MIRAE ASSET Securities

MACRO & STRATEGY

THEMATIC REPORT: PUBLIC INVESTMENT

Key driver for double-digit growth and 2045 vision

Macroeconomic context and strategic challenges



Institutional breakthroughs



Transport and energy infrastructure



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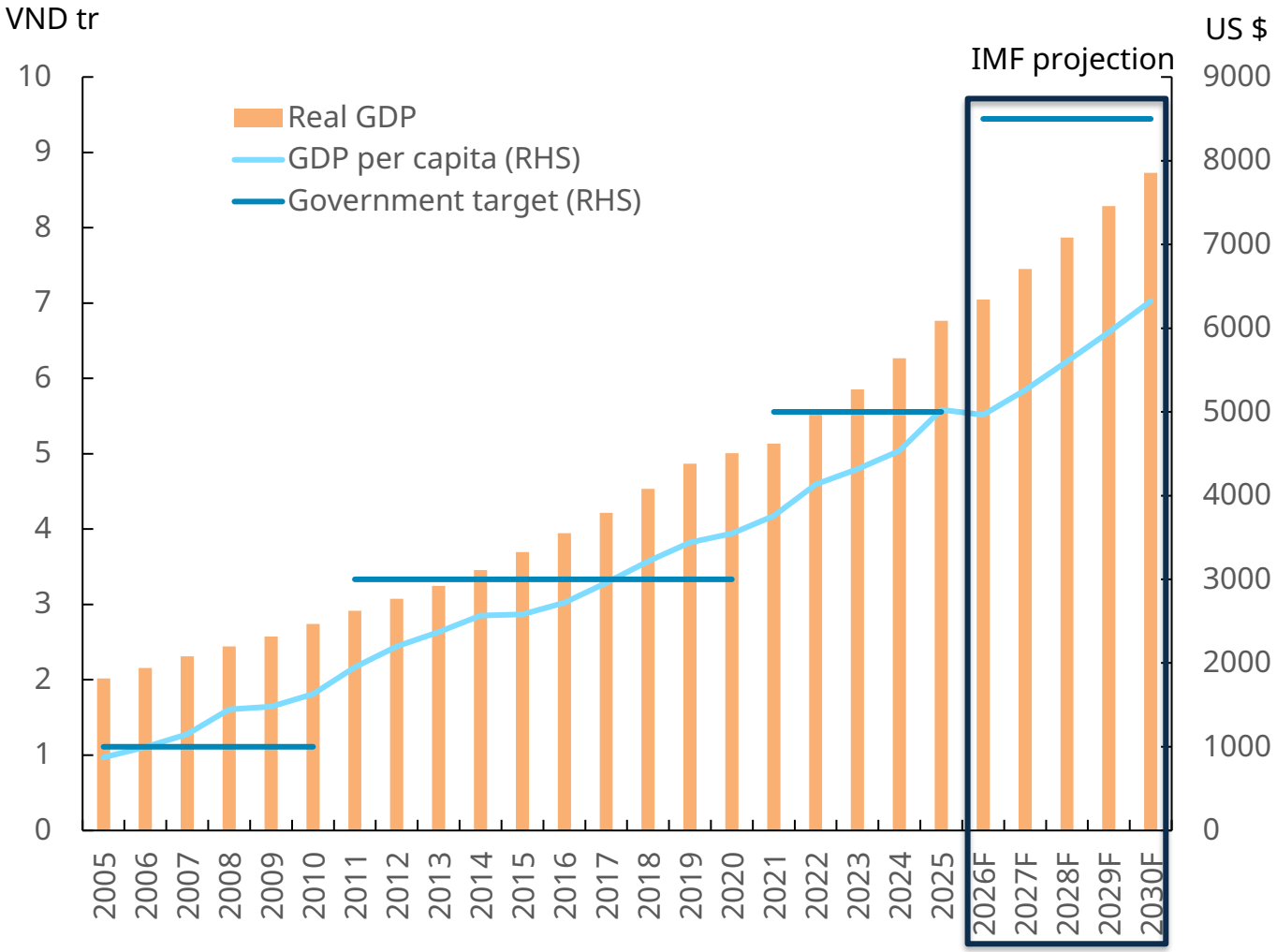


Part I

Three challenges and the role of public investment

2045 TARGET: VIETNAM BECOMES A HIGH-INCOME ECONOMY

Year 2025: GDP growth of 8.02%, with GDP per capita surpassing the US$5,000 threshold



Source: Mirae Asset Securities (Vietnam) Research; compiled from World Economic Outlook (October 2025 database)

Economic growth rate

- Excluding years of pandemic volatility, **GDP growth for the 2015–2025 period reached approximately 7%**
- Specifically, 2025 rose to 8.02% (the second highest level after 2022), bringing the economic scale to the **VND6,760tr**
- GDP per capita officially **surpassed the US$5,000** threshold set by the government for 2025

Government targets

- **2026–2030 period:** GDP growth of **10%/year or higher**
- **Target 2030:** GDP per capita to reach **US$8,500**
- **Target 2045:** To become a high-income country

THREE CHALLENGES TO VIETNAM'S 2045 ASPIRATIONS

Core challenges to become a high-income country by 2045

2045

- **Become a high-income country by 2045 –** marking the 100th anniversary of independence.
- To achieve this, **Vietnam cannot maintain a normal growth rate but have to aim for double-digit growth.**

Main challenges:

Demographic transition

Vietnam is projected to enter an aging population period by 2038.

Middle-income trap

How to become a high-income country within 20 years?

GDP growth model

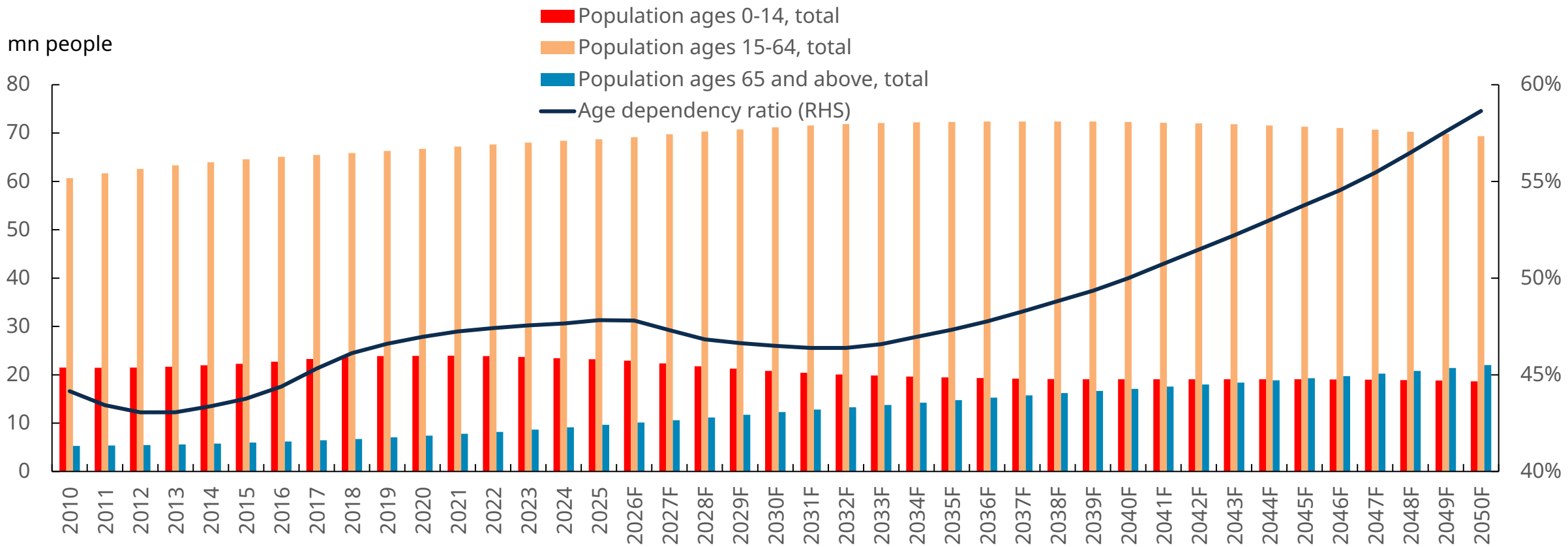
How to achieve a breakthrough GDP growth rate compared to previous growth rates?

THREE CHALLENGES TO VIETNAM'S 2045 ASPIRATIONS

Risk of "getting old before getting rich"

According to the General Statistics Office, Vietnam is identified as one of the countries with the most rapidly aging population since 2011 and is expected to officially enter the aging population period by 2038.

Increasingly aging population and rising age dependency ratio:



Age dependency ratio = (no. of people aged 0–14 + no. of people over 65)/(no. of people of working age from 15–64)

Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank, DataBank 2025

THREE CHALLENGES TO VIETNAM'S 2045 ASPIRATIONS

Middle-income trap

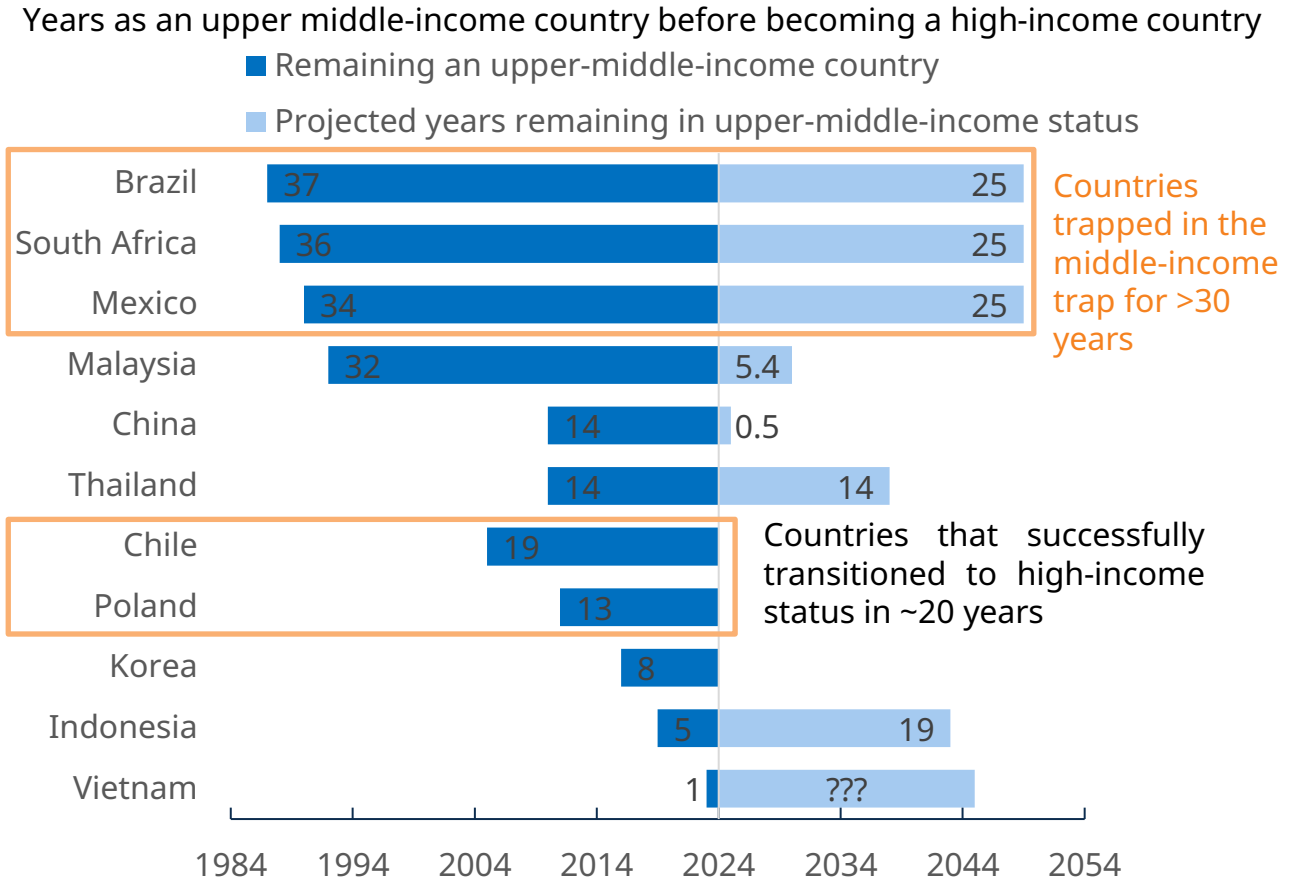
Middle-income trap challenge:

- **Brazil and Mexico have been trapped for over 30 years, due to growth stagnating hovering just above 2%;**
- Conversely, **Poland and Chile** successfully ascended to the high-income group after **only 13 and 19 years**, respectively, by maintaining stable growth of 4%–5% upon approaching the high-income threshold.

