides a national study on "Decarbonising Pathways for Freight Transport in the Philippines". This identifies policies that will enhance sustainability in freight transport.

Generally, the public sector uses strategic frameworks more than the private sector, except for the regional sustainability programme. This may indicate limited private sector engagement in national freight transport planning. Countries should consider greater involvement of private sector actors in developing these plans where appropriate.

Current freight sustainability policies





Policies incorporating environmental impacts into national freight plans, project prioritisation, and infrastructure design lead the region's freight transport strategy, followed by asset utilisation. Stakeholders from **Indonesia** and **Thailand** place a higher priority on these policies compared to **Cambodia** and the **Philippines**.

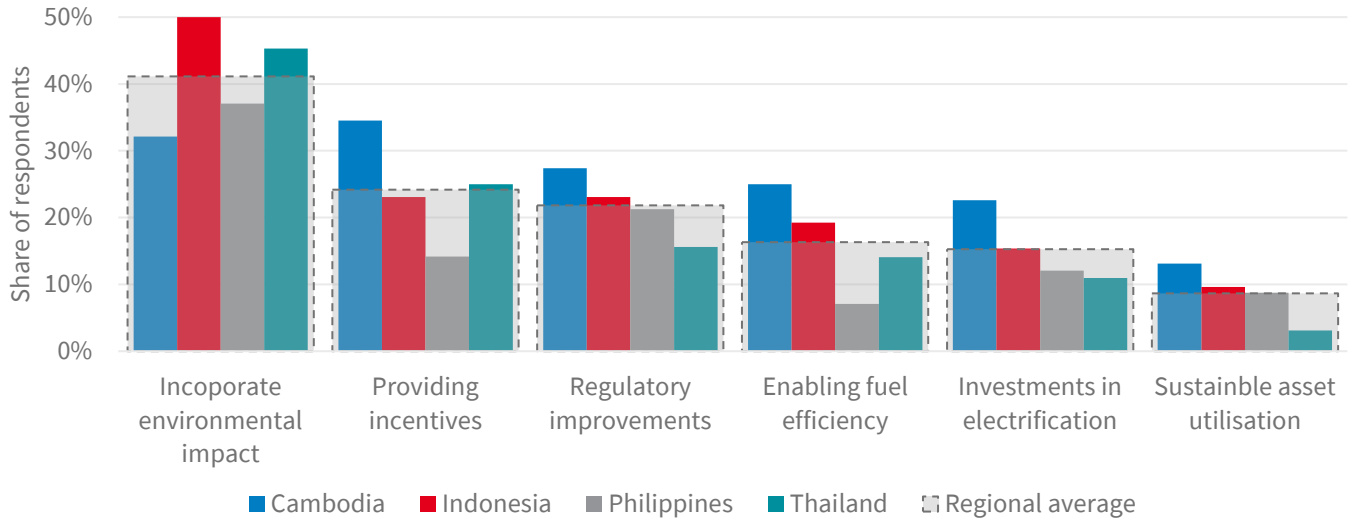
Enhancing sustainable asset utilisation policies, such as reducing truck overloading, are included in current strategies, particularly in **Cambodia** and **Thailand**, while receiving less emphasis in the **Philippines**.

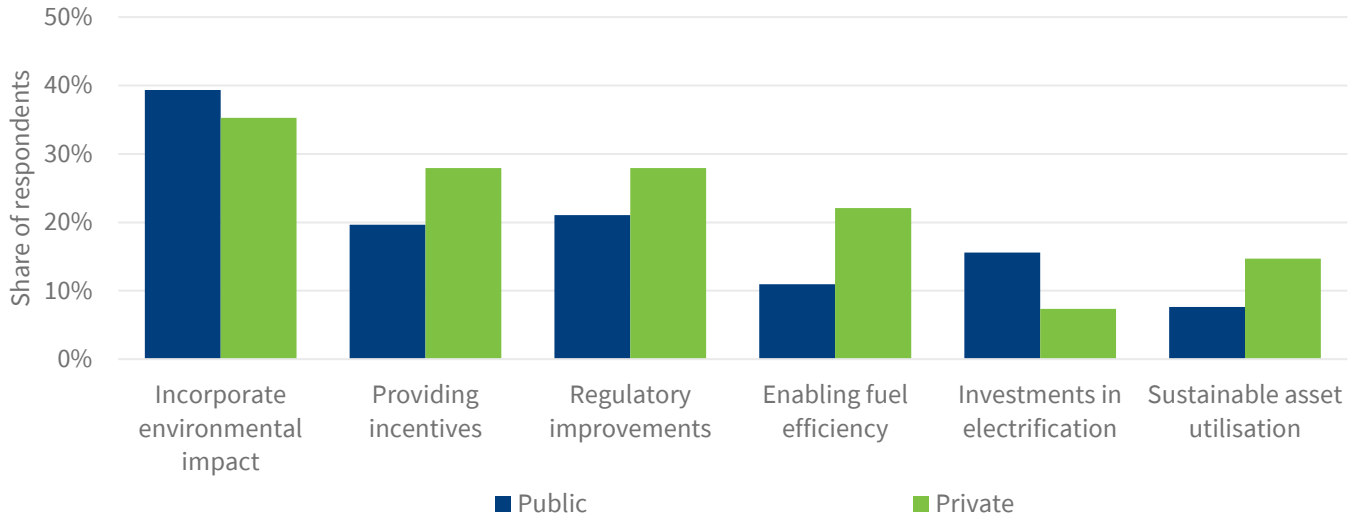
The following sustainability policies were prioritised by the stakeholders from each of the countries in the region:

- **Cambodia** focuses on incentivising mode shift to rail and waterways through infrastructure, taxation, and pricing.
- **Indonesia** focuses on policies to incorporate environmental impacts and reduce port/highway/customs fees for fuel-efficient ships and trucks.
- The **Philippines** focus on fuel economy standards for road freight vehicles and/or maritime vessels.
- **Thailand** focuses on vehicle and rail electrification.

A higher proportion of public sector respondents report having freight sustainability policies in their organisations than the private sector. However, the study had a smaller proportion of private sector respondents.

Desired freight sustainability policies





Sustainability policies focusing on incorporating environmental impacts into planning, design, and implementation are the most popular across the region.

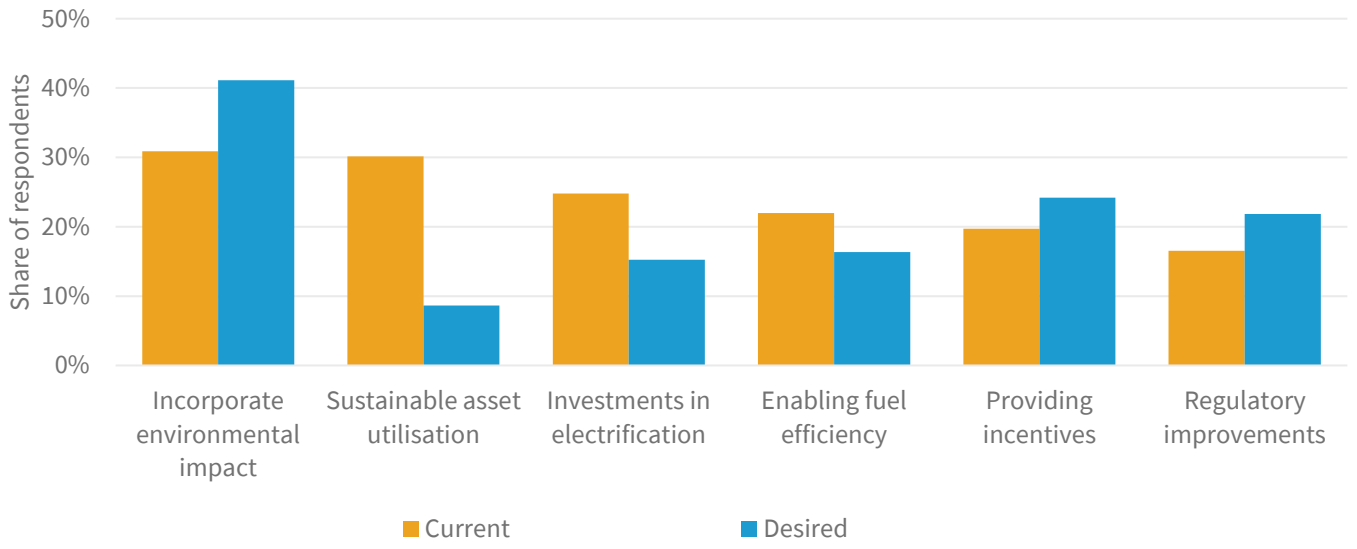
Stakeholders from **Cambodia** and **Indonesia** highlight regulatory improvements, such as fuel economy standards for road freight and maritime vessels, as important. **Cambodia** recently announced the Euro 6 roadmap for fuel quality and vehicle emissions, while **Indonesia** has voluntary fuel economy labels under the ASEAN roadmap (2018-2025). Regulatory improvements are key to decarbonising freight transport in these countries.