Vietnam's roadmap

Unlike the aforementioned nations, to achieve the goal of becoming a developed country by 2045, Minister of Science and Technology Nguyen Manh Hung noted that Vietnam's GDP must increase at least fivefold over the next 20 years. This **requires a 10% growth rate for the first 10 years and maintaining 7% for the subsequent 10 years.**

Becoming a high-income country within just 20 years is a significant challenge



Notes: Includes countries transitioning from lower-middle-income country (LMIC) to upper-middle-income country (UMIC) to high-income country (HIC) since 1987 (excluding oil exporters). For current UMICs, the transition timeline to HIC is extrapolated from the 10-year pre-pandemic GNI per capita growth (Atlas method, 2010–2019) and capped at 25 years.

Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank Country and Lending Groups

THREE CHALLENGES TO VIETNAM'S 2045 ASPIRATIONS

Growth accounting model

1. GDP can be understood as a country's "total output," generated from three **main components**, which are then analyzed using the **growth accounting methodology** to evaluate the contributions of resources to GDP since 2012.

(K - Capital)

Machinery, factories, infrastructure, investment capital, etc.

(L - Labor)

Total number of employed persons

Total factor productivity (TFP)

Level of technology, management skills, and efficiency in the utilization of capital and labor

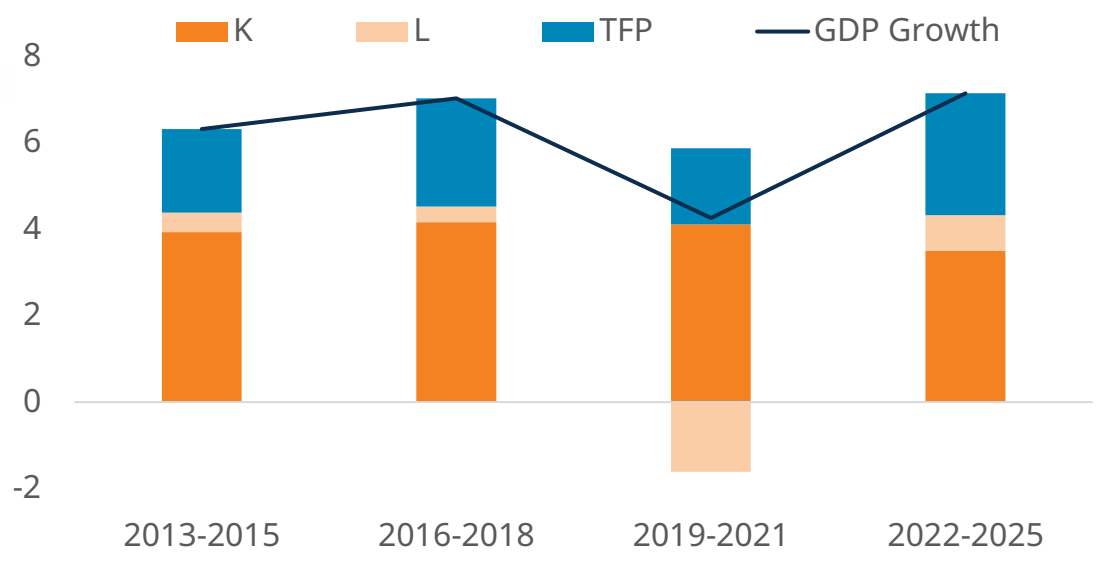
GDP

2. Results show that capital serves as the primary "pillar" for GDP growth: Throughout the 2012–2025 period, capital consistently maintained a **large and positive contribution** to growth, offsetting declines from other resources.

3. Transition the growth model from extensive to intensive, placing innovation productivity and science-technology as the central drivers. According to **the targets of Resolution 57-NQ/TW, by 2030, TFP must contribute over 55% of GDP growth.**

4. **Increasing TFP:** Transitioning the growth model based on: 1) institutional and business environment reforms; 2) technology innovation and digital transformation; 3) enhancing human resource quality; 4) increasing FDI–domestic enterprise linkages; and 5) restructuring industries and enterprises, particularly the private sector and SOEs (state-owned enterprises).

Contribution to GDP growth



Note: Details regarding the assumptions are presented in the Appendix

Source: Mirae Asset Securities (Vietnam) Research; compiled from FiinPro and Statistical Yearbook of Vietnam

INSTITUTIONAL IMPROVEMENT IS THE KEY

Refining institutions to support sustainable market development

- Institutional refinement serves as the leverage to **create a transparent investment environment, helping to unlock capital flows and promote efficient market operations to achieve the 2045 aspirations.**
- This diagram outlines the primary institutional groups that the state can develop to support efficient market operations and drive sustainable growth.

Role of the State: Support market institutions that reduce transactions costs and promote economic growth

Market creating institutions:	Market regulating institutions:	Market complementing institutions:	Market stabilizing institutions:	Market legitimizing institutions:
Property rights, contract enforcement	Addressing externalities	Providing public goods	Ensuring macroeconomic stability	Providing social protection and insurance

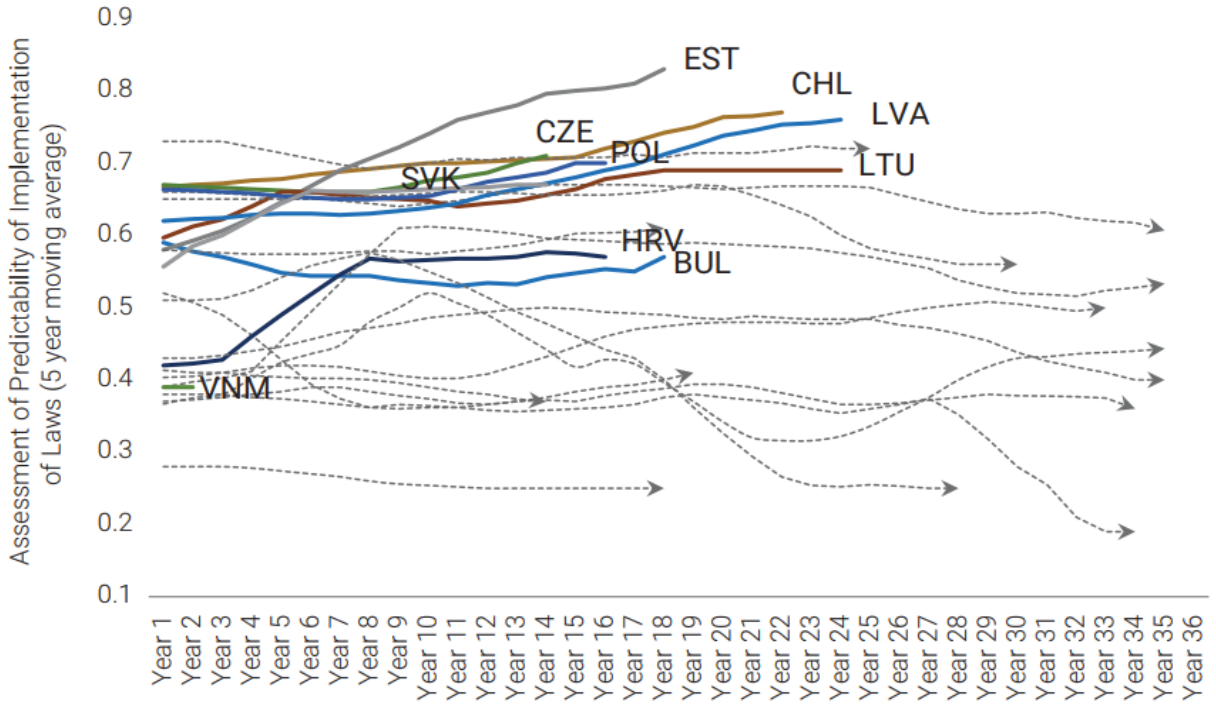
Institutions for a capable and accountable state:
State apparatus that is organized and motivated to support, but not supplant, market development

Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank, adapted from: Rodrik & Subramanian, 2003; Fukuyama, 2013; North, 1987

INSTITUTIONAL IMPROVEMENT IS THE KEY

Improving legal effectiveness to become a high-income country

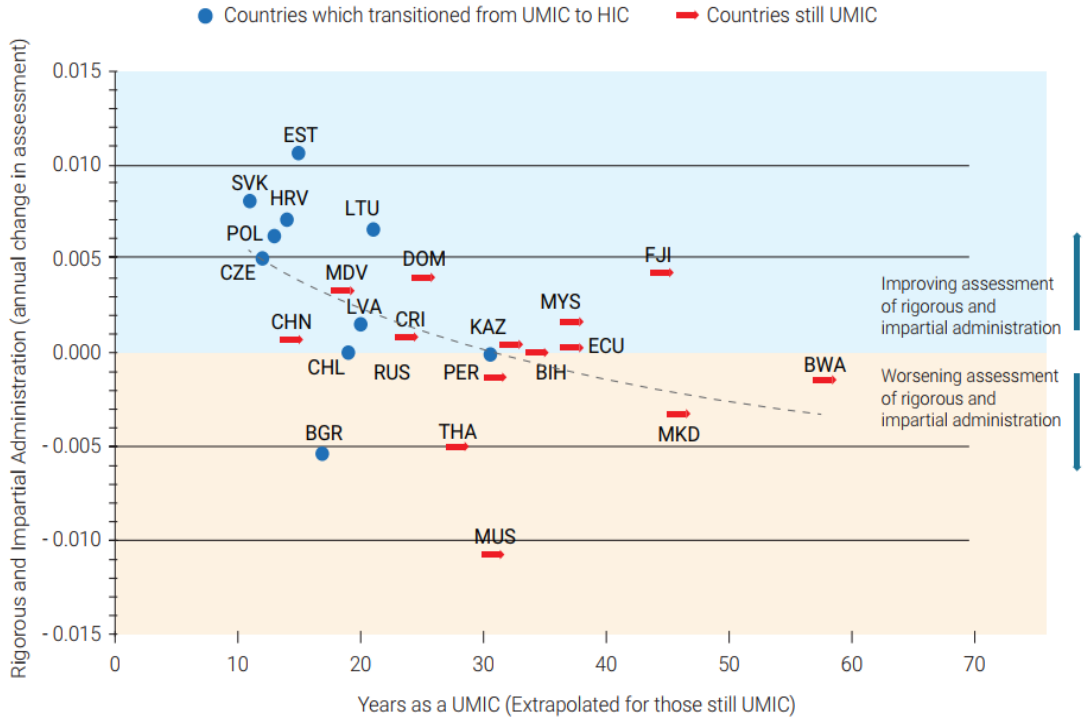
Countries that advanced to high-income status faster improved implementation of laws



Notes: Solid lines are countries that achieved high-income status in around 20 years. Dotted lines are those which either are still UMICs or took 30+ years to reach HIC status. Vietnam's position is shown for illustration.

Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank staff calculations based on Democracy and Electoral Assistance, 2023; World Bank, 2024e

Countries that advanced to high-income status faster improved law enforcement effectiveness



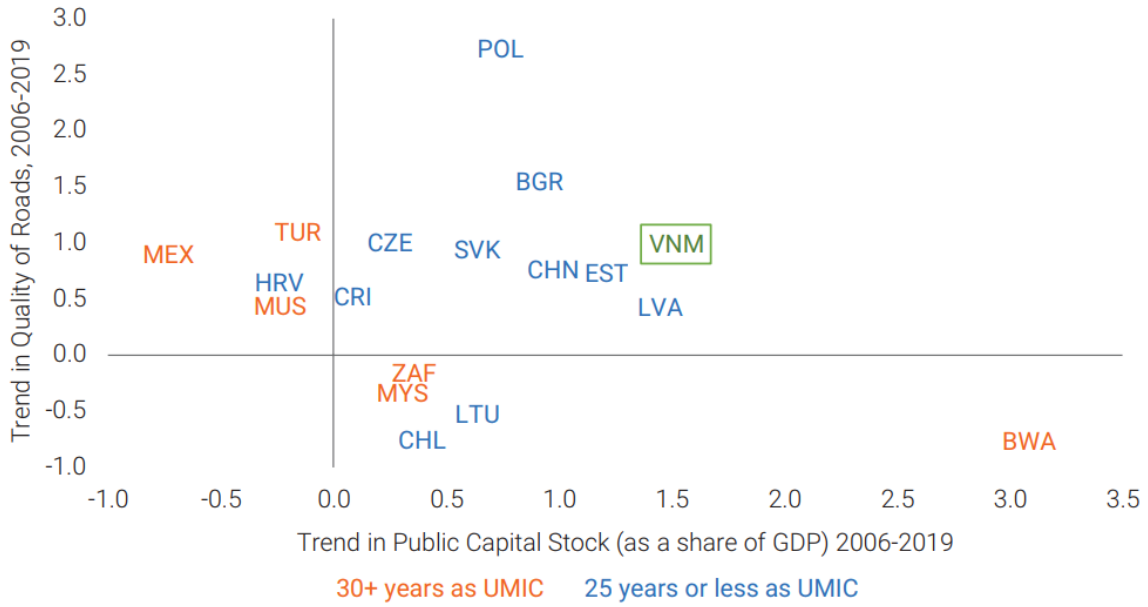
Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank staff calculations based on Democracy and Electoral Assistance, 2023; World Bank, 2024e

OVERCOMING CHALLENGES BY ACCELERATING PUBLIC INVESTMENT

Public investment: Synergy of quantity and quality to escape the middle-income trap

- **Public investment as prerequisite:** Experience from countries that successfully surpassed the high-income threshold shows they did not rely solely on consumption or private investment, but maintained a specific public investment rate to build an economic foundation.
- **Synergy of "quantity" and "quality":**
  - **Quantity:** It is necessary to maintain **a high level of public investment** (roads, bridges, energy infrastructure, etc.) relative to GDP.
  - **Quality:** In addition to mobilizing investment capital, infrastructure quality (such as road network quality) must be improved and sustainably maintained. **The chart indicates that successful countries (marked in blue) are typically located in the upper-right quadrant.**

Moving quickly to high-income status requires both quantity and quality public investment



Notes: Countries are grouped by the time spent as UMIC before becoming HIC. For countries that are still UMIC, the projected (extrapolated) number of years was used. Those in the 30+ years group are those projected to take more than 30 years as UMIC before becoming HIC. Vietnam is in neither group, but is shown for comparison. For both axes, the trend is the simple slope coefficient of a regression against time.

Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank; World Economic Forum Global Competitiveness Yearbook, various years; IMF Investment and Capital Stock Dataset

Part II

Resources & synchronizing the legal system

STRUCTURE OF TOTAL SOCIAL INVESTMENT CAPITAL

The "paving" role of State investment

State investment

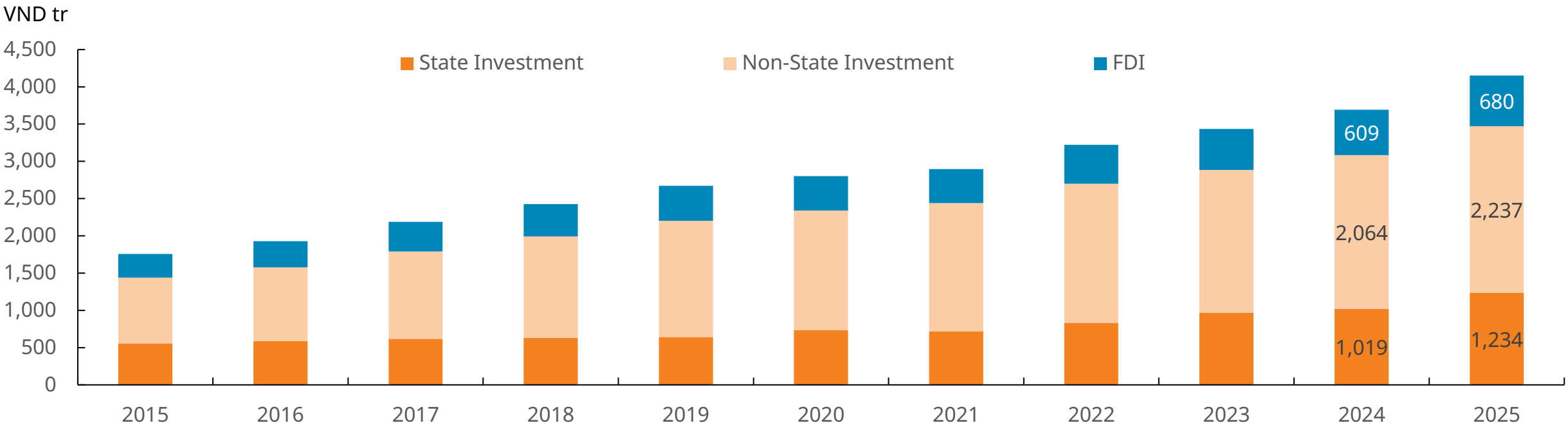
- **Scale: Ranks second, reaching VND1,234tr in 2025.**
- **Role:** Establishing the technical infrastructure foundation and a synchronous economic ecosystem to mobilize other social capital sources for investment.

Non-State investment

- **Scale: The largest source,** reaching **VND2,237tr** in 2025.
- **Role:** Private investment transforms state-funded projects into actual growth value through production, export, and business activities.

FDI

- **Scale: Reached over VND680tr in 2025.**
- **Role:** Promotes technology transfer, enhances management skills and value chains, and supports the goal of increasing Total Factor Productivity (TFP).



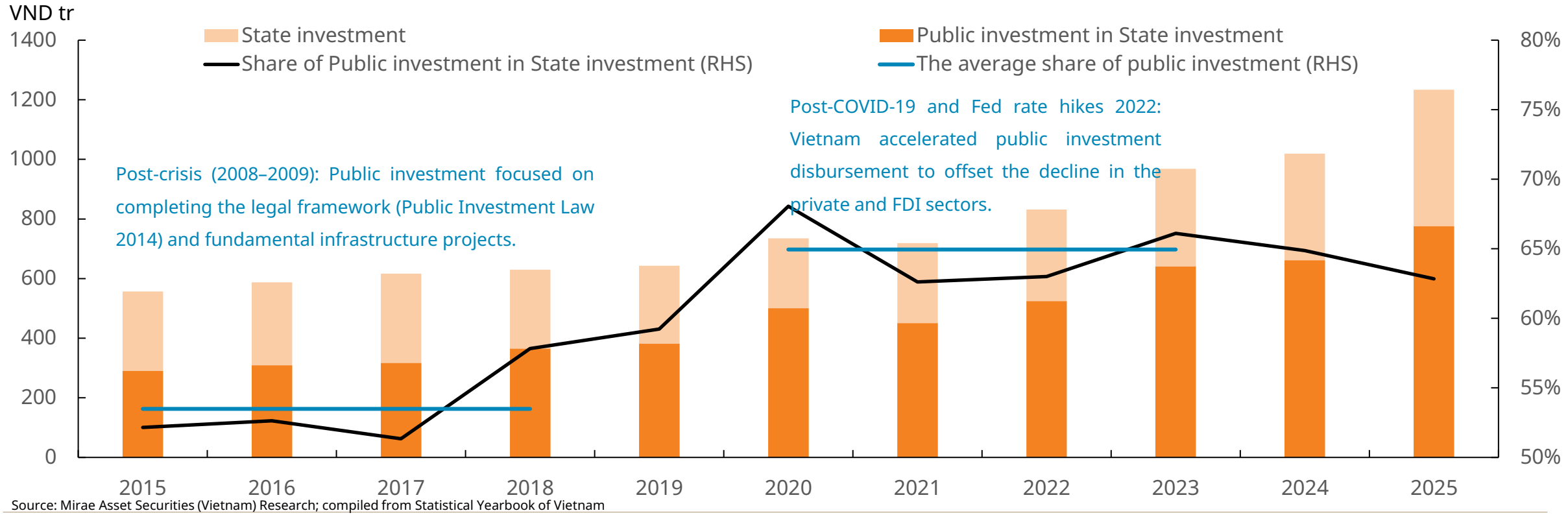
Source: Mirae Asset Securities (Vietnam) Research; compiled from Statistical Yearbook of Vietnam

STRUCTURE OF TOTAL SOCIAL INVESTMENT CAPITAL

Public investment accounts for over 50% of State investment

- **Scale:** As of December 31, 2025, public investment reached VND775tr out of a total of VND1,230tr in State investment, marking a growth rate of approximately 17.2% compared with 2024.
- **Contribution share:** Public investment is the primary driver within State investment, with a contribution share consistently maintained at a high level of 50% to 65% (2015–2025), notably peaking at approximately 68% in 2020.
- **Long-term growth rate:** During the 10-year period (2015–2025), public investment maintained a sustainable compound annual growth rate (CAGR) of 10.32%. This demonstrates the concentration of internal State resources toward infrastructure modernization, optimizing logistics costs, and creating a leverage effect to attract social capital flows toward the national high-income goal.

Public investment accounts for approximately 50–65% of total State investment (2015–2025)



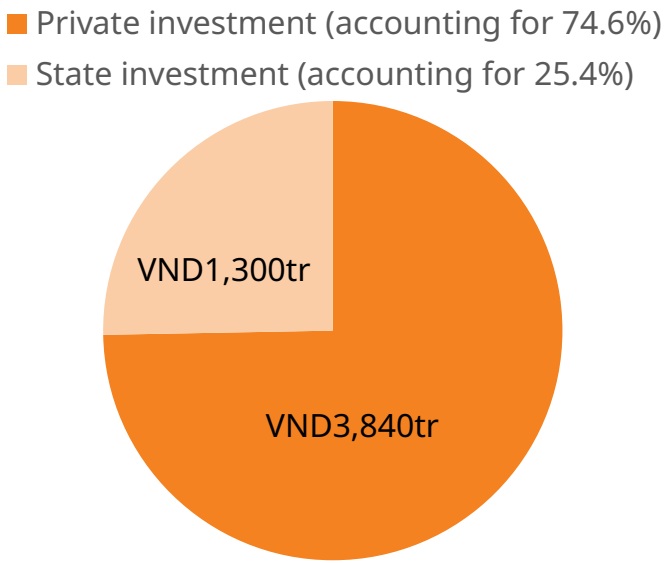
Source: Mirae Asset Securities (Vietnam) Research; compiled from Statistical Yearbook of Vietnam

LEVERAGE EFFECT: ATTRACTING PRIVATE INVESTMENT AND FDI

The "Pioneering" role: every VND1 of public investment attracts nearly VND3 of private investment

- **Integration capacity:** The integration capacity of the private sector is closely tied to infrastructure quality. Consequently, **public investment efforts in 2025 have successfully catalyzed social resources**, mobilizing **VND3,840tr** from the private sector to participate in infrastructure development, equivalent to 74.6% of the total social investment capital.
- **Realized FDI**: In 2025, realized FDI reached a 5-year peak of **approximately US$27.62bn (a 9% increase compared to the previous year).**

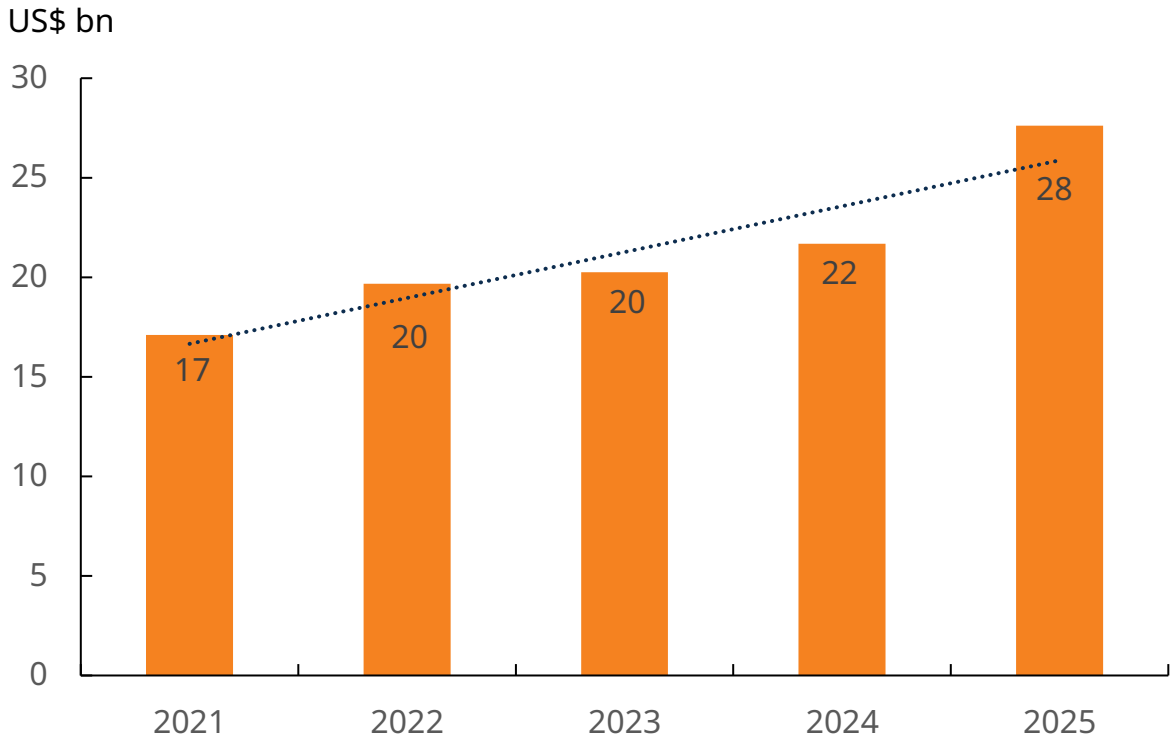
Total investment for 564 representative infrastructure projects in 2025



The 1:3 Leverage Ratio: For every VND1 of public investment spent, nearly VND3 of private sector are attracted to the economy. This demonstrates the leading and guiding role of public investment relative to social investment flows.

Source: Mirae Asset Securities (Vietnam) Research; compiled from Ministry of Construction (MOC)

Realized FDI Inflow into Vietnam



Source: Mirae Asset Securities (Vietnam) Research; compiled from Socio-economic situation report

LEVERAGE EFFECT: ATTRACTING PRIVATE INVESTMENT AND FDI

The footprint of private investment in strategic infrastructure development

VinEnergo
(Vingroup)

- **Breakthrough capital scale:** Starting with VND2tr (March 2025), VinEnergo increased its capital to VND28.3tr by October 2025.
- **Giant investment strategy (2025–2035):** Proposing a total renewable energy capacity of up to 47,500 MW. Specifically, for the period through 2030, an investment of US$20–25bn is expected to reach 20,500 MW.
- **Pioneering LNG gas power infrastructure:** The Hai Phong LNG Power Plant project (1,600 MW) with a US$1.52bn investment commenced Phase 1 in 1Q25, targeting a 7% market share of national LNG electricity.
- **Offshore & nearshore wind power hubs:** Implementing "mega-projects" in Tra Vinh (3,000 MW — US$4.5bn) and Quang Binh (3,000 MW — US$3.9bn). Projects in Ha Tinh and Quang Tri are also accelerating investment progress.

APEC PHU QUOC COMPLEX
(Sun Group)

- **Investment scale & strategic role:** Total investment of VND21.86tr on a 16-ha site, hosting high-level diplomatic events for APEC 2027.
- **World-record convention center:** Features a column-free ballroom of 11,050 m^2 (larger than Caesars Forum in Las Vegas), capable of serving 10,000 people and a press center for 4,000 international journalists.
- **Cultural & tech infrastructure:** A multi-functional performance house with 4,094 seats featuring Vietnamese culture and a dragon-scale roof, designed by top US firms such as SOM and Apeiro.
- **Breakneck progress & green connectivity:** Simultaneous completion in early 2027 (10 months ahead of schedule), integrating with the expanded Phu Quoc Airport and the first smart LRT light rail line on the island.

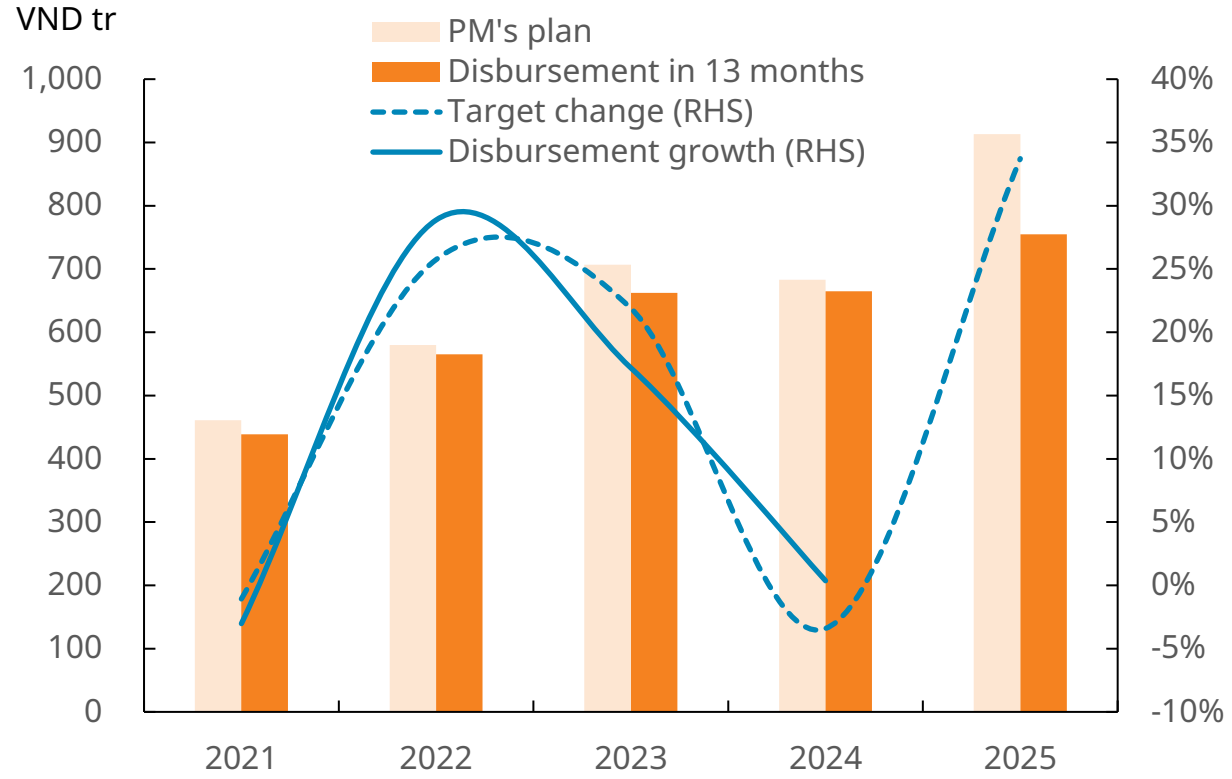
Source: Mirae Asset Securities (Vietnam) Research; compiled from the Vietnam Government Portal, VIC, VinEnergo, and Sun Group.

OVERVIEW OF PUBLIC INVESTMENT DISBURSEMENT IN 2025

Public investment disbursement progress and efficiency

- **As of December 31, 2025,** public investment disbursement **reached VND755tr (82.7% of the plan),** accounting for approximately 18.2% of total social investment capital in 2025 (VND4,150tr). This is higher than the actual implementation of the previous year (VND665tr).
- **Recovery of disbursement capacity:** Actual disbursement value has **recovered from over VND430tr (in 2021) to surpass the VND700tr in 2025.**

Actual public investment disbursement (2021–2025)



Disbursement indicator	2024 (actual)	2025
Total planned capital (VNDtr)	683	905
Actual disbursement value (VNDtr)	665	755 **(updated to Dec. 31)**
Disbursement rate (%)	97%	82.7%

Source: Mirae Asset Securities (Vietnam) Research; compiled from Ministry of Finance

BREAKTHROUGH SCENARIO FOR 2026

Projected public investment of VND1,500tr to support 10% growth target in 2026

Forecast is based on 2025 economic structure as reference framework and applies the **expenditure approach** to analyze the components of GDP, including: final consumption, private investment & FDI, public sector investment, and net exports. Then, the required public investment is estimated to achieve the 10% growth target for 2026.

GDP component	Weight (%)	Growth (%)	Contribution to GDP
Final consumption	63.6%	7.95%	+5.06%
Private investment + FDI	17.8%	9.13%	+1.62%
Net exports (NX)	Ex: 104.72% Im: 110.69%	Ex: 16.27% Im: 17.12%	-1.9%
Public investment	11.62%	?	?

Indicator	Value (VND tr)	Note
Total state investment 2025 (actual)	785	
Total state investment 2026 (projected)	2,200	
Public investment 2026 (projected)	**1,500**	Accounts for 65% of State investment (2024)

Note: All indicators are calculated at 2010 constant prices and then converted into 2026 current prices using a deflator of 1.986, derived from the 2025 GDP deflator and an assumed inflation rate of 4% per year.

To achieve the 10% GDP growth target, after accounting for the contributions of final consumption, private investment, and FDI, and offsetting the decline in net exports, **public investment is expected to contribute 5.22%p to the overall growth rate, representing 44.9% growth.**

The projected public investment scale needs to reach approximately VND1,500tr to fulfill its supporting role, aiming for feasibility of the 10% GDP growth target in 2026.