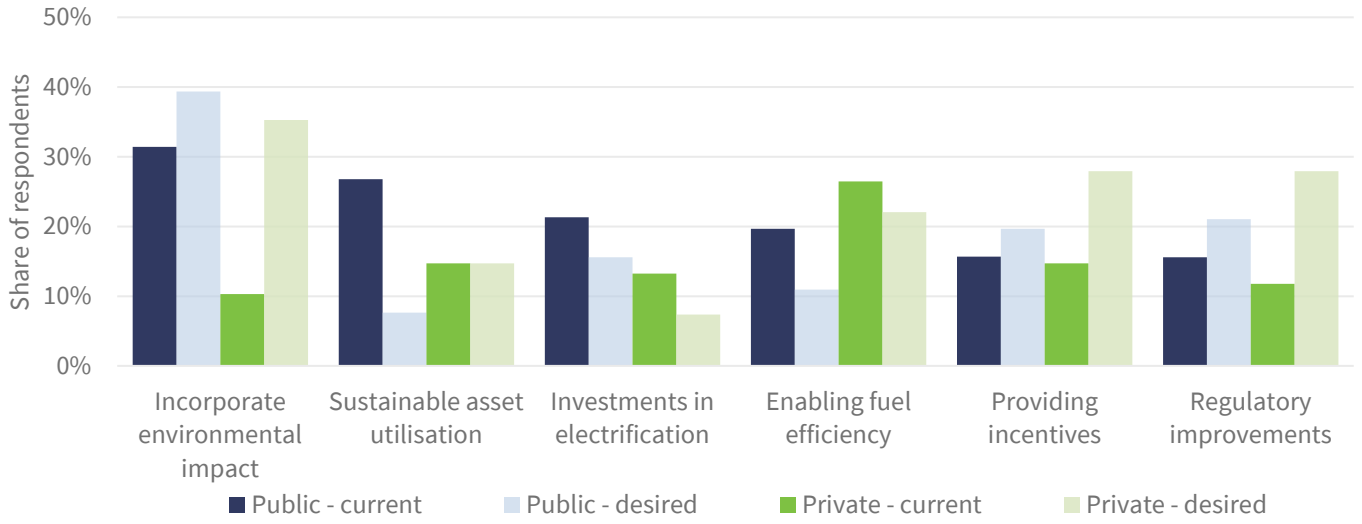
Mode shifts to rail and waterways, incentivised through infrastructure, taxation, and pricing, are more popular among **Cambodian** and **Indonesian** stakeholders compared to those in the **Philippines**, where the archipelago's geography limits the potential for these modes.

Respondents from **Cambodia** and **Indonesia** also emphasise the need to invest in electrification of rail networks and road fleets to minimise environmental impact.

With fewer sustainability policies currently in place, the private sector shows a significant increase in desired sustainability policies compared to the public sector. The private sector prioritises sustainable asset utilisation, such as through containerisation and optimising loading/unloading processes, and enabling fuel efficiency while the public sector focuses more on rail and road fleet electrification.

Comparison of current and desired sustainability policies





Comparing existing policies against desired policies for sustainable freight transport shows:

- There is strong support for greater incorporation of environmental impact into national freight plans, project prioritisation, infrastructure design, and implementation in the desired policies, driven largely by the private sector.
- Current policies focus on sustainable asset utilisation through reducing truck overloading. However, the desired policies shift towards investing in infrastructure for containerisation and high-capacity vehicles. Desired policies on sustainable asset utilisation rank lower in priority compared to current across the region and sectors.
- Both sectors show reduced focus on investments in electrification, possibly due to the high costs of electric vehicles compared to engine-powered vehicles as some are locally manufactured, despite local tax incentives.
- Private sector stakeholders show higher support for fuel efficiency policies, such as load optimisation and reducing idle times at intermodal terminals and border crossings.
- Both sectors favour policies that incentivise mode shifts to rail and waterways and reduce customs fees for fuel-efficient transport.
- Regulatory improvements, particularly related to fuel efficiency standards for road freight and maritime vessels, are of increased priority in desired policies for both public and private sectors.

RESILIENCE

Section summary

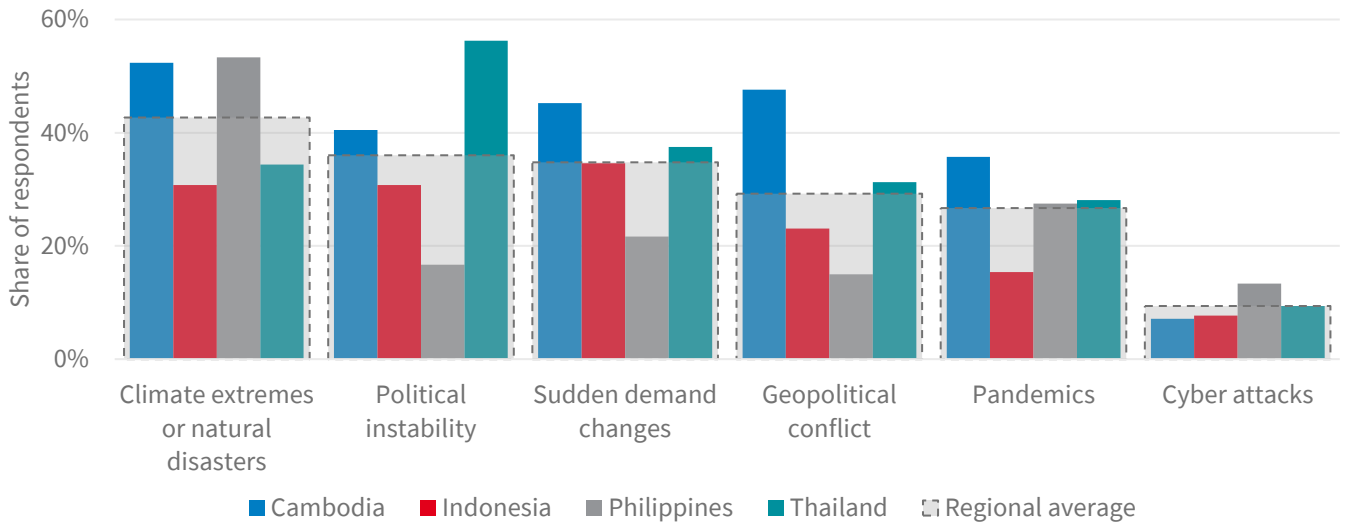
Most challenging risks for freight transport networks: identifying the most challenging risks faced by the freight transport networks makes it possible to understand the vulnerabilities and threats that can disrupt the flow of goods and services in the region. This assessment provides a clear picture of the critical issues that need to be addressed to ensure a robust and efficient freight system.

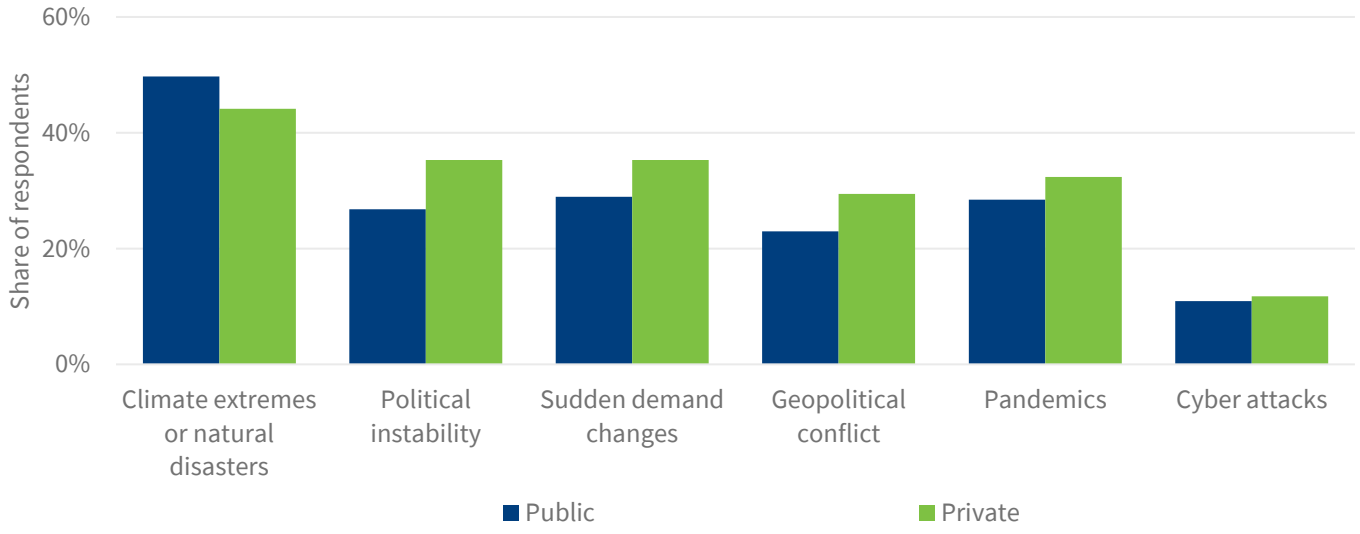
Current resilience policies in freight transport strategies: examining the resilience policies already included in organisations' freight transport strategies offers insights into existing measures aimed at mitigating risks and enhancing network resilience. This review helps to gauge the effectiveness of current policies and identify strengths and weaknesses in the existing resilience framework.

Desired policies to improve freight infrastructure resilience: gathering recommendations for policies to improve the resilience of freight infrastructures highlights opportunities for enhancing the durability and adaptability of the freight network. These recommendations reflect stakeholders' perspectives on key strategies for bolstering the network's ability to withstand and recover from disruptions.

Comparison of current and desired policies: comparing current resilience policies with recommended ones allows for a comprehensive evaluation of potential gaps or discrepancies. This comparative analysis sheds light on areas where adjustments are needed to bridge the gap between existing practices and desired resilience outcomes. By identifying these gaps, stakeholders can make informed decisions and formulate policies that better protect the freight transport network from future risks.

Most challenging risks for freight transport networks





Resilience-related risks are not a top priority on the regional agenda, with share of respondents generally not surpassing 45%.