Source: Mirae Asset Securities (Vietnam) Research; compiled from social-economic situation in the 4th quarter and 2025 and Statistical Yearbook of Vietnam

EVALUATING FACTORS IMPACTING THE GROWTH SCENARIO

Opportunities and risks for forecast

Opportunities:

- **Solid fiscal space:** Creating significant room for expanding public expenditure and stimulating the economy when necessary without exerting pressure on macroeconomic stability.
- **Institutional convergence:** The 2024 Land Law and specific Resolutions (198/2025/QH15, 254/2025/QH15,...) are beginning to "take effect," creating a seamless legal corridor to optimize land clearance and accelerate project progress.
- **Project maturity:** Large projects (Long Thanh Airport, North-South Expressway) are simultaneously entering the completion phase, creating new direct production capacity and contributing significantly to the GDP scale.

Risks:

- **Lower-than-expected public investment disbursement**
- **Cost pressure:** Large-scale implementation creates high demand for raw materials, requiring supply-demand regulation solutions to maintain stable price levels.
- **Absorption and execution capacity:** The increased volume of national work requires synchronization in upgrading the administrative system and strengthening the implementation capacity of domestic contractors.
- **Global variables:** A slow global economic recovery and geopolitical instability could exert pressure on consumption, exports, and services.
- **External factors:** Extreme weather patterns and climate change could disrupt construction progress at key sites; therefore, these must be factored into construction plans to ensure continuous progress.

SYNCHRONIZING THE LEGAL SYSTEM TO SUPPORT PUBLIC INVESTMENT

Previous legal framework

The current state of the public investment legal framework reveals fragmentation across various laws. Regulations governing different stages of the public investment management system highlight the urgent need to strengthen connectivity and synchronization across all management phases.

	Strategic guidance and preliminary screening	Ex-ante evaluation & independent review	Selection & budgeting	Implementation and adjustment	Operations	Ex-post review
Public Investment Law	✓	✓	✓	✓		✓
State Budget Law			✓		✓	
Planning Law	✓					
Environmental Protection Law		✓				
Construction Law		✓		✓		
Land Law		✓		✓		
Law on Management and Use of Public Assets					✓	
Public Procurement Law				✓		

Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank; Overcoming Hurdles for Good Public Investment Management in Viet Nam (Nguyen, Groom, Kim, Le, & Vu, 2024)

SYNCHRONIZING THE LEGAL SYSTEM TO SUPPORT PUBLIC INVESTMENT

Key changes in 2025

Rather than allowing eight separate laws to operate independently, new 2025 policies serve as a "catalyst" to unify the entire process. **The central goal is to simplify procedures and clearly define responsibilities, ensuring the process remains uninterrupted from preparation to implementation.**

Specific document	Previous status	Status from 2025 onward
Law No. 90/2025/QH15	Regulations in the Bidding Law, Public Investment Law, etc., were implemented under separate documents, sometimes lacking compatibility.	Unifies and synchronizes eight relevant laws, creating a consolidated, consistent, and inter-connected coordination process.
Public Investment Law 2024	Land clearance (GPMB) was an item within construction projects; authority to decide on Group B and C projects was centralized at the People's Council.	Separates land clearance into independent projects for early implementation; decentralizes authority to decide on Group B and C projects to People's Committees at all levels.
Decrees 85/2025/NĐ-CP & 275/2025/NĐ-CP	Implementation processes relied on old regulations that required updates to suit the new context.	Establishes a system of detailed, specific guidelines for implementation steps under the new law to create consistency in execution.
Decree 254/2025/NĐ-CP	Final account settlement and post-audit compliance followed existing management processes.	**Standardizes and simplifies the settlement process,** shortening the time for project handover and finalization.
Resolution 70/2025/UBTVQH15	Capital sources were allocated according to criteria from the previous period.	Establishes new allocation levels, prioritizing resources that concentrate on digital infrastructure and key focal projects.
Official Dispatch 16/CĐ-TTg	Project implementation and disbursement operated according to standard annual schedule progress.	**Requirement to accelerate disbursement** from the beginning of the year to promptly put technology infrastructure into operation.
Planning Law (Amended)	Digital infrastructure planning was implemented under separate specialized sectors.	Implements integrated digital infrastructure planning in full alignment with the national master plan.

Source: Mirae Asset Securities (Vietnam) Research; compiled from Official Government Documents

SYNCHRONIZING THE LEGAL SYSTEM TO SUPPORT PUBLIC INVESTMENT

Enhancing implementation capacity and breakthrough technology application

Alongside legal framework improvements, focus is placed on human factors and modernizing management methods to realize economic development goals. The table below summarizes solutions to enhance human resource quality coupled with practical technology applications across new tech sectors:

Specific document	Previous status	Status from 2025 onward
Resolution 158/2024/QH15	Growth and human resource development targets were based on the previous economic context	**Sets growth targets above 8%,** requiring highly specialized human resources to operate large-scale projects
Directive 05/CT-TTg	Public investment management relied on general responsibility regulations	Emphasizes **the role and responsibility of heads of organizations** in enhancing project management efficiency
Land Law 2024	Land management and valuation relied on traditional methods and fragmented data	Applies a digital land database system and new valuation mechanisms to **increase accuracy and transparency in land clearance**
Bidding Law (in Law 90/2025/QH15)	Physical bidding remained dominant; more flexible mechanisms were needed to increase access to advanced technology	Expands the scale of online bidding and **utilizes technology** to evaluate technical and financial capacity for selecting advanced contractors
Atomic Energy Law (Amended)	Focused on basic radiation safety; specialized human resources in advanced nuclear fields remained limited	**Establishes a legal corridor for advanced nuclear technology;** promotes high-level human resource training in new energy sectors

Source: Mirae Asset Securities (Vietnam) Research; compiled from Official Government Documents

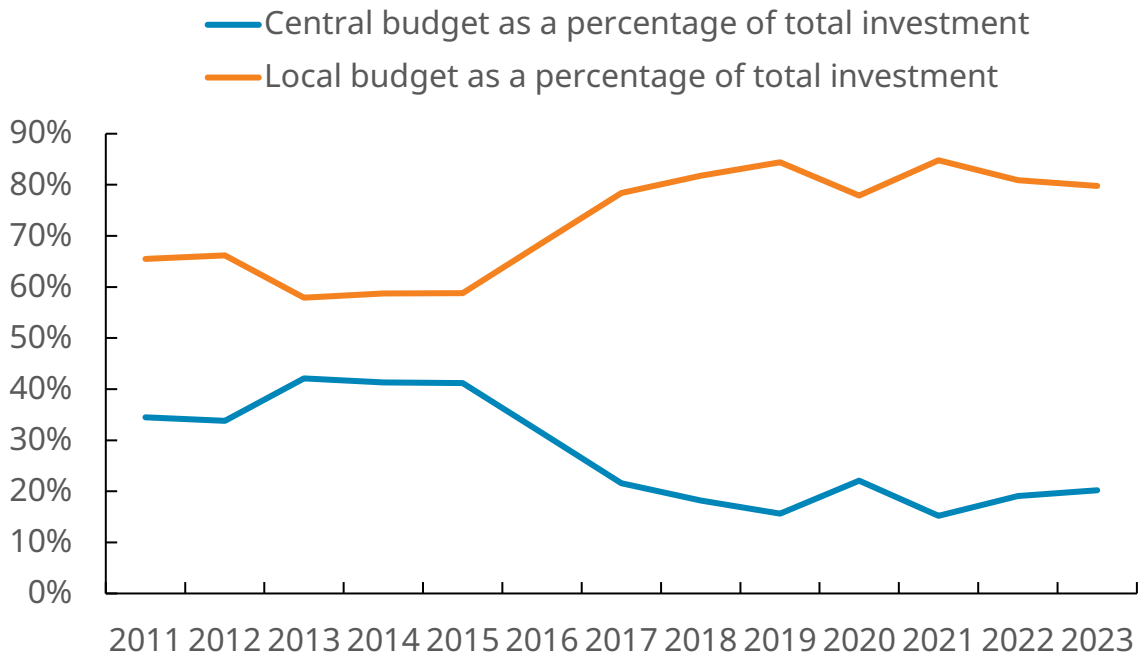
COMPLETING THE ADMINISTRATIVE APPARATUS

The increasing trend of decentralizing public investment to localities

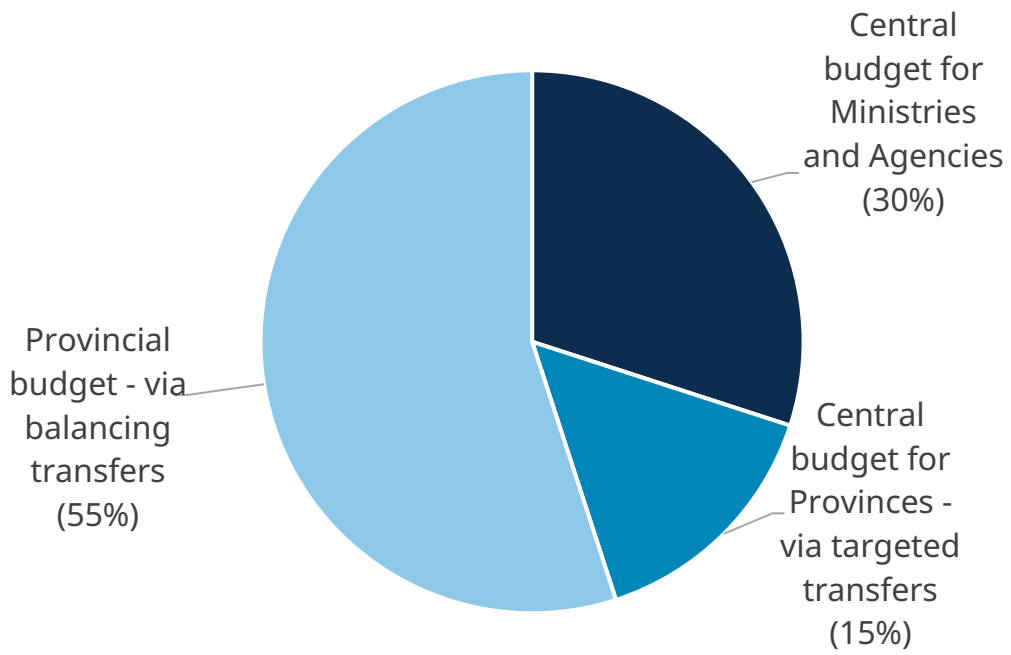
- **Shift trend:** The proportion of local investment increased from 65% (2011) to ~80% (2023), showing the leading role of provinces.
- **2021–2025 structure:** Localities manage 70% of the capital, while the central government holds only 30%.
- **Reality:** Despite holding the majority of spending tasks, localities still face bottlenecks in autonomy, as policy mechanisms and revenue mobilization rights remain centralized at the central level.

=> Administrative merger reform is needed to optimize decentralization, enhance revenue autonomy, and promote more effective regional linkage.