Respondents across the region highlight extreme climate events and natural disasters as the most significant risks to the freight transport network, likely due to vulnerability to climate change and insufficient maintenance of freight assets. For instance, **Cambodia** is prone to pluvial flooding during the monsoon season, while **Indonesia** road infrastructure is highly exposed to landslides. Coastal regions in **Thailand** and the **Philippines** face risks from flooding and cyclone winds, respectively, disrupting transport networks and maritime trade.

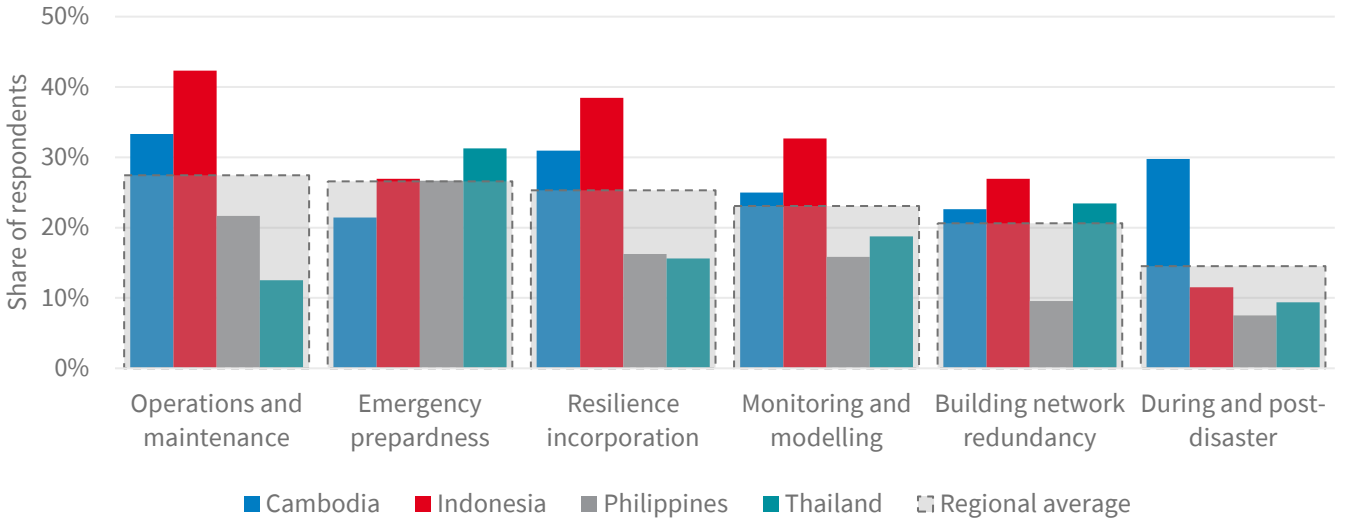
Political instability is also reported as a risk, with respondents from **Thailand** ranking this higher than the other countries.

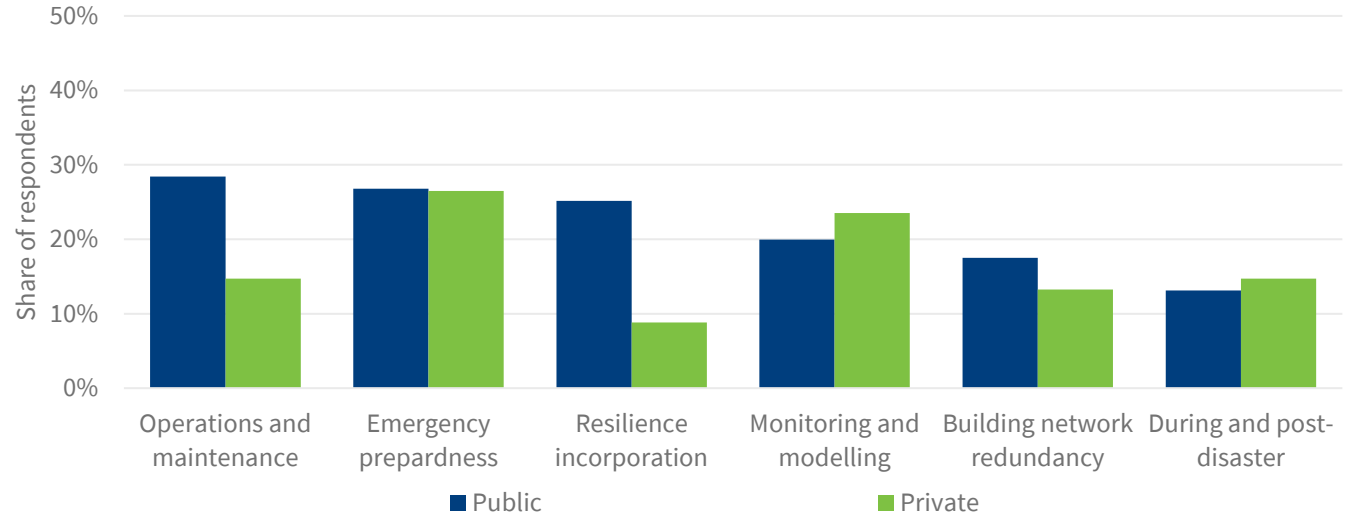
Sudden demand changes and geopolitical conflict are risks identified by **Cambodia** and **Thailand**, though less prevalent amongst respondents from the **Philippines** and **Indonesia**.

Pandemics and cyber attacks had a lower proportion of respondents, although the risk of cyber attacks may increase as digitalisation and automation become more widespread in the regional freight transport network.

Generally, a higher proportion of respondents from the private sector are more concerned than the public sector except for climate extremes or natural disasters. Deliberate efforts to exchange perspectives between public and private actors in the freight transport system could help to address these disparities.

Current freight resilience policies





Resilience policies are gradually being integrated into freight transport strategies across the region, with the most popular measures accounting for no more than 30%.

Improving routine infrastructure monitoring and maintenance is a key resilience policy included by a higher proportion of respondents from **Indonesia** and **Cambodia**. **Indonesia**'s National Disaster Management Plan prioritises these strategies.

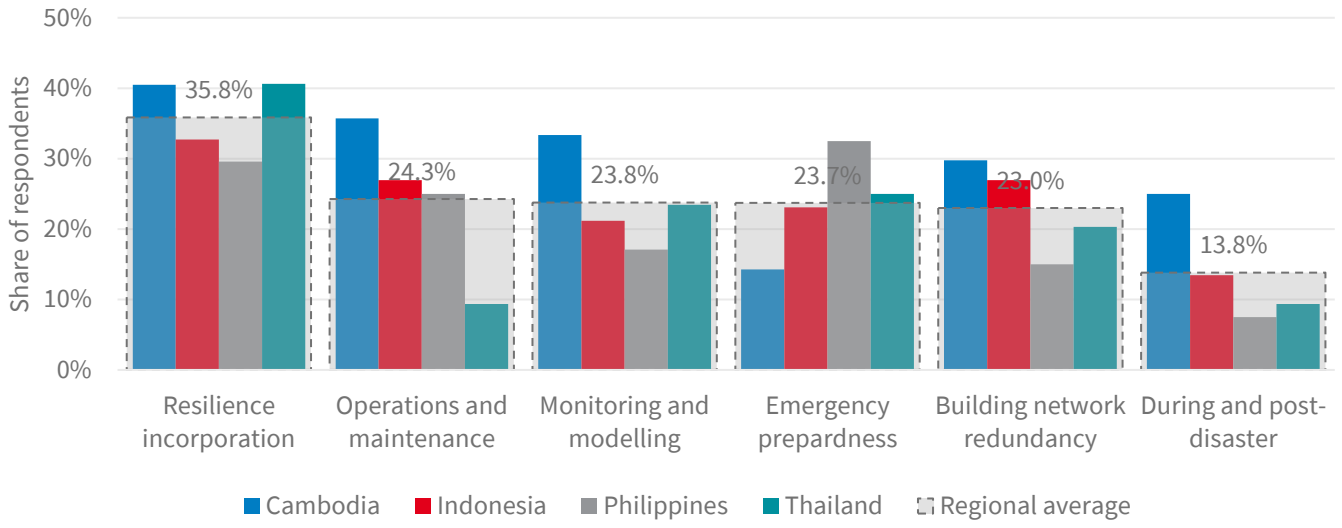
Over 25% of respondents are aware of emergency preparedness and response policies for infrastructure disruptions. For example, in **Thailand**, the Department of Disaster Prevention and Mitigation (DDPM), the Royal Thai Armed Forces, and other agencies conduct regular exercises to strengthen preparedness.

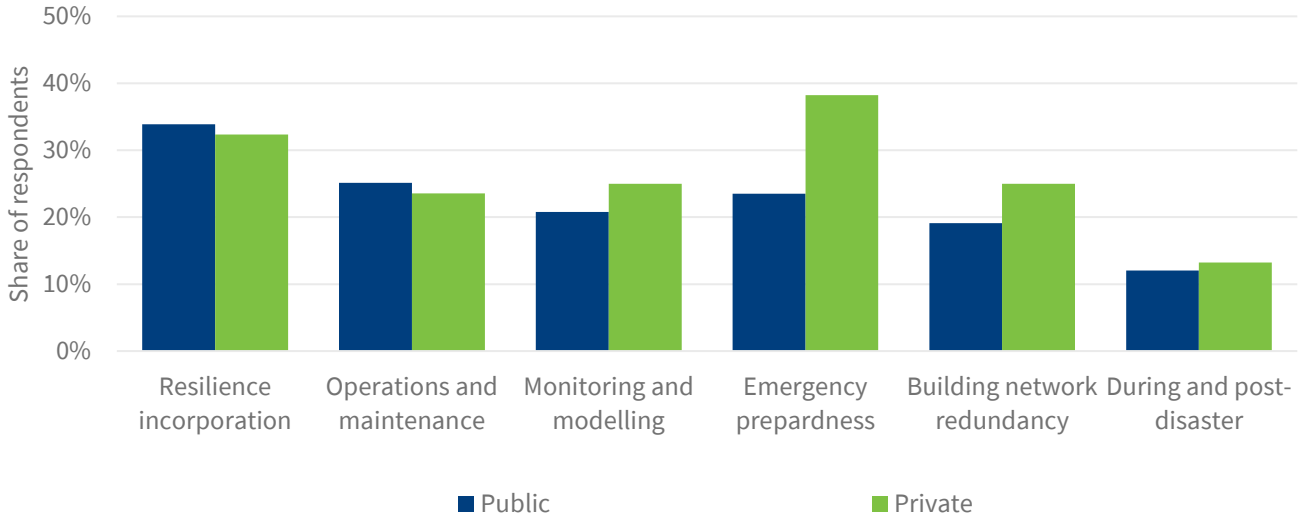
The integration of resilience into national plans, project prioritisation, and design is more common in **Indonesia** and **Cambodia**. **Cambodia**, for example, has launched its National Action Plan for Disaster Risk Reduction (2024-2028), aimed at minimising disaster impacts on people, the economy, and society.

Advanced technologies for real-time monitoring and rapid response are also widely adopted, especially in **Indonesia**. These technologies can improve freight flow monitoring and enhance the capability to respond quickly to shocks.

Diversifying transport routes or modes is another resilience strategy, though fewer respondents from the **Philippines** reported this approach.

Desired freight resilience policies





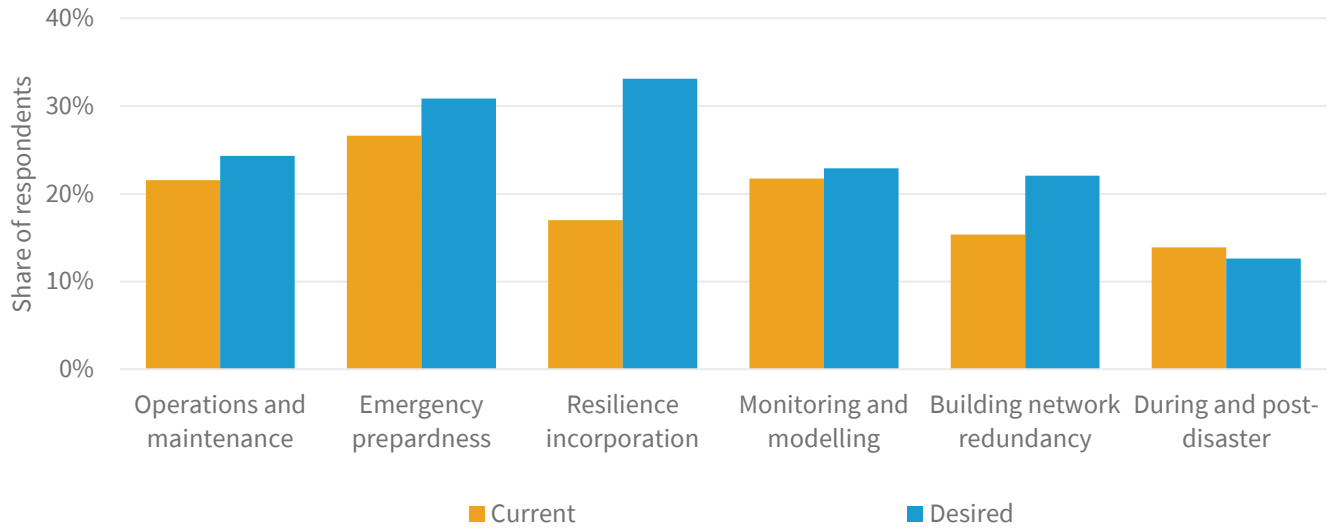
Over 33% of respondents indicate they would like to incorporate resilience into national freight plans, project prioritisation, and design policies to improve the resilience of freight infrastructure projects. Although stakeholders express a desire to integrate resilience, it is rarely considered a criterion for policy or project prioritisation as reported earlier. Clear definitions of resilience performance indicators are needed for effective use.

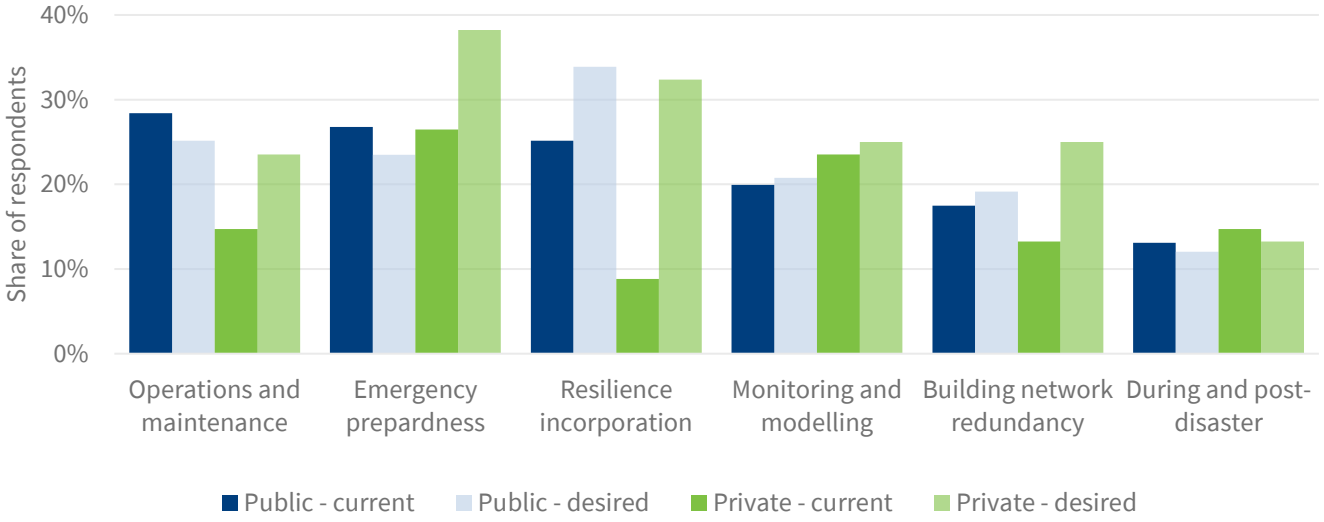
Respondents from the **Philippines** emphasise the need for emergency preparedness and response strategies to mitigate infrastructure disruptions. Similarly, respondents from **Cambodia** advocate for emergency preparedness policies and recommend improving routine infrastructure asset monitoring, adopting advanced technologies for real-time monitoring, and enhancing rapid response capabilities to boost resilience.

Mid- and post-disaster policies include special clearance procedures for essential goods during emergencies and price stabilisation across transport modes during / after disruptions. As stakeholders from the **Philippines** place a stronger emphasis on emergency preparedness, they also support policies that address mid- and post-disaster strategies.

Across most desired freight resilience policies, the share of respondents from both the public and private sectors is consistent. However, the private sector shows a stronger preference for emergency preparedness and building network redundancy through diversifying transport routes or modes compared to the public sector.

Comparison of current and desired freight resilience policies





The following trends can be identified when comparing current and recommended policies to improve resilience:

- Regionally, there is a substantial gap between existing and desired policies for incorporation of resilience policies into national freight plans, project prioritisation, and project design and implementation.
- Other freight resilience policies such as operations and maintenance were ranked similarly in both current and desired policies across public and private sectors.
- Respondents from the private sector highly recommended resilience incorporation, emergency preparedness, and building network redundancy, as these areas are not fully integrated into their current policies. These priorities for the private sector are progressing more rapidly than those of the public sector.
- Countries like **Indonesia** and **Cambodia** show greater interest in advanced resilience measures, such as real-time monitoring and rapid response capabilities, aligning with their broader disaster management plans.
- Despite the importance of considering resilience in freight transport strategies, the public sector's current responses were largely consistent with their desired policies, showing less demand for major changes in resilience measures.
- It should be noted that overall, there was a low proportion (<40%) of positive responses for all current and recommended resilience policy questions.

NATIONAL TRANSPORT PLANNING

Section summary

Major bottlenecks in freight transport policymaking: providing insights into the major obstacles that hinder effective policy formulation. Understanding these challenges is essential for streamlining the policy development process and ensuring the timely and efficient creation of policies that address the needs of the freight transport sector.

Capacity challenges in evaluating future freight infrastructure investments: highlighting the limitations in expertise, resources, and infrastructure that impede thorough evaluation. Addressing these challenges is crucial for making informed, strategic decisions regarding future investments in freight infrastructure.

Ranking of criteria used for project prioritisation: revealing the factors that influence decision-making in freight infrastructure development. Understanding these criteria helps ensure that projects are selected based on their potential to deliver the greatest benefits in terms of efficiency, sustainability, and economic impact.