Structure and trends of public investment decentralization in Vietnam



Government public investment allocation by government level 2021–2025



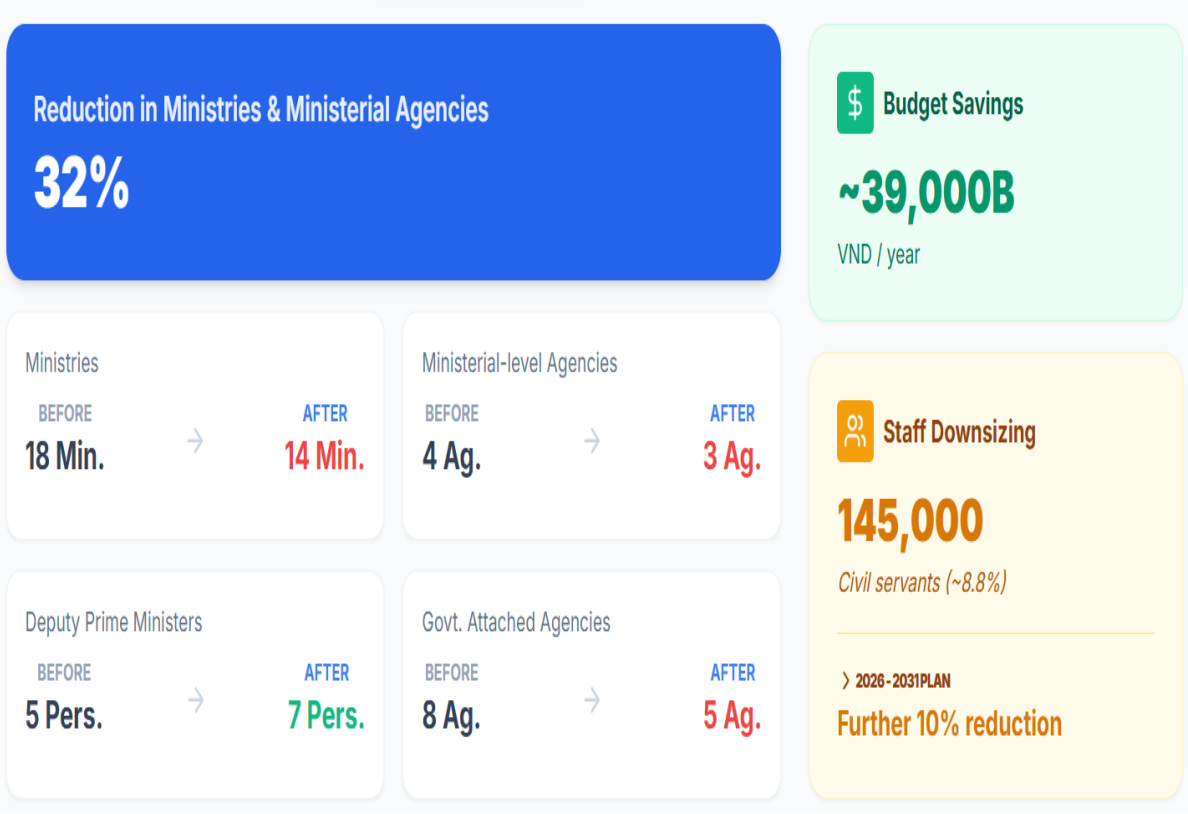
Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank; Ministry of Finance and World Bank staff estimates

COMPLETING THE ADMINISTRATIVE APPARATUS

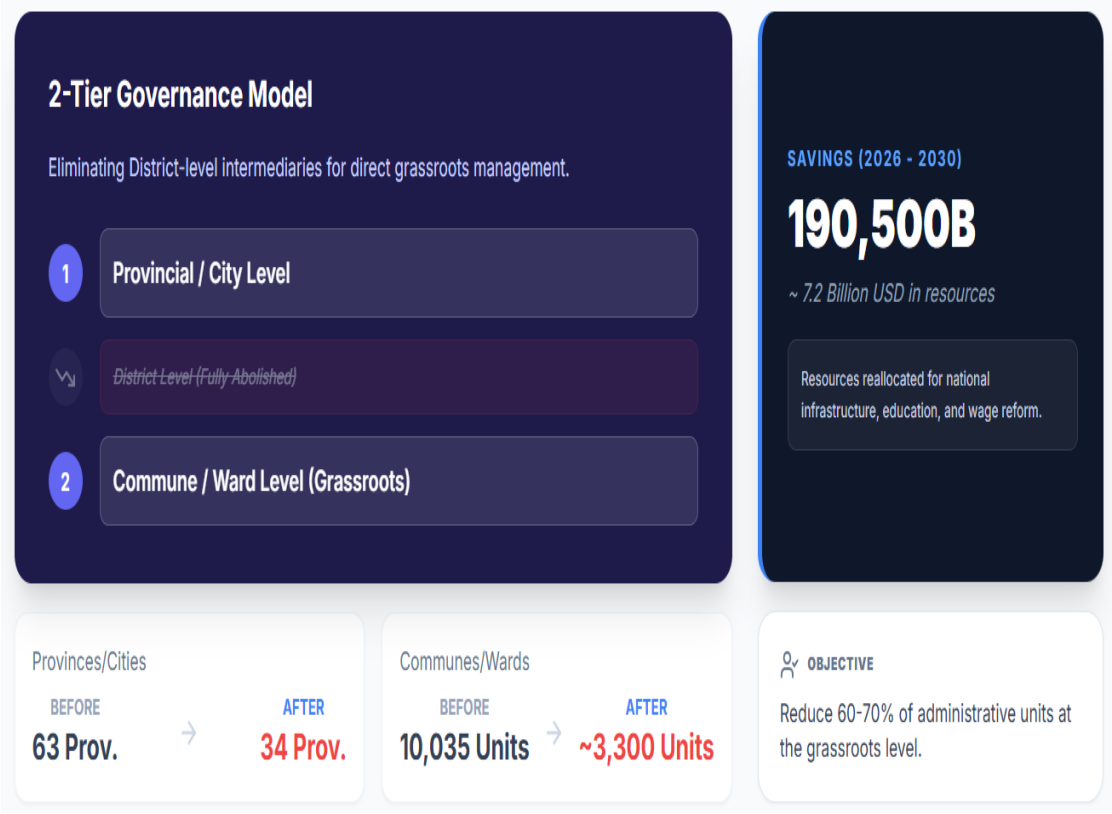
Streamlining 32% of the Central apparatus and restructuring Local government

Apparatus streamlining from the beginning of 2025: Reducing the number of provinces and eliminating the district level is expected to optimize the delegation of authority, harmonize the motivation for inter-provincial cooperation, and enhance budget autonomy for localities.

Central Government



Local Government



Click for details

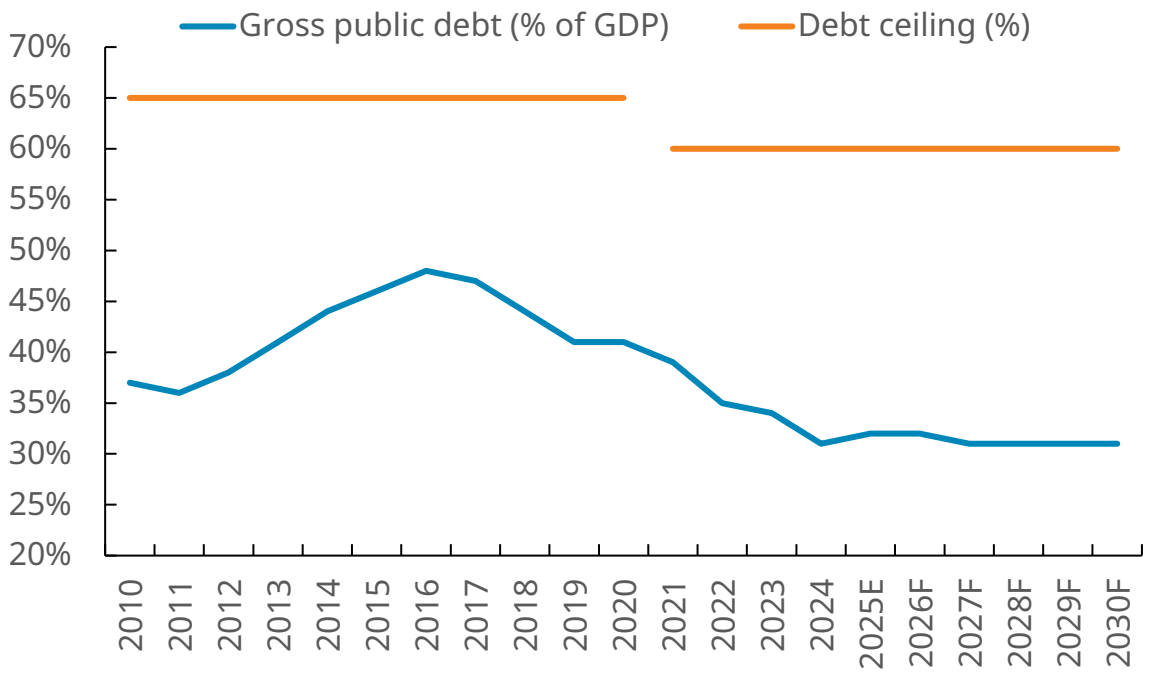
Source: Mirae Asset Securities (Vietnam) Research; compiled from Ministry of Home Affairs

FISCAL SPACE

Optimizing fiscal space and shifting budget expenditure structure

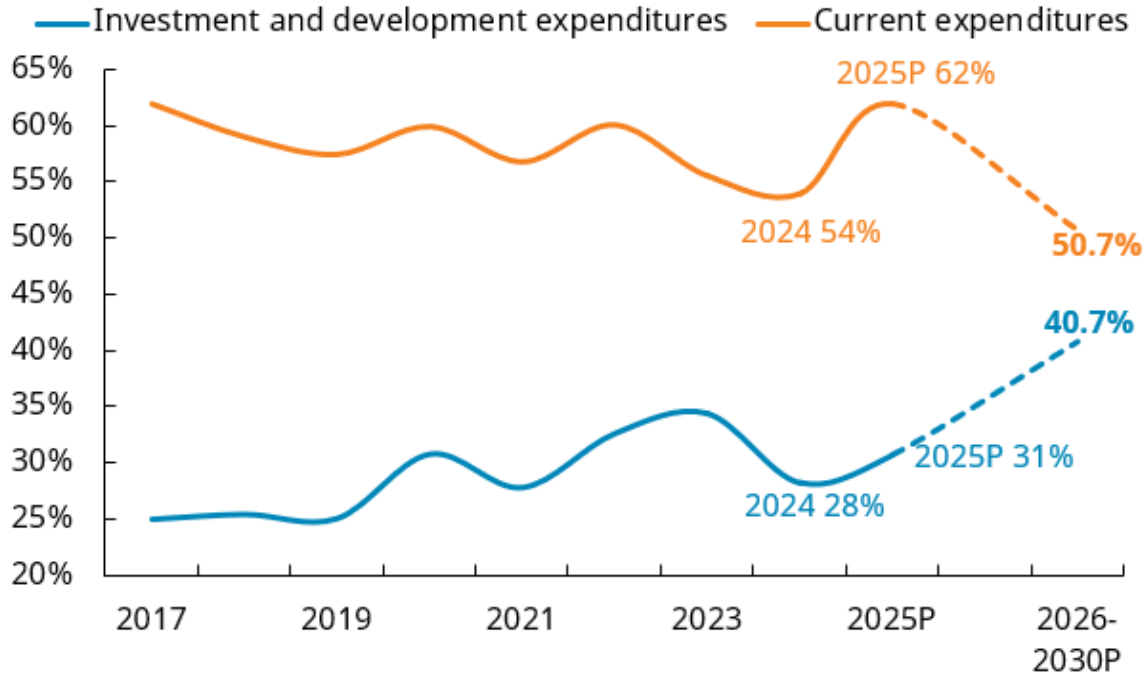
- **Abundant fiscal space:** Public debt is strictly controlled **below the safety threshold (about 35–36% of GDP),** creating space for strategic infrastructure mobilization plans.
- **Optimizing resources from apparatus streamlining:** Cutting 32% of the apparatus helps **save Current expenditures**, pushing the proportion of development investment expenditure to 40.7% in the 2026–2030 period.