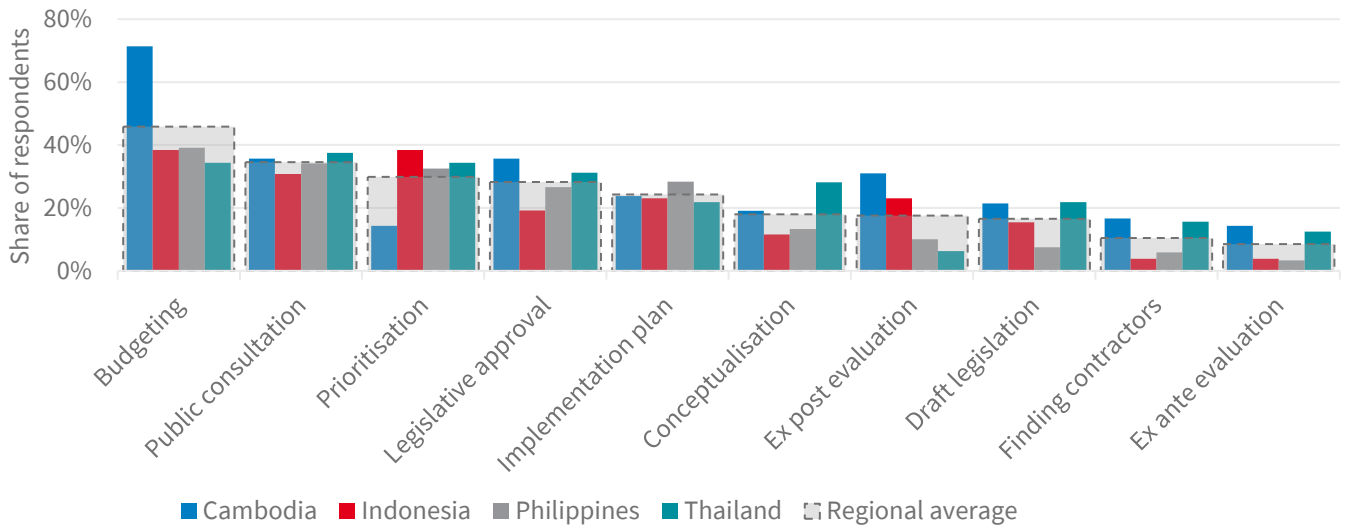
Ex-post reviews, audits and environmental impact assessments in the policy implementation process: providing an understanding of how well policies are monitored and evaluated post-implementation.

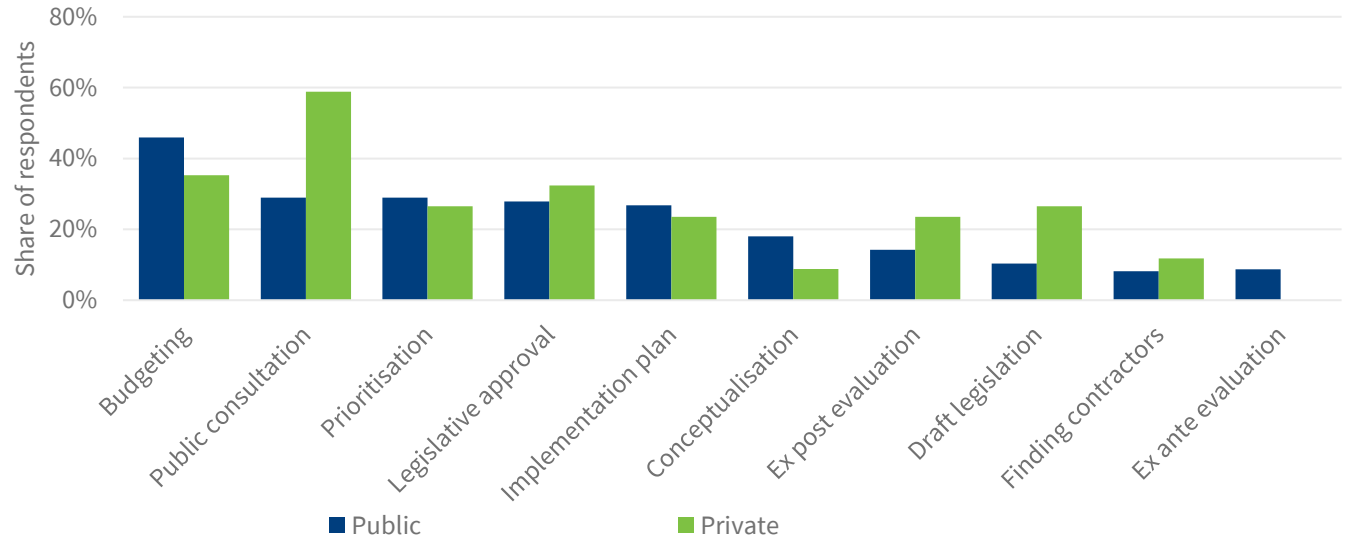
Financing sources for key freight infrastructure: explaining financial mechanisms that support infrastructure development. This examination reveals the dependence on various funding sources and highlights opportunities for diversifying financing for future projects.

Government policies to mobilise private investment: providing insights into strategies to attract private capital.

Role of non-governmental stakeholders in regional and national freight planning: highlighting the potential contributions of NGOs to freight infrastructure development. It underscores the areas where NGOs can assist national governments the most.

Major bottlenecks in freight transport policymaking





Budgeting is identified as the biggest bottleneck in the freight transport policy development process, followed by challenges with public and stakeholder consultation, project prioritisation, and legislative approval.

Issues related to the project implementation phase, such as Ex-ante evaluation, finding and vetting contractors, and monitoring and Ex-post evaluation, are less frequently reported as problem areas.

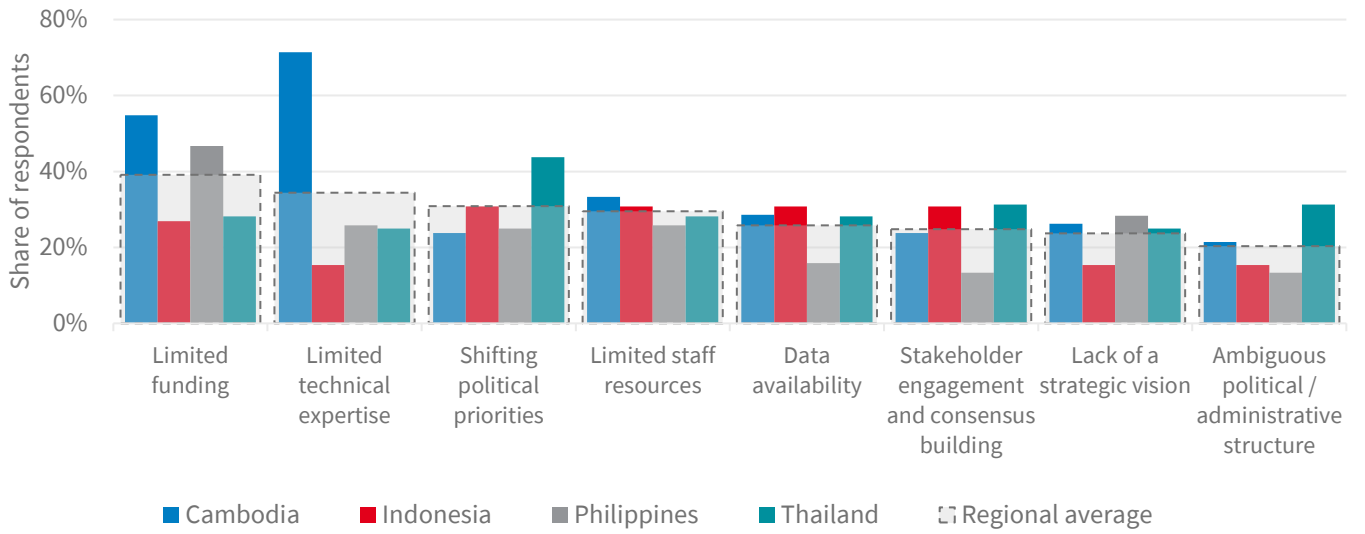
Respondents across the countries observed similar bottlenecks in policy development, though some country-specific distinctions emerged:

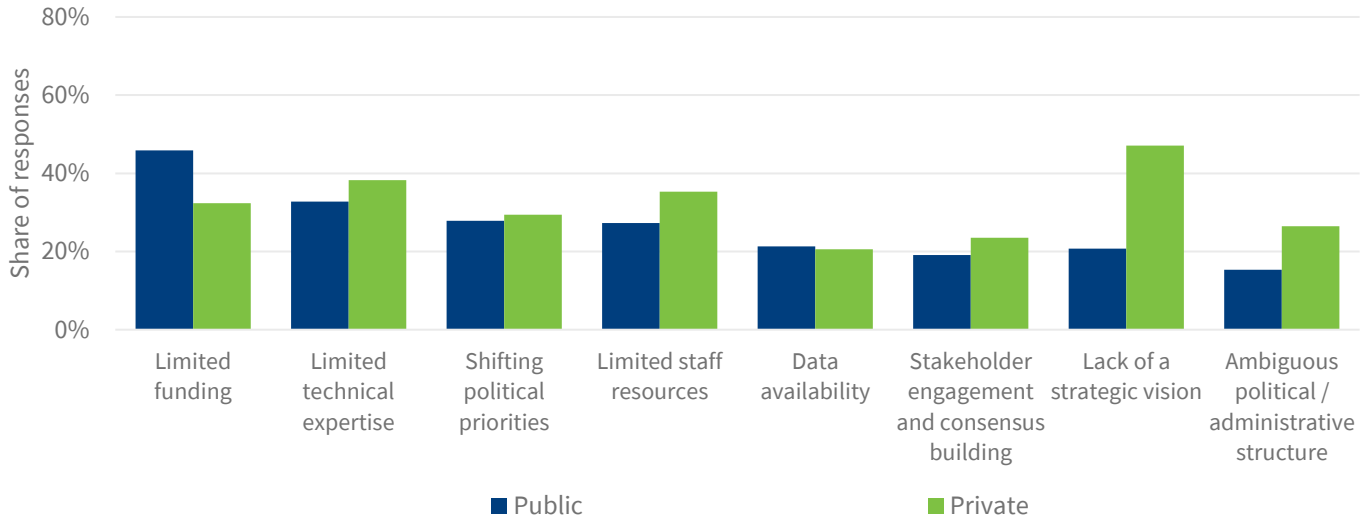
- **Cambodia** faces more noticeable budgeting challenges compared to the other countries.
- **Indonesia** struggles more with project prioritisation.
- The **Philippines** identifies implementation planning as a key bottleneck.
- **Thailand** reports that conceptualisation is a greater obstacle than other areas.