Vietnam's public debt/GDP and public debt ceiling



Source: Mirae Asset Securities (Vietnam) Research; compiled from IMF World Economic Outlook (October 2025 Database)

State budget expenditure structure



Source: Mirae Asset Securities (Vietnam) Research; compiled from Ministry of Finance. (*) Projection 2025

Part III

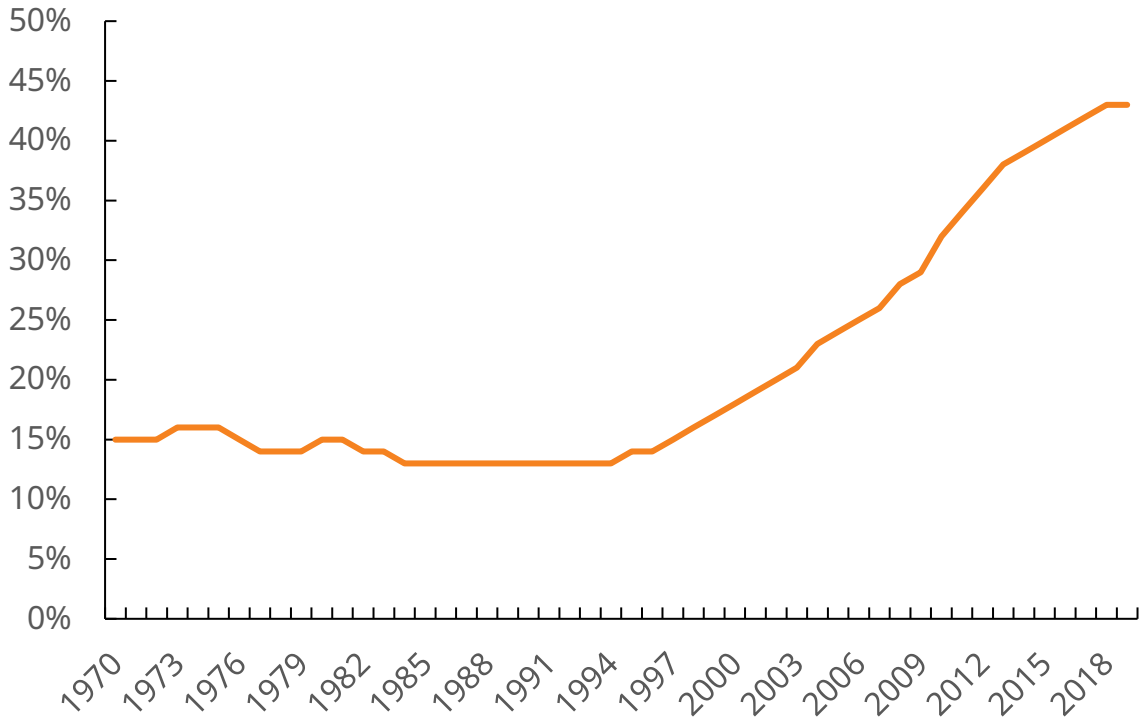
Implementation of key projects

IMPLEMENTATION OF KEY PROJECTS

Objective: Improving logistics costs

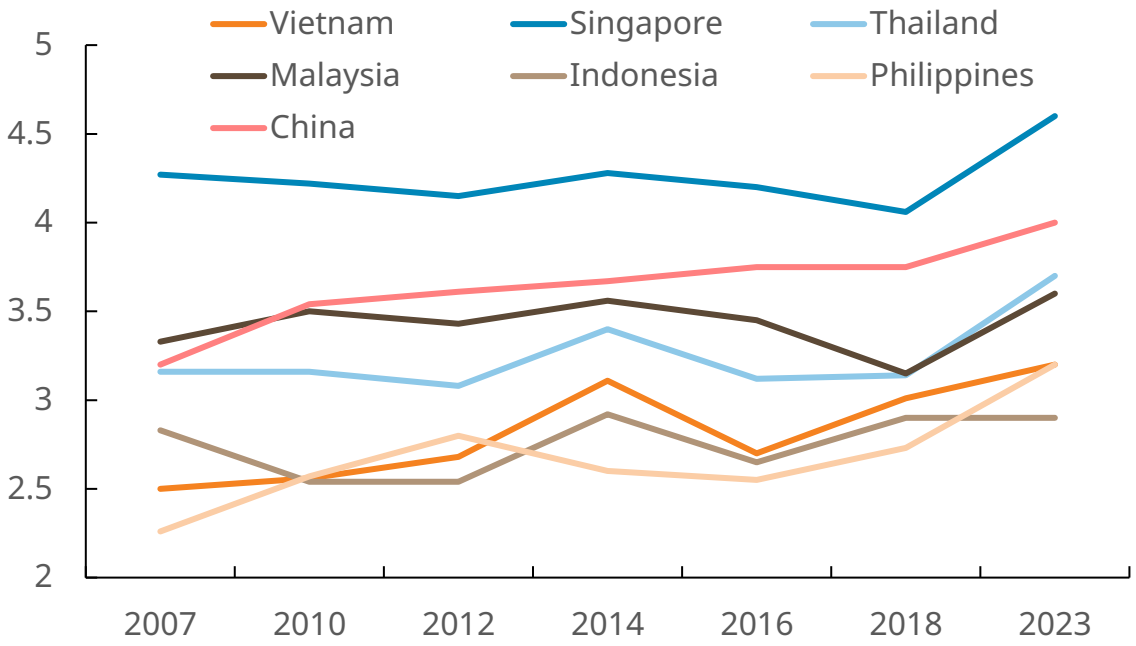
- **Public investment share of GDP increased by an average of 2.17%/year**, helping to directly reduce logistics costs and shorten commodity circulation time for enterprises.
- **Optimizing costs through synchronized infrastructure**: According to the World Bank, logistics costs in Vietnam currently account for 16–20% of GDP, significantly higher than the 10–12% level in developed economies. Continued development of inter-regional infrastructure and Class-I logistics centers as oriented by the Ministry of Construction is the solution to enhance multi-modal transport efficiency and the competitiveness of Vietnamese goods.

Vietnam's public investment to GDP ratio



Source: Mirae Asset Securities (Vietnam) Research; compiled from IMF (ICSD)

Logistics performance index: Quality of trade and transport infrastructure (1=low to 5=high)



Source: Mirae Asset Securities (Vietnam) Research; compiled from World Bank Logistics Performance Index, 2023.

IMPLEMENTATION OF KEY PROJECTS

Transport infrastructure: Roadways

In 2025, **28 key transport projects** are expected to be inaugurated, most notably the North-South expressway axis running from Cao Bang to Ca Mau. This project will bring the total national expressway length to **3,803 km** (including 3,345 km of main routes and 458 km of junctions/feeder roads), while simultaneously **completing 1,586 km of national highways and 1,701 km of coastal roads** to strengthen regional connectivity.

Project name	Length (km)	Total investment (VND tr)	Typical contractor/consortium	Status & estimated progress
North-South Expressway - Phase 2 (East)	723,7	147	Deo Ca, Vinaconex, Son Hai, Truong Son (Binh Doan 12)...	Technical traffic opening of the entire route on Dec. 19, 2025.
Bung - Van Ninh	49	9,361	CIENCO4, 36, Truong Son,..	Official technical traffic opening on Apr. 28, 2025.
Huu Nghi - Chi Lang	60	11	Deo Ca, CIENCO1, CIENCO4...	Route opening (road expansion) on Dec. 19, 2025.
Bai Vot - Vung Ang	89	~17,5	Deo Ca, Vinaconex...	Official completion in Apr. 2025.
HCMC Belt Road 3	76	75,3	Local contractor consortia	Under construction; expected to connect the entire route by 2026.
HCMC Belt Road 4 (Phase 1)	159	122,8	Selecting investors (PPP)	Site clearance completion in 2025; full operation in 2028–2029.
Hanoi Belt Road 4	113	85,8	Sunflower, VEC, Horizon, Cityland	Under construction; full operation in 2027.
Capital Belt Road 5	331	85,6 (2013 price)	Investment phasing	Goal to complete the entire project before 2030.
Gia Binh Airport Connection	27,7	33	Transport Project Management Board	Approved Nov 2025; construction starts in 2026.
Dong Dang - Tra Linh (Phase 2)	26,5	12,1	Deo Ca and partners	Commenced in Aug 2025; completion in 2027.
Hoa Binh - Moc Chau	34	10	Vinaconex, Son Hai,...	Started (Sept. 2024); completion by end-2027.
Cho Moi - Bac Kan	28,8	5,7	Ministry of Transport	Site clearance completion in 2025; traffic opening in 2026.
Ca Mau - Dat Mui	90	50	Under bidding review	Commencement in Aug. 2025; completion in 2028.

Source: Mirae Asset Securities (Vietnam) Research; compiled from the Vietnam Government Portal and the Ministry of Construction (MOC)

IMPLEMENTATION OF KEY PROJECTS

Transport infrastructure: Railways

In 2025, 7 **national railway infrastructure projects have been completed** and inaugurated. The railway sector has basically completed 5 of 10 projects under the medium-term public investment plan, while simultaneously **eliminating 436 dangerous self-opened crossings** to ensure traffic safety. Following the storm seasons, the entire railway network has also been repaired and fully reopened to traffic.

Project name	Length (km)	Total investment (VND tr)	Typical contractor/consortium	Status & estimated progress
Lao Cai - Hanoi - Hai Phong (Connecting with China)	418,8	~203,2	Contractor selection from Sept. 2026–Dec. 2026 for Phase 2	Complete Component Project 1 synchronously with Phase 2 by 2030 at the latest.
North-South High-Speed Railway	1.541	1.714	Interest from Thaco	Commencement in 2026; completion goal by 2035.
HCMC - Can Tho Railway	89	238,6	No official contractor yet. CT Group proposes PPP investment	Research and planning being accelerated, goal to start construction around 2027–2028 and operate by 2035.
HCMC - Loc Ninh Railway (Bau Bang - Di An section)	52	64	Under research	On June 24, 2025, Binh Duong Provincial People's Committee established an Internal Appraisal Council for the Di An - Bau Bang section.
Bien Hoa - Vung Tau Railway	122,7	21,6	Truong Son, Trung Nam E&C	Ensure technical traffic opening for Component Project 1 before Jan. 15, 2026.
Hanoi - Quang Ninh Railway	120	139,8	No official contractor yet	VinSpeed submits policy proposal in 4Q25; operation in 1Q28.
Thu Thiem - Long Thanh Railway	42	90	Completion of contractor selection in 4Q26	Policy proposal in 10/2025.

Source: Mirae Asset Securities (Vietnam) Research; compiled from the Vietnam Government Portal and the Ministry of Construction (MOC)

IMPLEMENTATION OF KEY PROJECTS

Overview of Lao Cai - Hanoi - Hai Phong railway project

Scope & strategy	Contractor strategy	Core tasks	Economic impact
Length & connectivity: Total investment of nearly **VND200tr**, approximately **417 km long;** connecting from Lao Cai (China border) through Hanoi to Lach Huyen Port (Hai Phong).	**Model:** Consortium of 4–5 major contractors from China & Vietnam.	**Infrastructure design:** Complete the survey and design for the remaining 16 stations belonging to Component Project 1 within early-2026.	**Logistics:** Reduce transport costs by 20–30% compared with roadways.
Technical: 1,435mm gauge, electrified, multi-purpose (passenger/freight), design speed of 120–160 km/h.	**Requirements:** Strong financial capacity, experience in high-speed railways.	**Site clearance:** Coordinate closely with localities to ensure land handover to contractors on schedule.	**Regional development:** Attract industrial zone investment, shorten travel time..
Significance: Gateway to the sea for Southwest China; Kunming - Hai Phong corridor.	**Transfer:** Access standard gauge technology & cross-border rail connection techniques.	**Technical handling:** Decisively resolve intersections with existing local works so the consortium's construction progress is not delayed.	**Promote localization:** Technology transfer helps Vietnam master the production and maintenance of modern systems.