While budgeting and legislative approval are limited by internal processes, NGOs can provide technical assistance for public/stakeholder consultation, prioritisation, and implementation planning, as highlighted in Slide 47.

The private sector emphasises public and stakeholder consultation, along with legislative drafting, as key bottlenecks, whereas public sector respondents are more concerned with budgeting challenges.

Capacity challenges in evaluating infrastructure investments





Limited technical expertise and funding are two prominent capacity challenges across the region at both national and sub-national levels. Responses from **Cambodia** skew the regional averages in this direction, with the country reporting these challenges more acutely than others. Foreign funders lead the construction of major new infrastructure in **Cambodia**, which may limit the development of local technical expertise for transport infrastructure.

In **Thailand**, respondents highlight shifting political priorities, ambiguous political/administrative structures, and stakeholder engagement as key capacity challenges. This reflects evolving national agendas that hinder long-term planning and investment.

Indonesia faces issues with data availability, emphasising the need for improved data collection and sharing mechanisms to support policy formulation and decision-making in infrastructure projects. Stakeholder engagement and consensus building also are reported to be significant barriers.

In the **Philippines**, limited funding and a lack of strategic vision emerge as key challenges. Public sector respondents are particularly concerned about funding limitations, whereas private sector respondents report issues more with the lack of strategic vision and limited staff resources. Improving communication of strategic vision to the private sector may help alleviate these challenges.

Ranking of criteria used for project prioritisation

Respondents were asked to rank the criteria from 1 to 10 based on its important in project prioritisation. High values indicate the highest ranked criteria.

Country	External funding from donors	Quick implementation	Strong support from the public	Strong resilience benefits	Strong political backing	Strong private sector interest	Strong environmental benefits	High benefit/cost ratio	Part of a regional freight plan	Strong connectivity benefits	Part of the long-term national plan
Cambodia	6.6	7.8	6.6	6.0	5.4	6.7	5.4	6.1	5.9	4.2	4.9
Indonesia	8.5	7.9	6.4	6.0	5.5	5.7	6.5	4.5	4.7	5.3	3.8
Philippines	6.8	6.4	6.0	6.5	6.3	5.8	5.7	5.4	6.5	5.7	4.4
Thailand	8.4	6.8	6.7	6.8	7.3	6.1	5.8	6.0	4.0	4.9	3.2
Regional average	**7.6**	**7.2**	**6.4**	**6.3**	**6.1**	**6.1**	**5.9**	**5.5**	**5.3**	**5.0**	**4.1**

Score 1 to 10: **Above average** **Below average** **Regional average**

Ranking of criteria used for project prioritisation

Across the region, the stakeholders identified the following as the top five criteria when determining the priority of a project:

- External funding from donors
- Quick implementation
- Support from the public
- Strong resilience benefits
- Strong political backing

Particularly, respondents from:

- **Cambodia** prioritised quick implementation, strong private sector interest, and support from the public
- **Indonesia** prioritised external funding from donors, quick implementation, and strong environmental benefits
- The **Philippines** prioritised external funding from donors, strong resilience benefits, and part of the regional freight plan
- **Thailand** prioritised external funding from donors, political backing, and strong resilience benefits

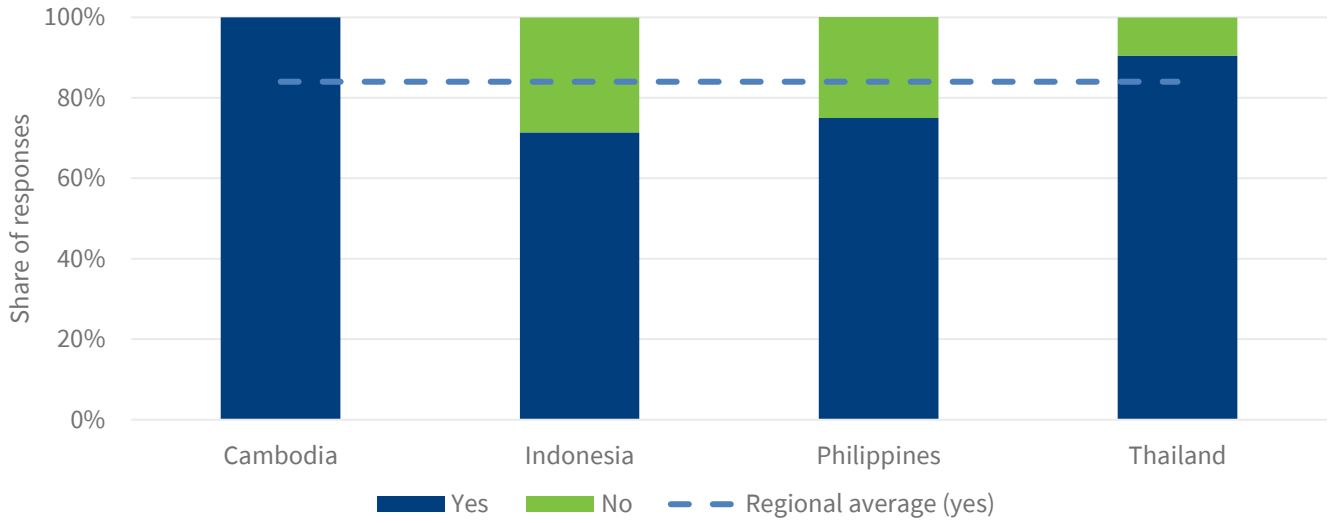
Given the rapidly increasing demand for freight transport due to regional economic growth, external funding from donors and quick implementation are often prioritised. Projects with readily available funding and manageable implementation timelines can address urgent capacity needs in a short period. However, with the rising threat of climate change, the region also recognises the importance of considering environmental and resilience benefits when prioritising projects.

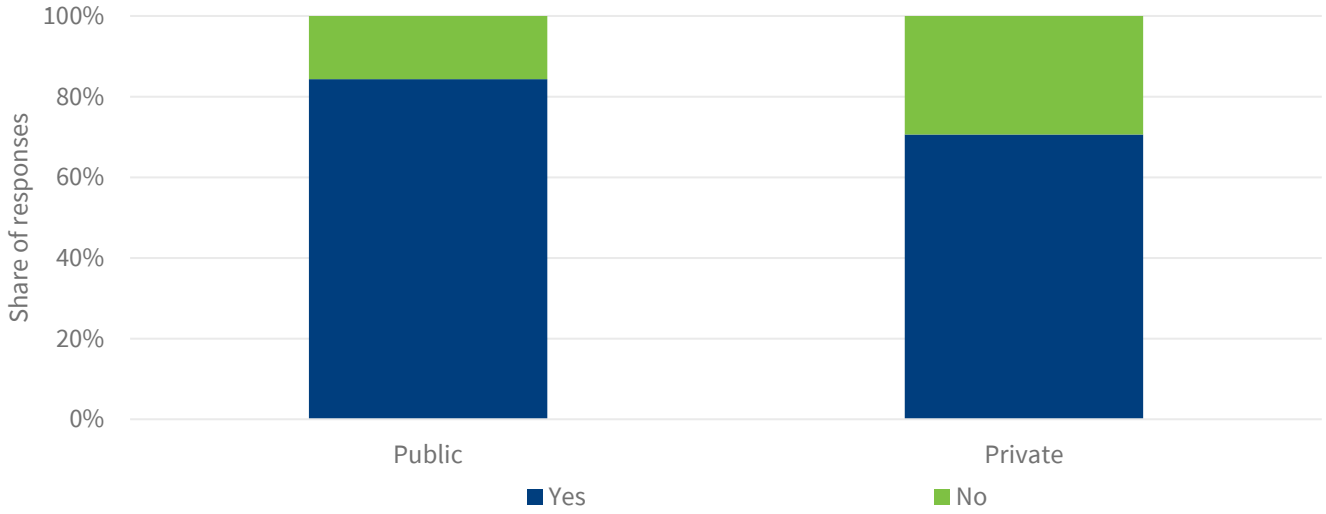
Aligning with the findings from the desired sustainability policies in Slide 30, stakeholders from **Indonesia** rank strong environmental benefits higher than other countries in the region. **Indonesia**, in collaboration with international partners such as WRI Indonesia and the World Bank, has been actively integrating environmental considerations into its freight infrastructure projects. Initiatives like the National Medium-Term Development Plan (RPJMN) 2020-2024 and the "Greening the Maritime Transport Sector" programme promote sustainable, climate-resilient development in its ports and maritime transport systems.

Both the **Philippines** and **Thailand** place greater emphasis on resilience benefits than other countries. For instance, **Thailand** has made transport resilience a key focus of its climate agenda under its NDC. Recognising the sector's vulnerability to climate-related disasters, recent assessments estimate that substantial investment will be required to make roads and railways more climate-resilient.

The public and private sector respondents have similar rankings for each of the categories. There is a greater focus on strong support from the public for the private sector and external funding from donors for the public sector.

Ex-post environmental reviews and audits





Across the region, 80% of respondents include Ex-post reviews or audits, such as environmental and carbon emissions impact assessments, in the policy implementation process. All countries in this study have established EIAs, which serve as a comprehensive tool to evaluate the potential positive or negative effects of projects on the surrounding environment. EIAs are often mandatory for projects with the potential to cause significant disruptions, such as environmental degradation.

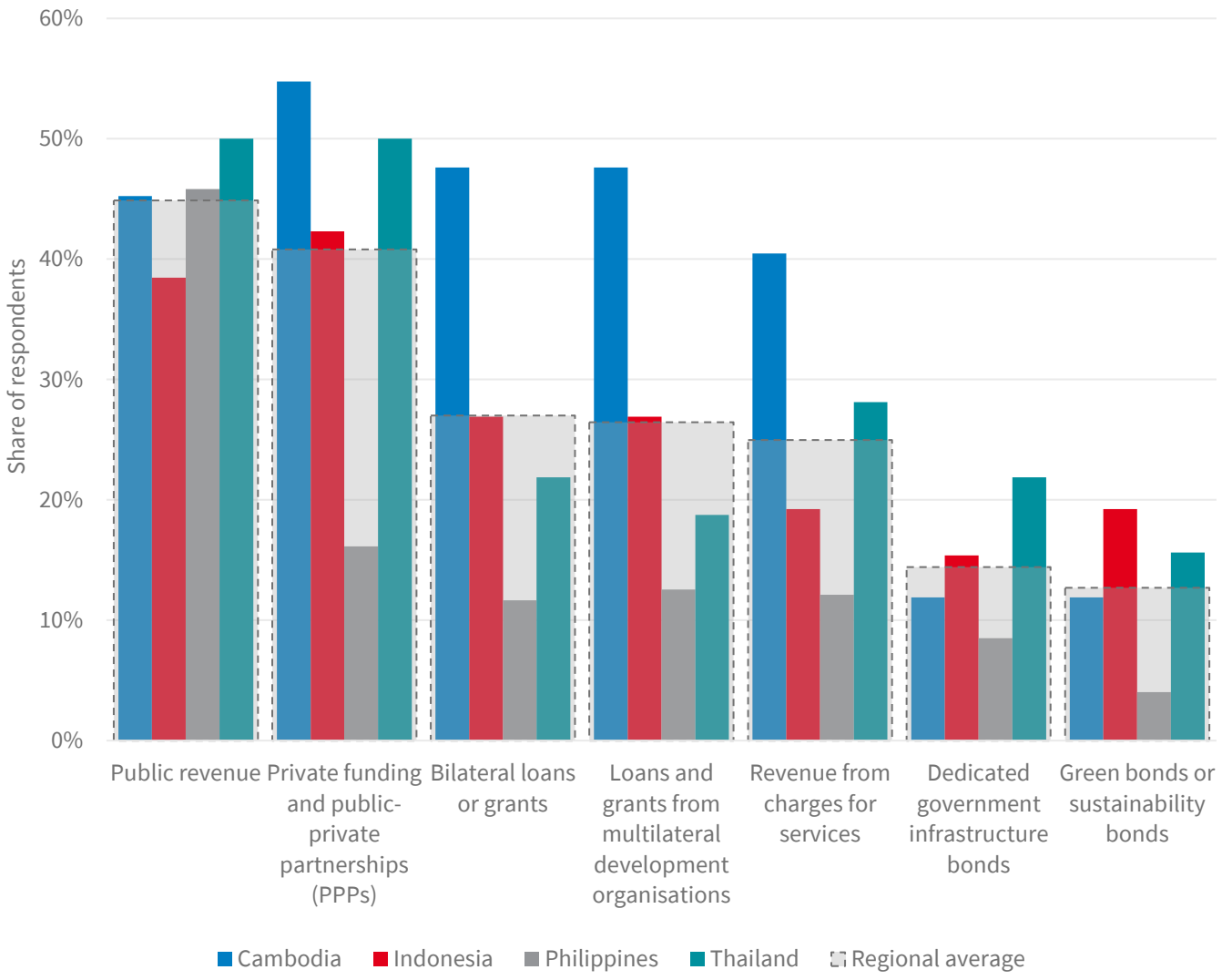
According to the survey respondents in this study, **Cambodia** and **Thailand** are both above the regional average in terms of implementing Ex-post reviews, while the **Philippines** falls below the regional average, with 75% of respondents incorporating these reviews. In **Cambodia**, 100% of respondents reported including Ex-post reviews in the policy implementation process. However, this may be an overestimation of the country's capacity.

Indonesia's respondents also fall below the regional average, likely due to the length and complexity of the EIA process, known locally as AMDAL, which can delay development projects.

Additional challenges include stakeholder engagement, monitoring, enforcement, and the integration of EIA outcomes into decision-making processes. Addressing these issues will require strengthening the legal framework, promoting meaningful stakeholder engagement, and enhancing monitoring and compliance mechanisms.

A larger proportion of public sector entities include Ex-post environmental reviews in their policy implementation processes compared to the private sector.

Financing sources for key freight infrastructure



Across the region, public revenue is the main source of financing for at least half of the respondents. Green bonds or sustainability bonds are the least used. These bonds can finance environmentally aligned freight infrastructure projects. Governments can develop clear guidelines and incentives to increase their use, enabling new funding sources for sustainable development.

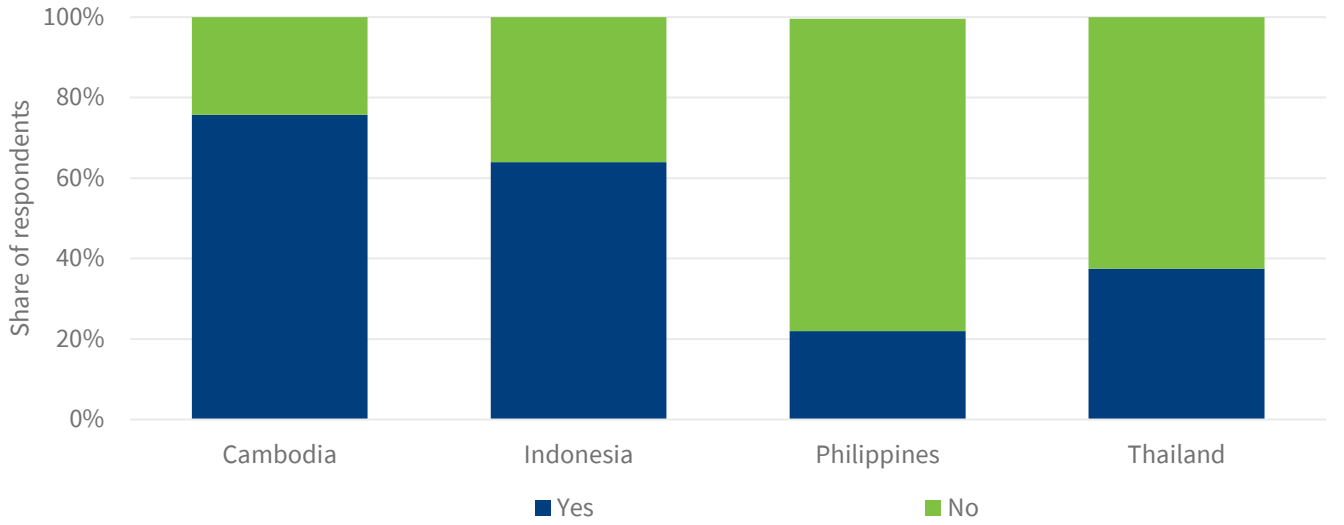
Stakeholders from both **Cambodia** (55%) and **Thailand** (50%) identify leveraging private funding and public-private partnerships (PPPs) significantly more than the stakeholders from **Indonesia** (42%) and the **Philippines** (18%). **Cambodia**'s Sustainable Bond Accelerator and reliance on multilateral loans have driven private sector engagement in infrastructure. **Thailand**'s Sustainable Financing Framework actively promotes green bonds, boosting private and international investment.

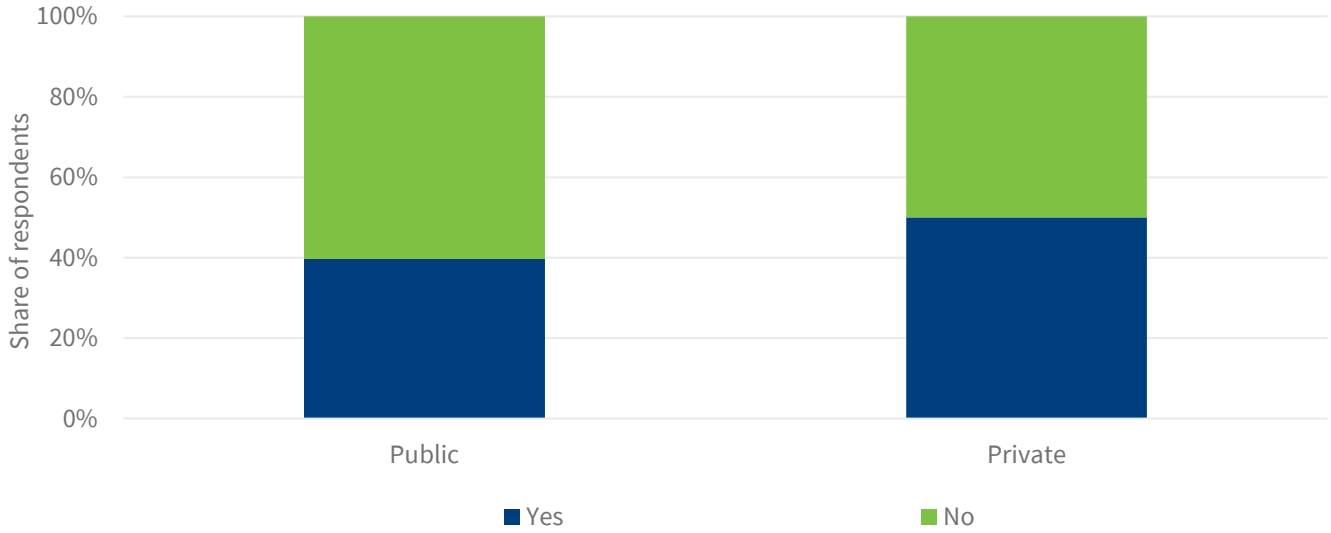
The **Philippines** is conservative about using different financing sources and relies mostly on public revenue. Additionally, green or sustainability bonds were particularly low in the **Philippines**.

Cambodia is more dependent on bilateral and multilateral loans or grants from development organisations than other countries in the region**.**

Government infrastructure bonds, along with green and sustainability bonds, were more popular among **Indonesian** respondents than those from other countries. **Indonesia**'s use of these financing sources, close to the regional average, highlights its potential for promising financing mechanisms for freight transport.

Government policies to mobilise private investment



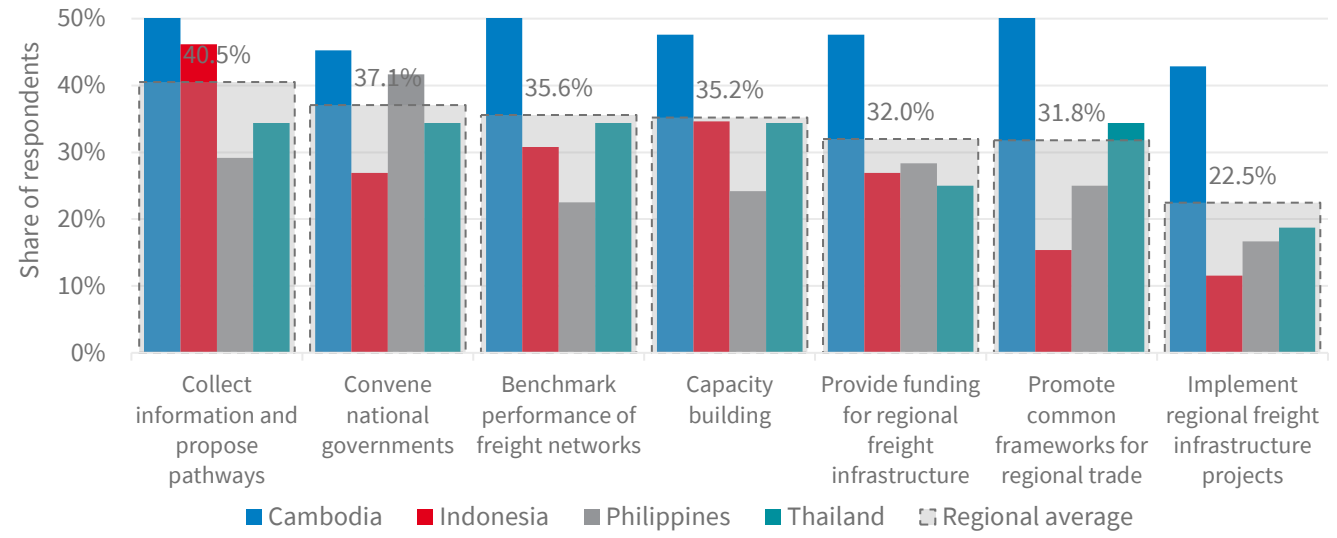


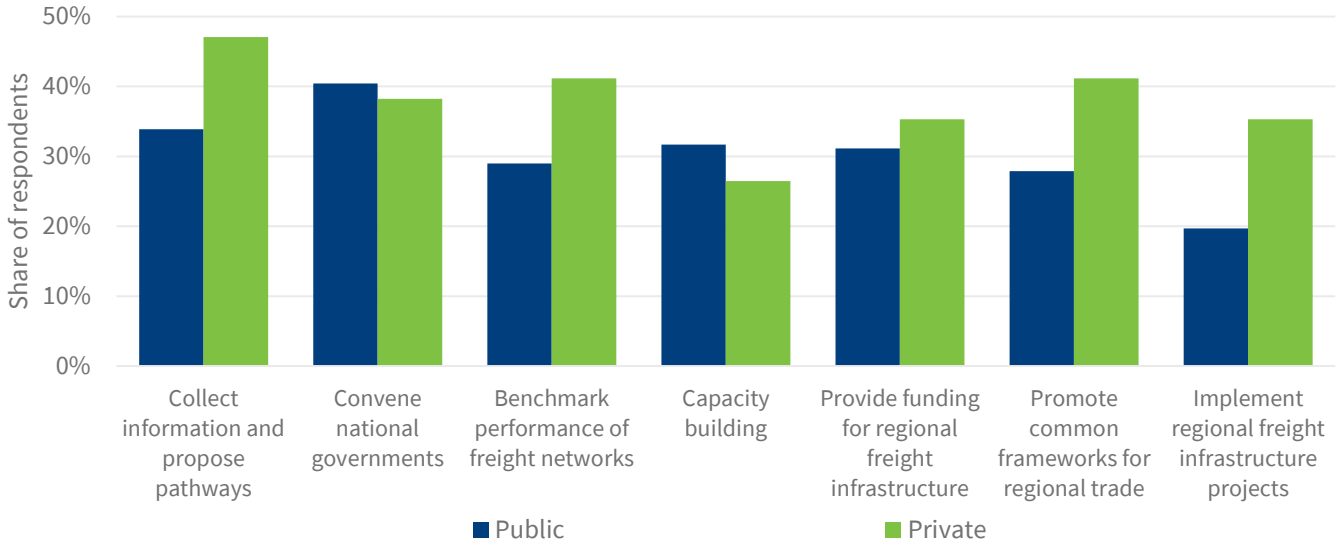
With only 50% of respondents across the region reporting the existence of government policies to mobilise private sector investment in freight transport, and the remainder including those who responded 'No' or 'I don't know,' it suggests that the countries may not have such policies in place or that respondents are unaware of them.

A higher proportion of respondents from **Cambodia** report having policies to mobilise private sector investment compared to other countries. This aligns with earlier findings where over 50% cited private funding and PPPs as key sources for public freight infrastructure. Nevertheless, over 70% identify budgeting as the biggest bottleneck, and more than 50% specify limited funding as a key capacity challenge. This suggests a need for further mobilisation and effective use of private funding to overcome these challenges.

Only 22% of respondents from the **Philippines** report policies to mobilise private sector investment in freight transport. In relation to earlier findings, this may be due to a reliance on public revenue for infrastructure construction, with limited engagement of the private sector or the use of loans and grants from bilateral or multilateral organisations.

Role of non-governmental stakeholders in freight planning





The key areas in which respondents highlight the role of NGOs are:

- Collecting information and proposing pathways for improvement.
- Convening national governments for regional policy and infrastructure discussions.
- Promoting common frameworks for regional trade.

Regional responses for the top five areas range between 30% and 40%, with lower responses for project implementation. This suggests that non-governmental stakeholders play a larger role in planning and design but are less involved in project execution. Engaging them in PPPs could help bridge funding gaps and enhance project implementation.

Responses from **Cambodia** exceed the regional average across most categories, while responses from the **Philippines** were often lower. This indicates **Cambodia**'s greater reliance on non-governmental stakeholders and financing through PPPs for freight planning, as seen in previous results, whereas the **Philippines** follows a more government-led approach.

There is also a regional interest in capacity building, suggesting a focus on strengthening institutional frameworks and skills to support long-term sustainability in freight infrastructure.

The private sector is more willing than the public sector to collaborate with NGOs, particularly in data collection, promoting trade frameworks, and benchmarking freight network performance.

CONCLUSION

Conclusion

CONNECTIVITY

Congestion on major highways creates significant bottlenecks for transport connectivity in the region. Despite road congestion, the region is less focused on road sector improvement policies.

Maritime network and fleet expansion, with a focus on port infrastructure, is a priority in current and desired policies, including both maritime and inland port development.

Enhancing digitisation through improving freight logistics and supply chain management is prevalent in current strategies.

There is a desire for policies that focus on reducing intermodal delays through increasing intermodal terminal capacity and enhancing asset utilisation.

SUSTAINABILITY

UN SDGs and national green strategies were the most commonly applied frameworks to incorporate sustainability into transport policies.

However, less than a third of the region's stakeholders report incorporation of environmental impact in the development of freight transport policies.

Regulatory improvements such as enhancing fuel economy standards are among the most desired sustainability policies.

There is less desire for investments in electrification from both the public and the private sectors across the region.

RESILIENCE

Resilience-related risks are not a top priority in current freight transport policies.

Extreme climate events and natural disasters were identified as the most critical risks to freight transport networks because of the region's vulnerability.

Cyber attacks were the lowest-ranked resilience risks.

Improving routine infrastructure asset monitoring and emergency preparedness are most common among current resilience policies.

Incorporation of resilience into national plans and project development is one of the most preferred resilience policies among regional stakeholders.

TRANSPORT PLANNING

Budgeting and public/stakeholder consultation are identified as major bottlenecks in transport network planning.

Limited funding, technical expertise, and shifting political priorities are identified as key regional capacity challenges.

For freight infrastructure, public revenue is a key source, whilst green bonds are underutilised.

Less than half the region's respondents have policies to mobilise private sector finance.

NGOs can play a crucial role in gathering data and proposing strategies for improvements.

International Transport Forum

SIPA
Sustainable Infrastructure Programme in Asia

INTERNATIONAL TRANSPORT FORUM

2 RUE ANDRÉ PASCAL
F-75775 PARIS CEDEX 16

CONTACT US

Nicholas Caros
Project Manager
Email: Nicholas.CAROS@itf-oecd.org

Guineng CHEN
Transport Programme Lead
Email: Guineng.CHEN@itf-oecd.org