Project timeline:

Dec. 2025: Commencement of 5 key stations (Component Project 1)

Jan. 2026: Complete design consultancy for Component Project 2

Before Jan. 20, 2026: Sign agreement to review China's standards

1Q26: Complete selection of construction contractors for entire route

Mar. 2026: Complete feasibility study (FS) report and sign border rail connection agreement

2030 goal: Full operation of technical infrastructure

Source: Mirae Asset Securities (Vietnam) Research; compiled from the Vietnam Government Portal

IMPLEMENTATION OF KEY PROJECTS

Vietnam's Northern Economic Artery: The Lao Cai - Hai Phong Railway



Strategic Importance

Connects an Economic Corridor
Vital link in the Kunming-Lao Cai-Hanoi-Hai Phong corridor

A Gateway to the Sea
Direct, high-capacity rail link to deep-water Lach Huyen Port

Multi-Modal Transport System
Integrates passenger and freight for efficient transport

Project at a Glance

416.8 km Total Length
Comprises a 389.1 km main line and 27.7 km of branch lines

~183,221 Billion VND
Total estimated investment for construction

160 km/h Top Speed
Passenger trains; freight up to 120 km/h

Standard Gauge Track
1,435 mm, aligning with international standards

Completion by 2030
Operational by the end of the decade

Route & Major Hubs

21 Main Stations
Handle both passenger and freight services

11 Technical Stops
Exclusively for passing and maintenance

AMENDED RAILWAY LAW NO. 95/2025/QH15

Mechanisms to promote the Lao Cai - Hanoi - Hai Phong railway project

Content	Details	Legal basis
Planning & gauge	**Applying standard 1,435 mm gauge** for newly-built national railways to ensure international connectivity.	Article 8, Article 15
Shortening progress	**Allowing front-end engineering design (FEED) to replace basic design;** investors can self-approve technical design steps after FEED to accelerate construction.	Article 27, Article 56
TOD mechanism (transit oriented development)	**Allowing railway station planning as hubs for population concentration, commercial business, and office services to generate revenue.**	Article 3, Article 15
Re-investment mechanism	Localities are allowed to **retain 50% of revenue** from land fund exploitation around national railway stations to reinvest in the project.	Article 25
Site clearance	**Allowing the separation of compensation, support, and resettlement into independent component projects for advance implementation.**	Articles 23, 24, 34
Capital mobilization	**Prioritized budget allocation;** government guarantees for loan capital; exemption/reduction of land use fees for participating enterprises.	Article 5
Technology transfer	Mandatory for foreign contractors to **commit to technology transfer** and human resource training so Vietnam can master operation and maintenance.	Article 37
Contractor selection	**Direct appointment or limited bidding is permitted for important construction, installation, and consultancy packages (EPC, EC, EP).**	Articles 24, 31, 34
Tax incentives	Enterprises investing in the railway industry enjoy **corporate income tax incentives and import duty exemptions for equipment.**	Article 5, Article 39

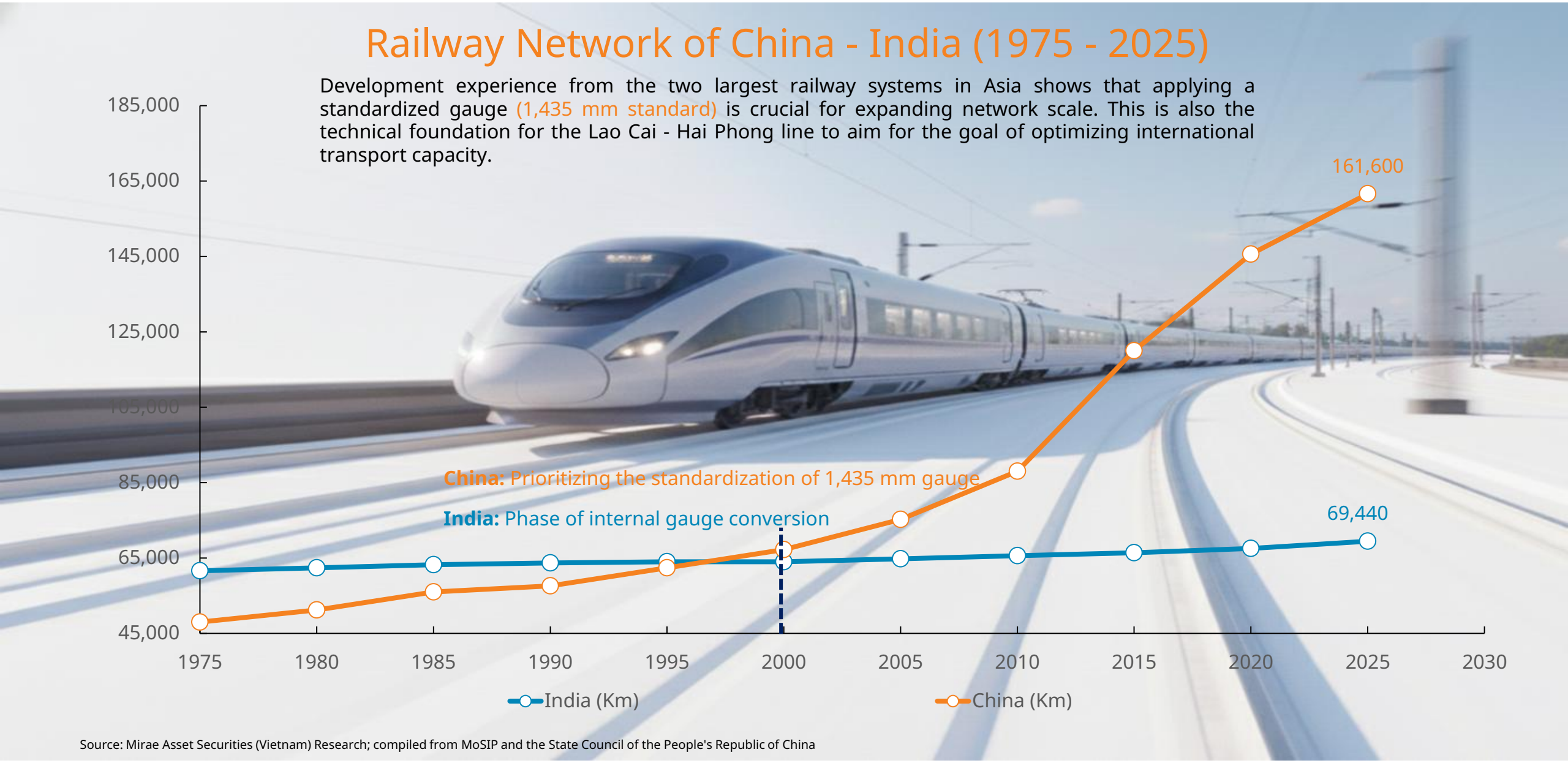
Feasibility: The implementation of the Lao Cai - Hanoi - Hai Phong railway project is currently highly feasible, thanks to the synchronization between the new legal framework of Railway Law No. 95/2025/QH15 and the national infrastructure connectivity strategy.

Source: Mirae Asset Securities (Vietnam) Research; compiled from Law No. 95/2025/QH15

EVOLUTION OF RAILWAY SYSTEM SCALE THROUGH DECADES

Railway Network of China - India (1975 - 2025)

Development experience from the two largest railway systems in Asia shows that applying a standardized gauge (1,435 mm standard) is crucial for expanding network scale. This is also the technical foundation for the Lao Cai - Hai Phong line to aim for the goal of optimizing international transport capacity.



Source: Mirae Asset Securities (Vietnam) Research; compiled from MoSIP and the State Council of the People's Republic of China

IMPLEMENTATION OF KEY PROJECTS

Transport Infrastructure: Seaways

In 2025, Vietnam's seaport infrastructure total capacity reached **900 million tons/year**, a 1.3-fold increase compared to 2020. The strategic highlight is the commencement of operations at **berths 3, 4, 5, and 6 of Lach Huyen Port**, alongside the completion of maritime channel upgrades in key areas such as Quy Nhon and Cai Mep - Thi Vai. Additionally, **7 out of 11 bridges** under the clearance height improvement project have been completed.

Corridor	Project Name	Investment / Capacity	Connectivity Infrastructure
Northern	Lach Huyen Port (Berths 3-8)	VND13.3tr investment; Completion: 2025-2027; 160,000 DWT vessels	Hanoi - Hai Phong Expressway & Lao Cai - Hai Phong Railway
	Nam Do Son Super Port	US$14bn investment; Vision: 42mn TEUs/year	Coastal Corridor: Quy Nhon - Hai Phong - Thai Binh
Central	Lien Chieu Port & FTZ	US$1.74bn investment; Gateway to the East-West Corridor	East-West Economic Corridor (EWEC)
	Chu Lai Logistics Hub	Automotive logistics capital; Connecting to Southern Laos	Danang - Quang Ngai Expressway & Nam Giang Border Gate
	Quy Nhon Port	Capacity expansion to 18mn tons/year	National Highway 19 & Central Highlands Region
Southern	Can Gio Super Port	US$4.8bn investment; MSC Group Joint Venture (Switzerland)	Inter-port Road System & Belt Road 4
	Cai Mep Ha (FTZ Center)	10.8mn TEUs capacity; Top 20 world ports ranking	Dedicated Port Railway & Bien Hoa - Vung Tau Expressway

Source: Mirae Asset Securities (Vietnam) Research; compiled from the Vietnam Government Portal and the Ministry of Construction (MOC)

Click for details

IMPLEMENTATION OF KEY PROJECTS

Scale & zonation (3,800 ha)

- **Zone 1 (1,735 ha):** Seaport hub & Cai Mep Ha Railway Station (Bien Hoa - Vung Tau line).
- **Zone 2 (1,178 ha):** Large-scale Logistics center & goods distribution warehouse.
- **Zone 3 (850 ha):** High-tech, green urban area, and carbon credit development.

"4-in-1" multi-modal infrastructure

- **Railway:** A 9.1 km branch connecting directly to the Cai Mep Ha Logistics area.
- **Roadway:** Connecting to National Highway 51 (QL51) and the Bien Hoa - Vung Tau expressway.
- **Airway:** Connection to Long Thanh International Airport within 30 minutes.
- **Seaway:** Opening inland seaway transport routes to the Mekong Delta & Cambodia.

Cai Mep Ha

(including 17 berths with a total length of approximately 5.9 km, excluding feeder barge berths)

Position & Ecosystem

- **Transshipment:** Motherships sailing directly to Europe and America (without transshipment ports).
- **Urbanization:** Promoting the development of Phu My Town & Chau Duc District into a port-service complex.
- **Special Zone:** Establishing a Free Trade Zone (FTZ) according to Resolution 98.

Investors & Strategy

- **Investors:** A consortium of 3 investors, including Geleximco Group - ITC International Transportation and Trading JSC, and State Capital Investment Corporation (SCIC).
- **Total Investment: VND50.82tr**
- **Objective:** To be an international transshipment gateway capable of receiving 250,000-ton vessels with a capacity of 10.8mn TEUs/year.

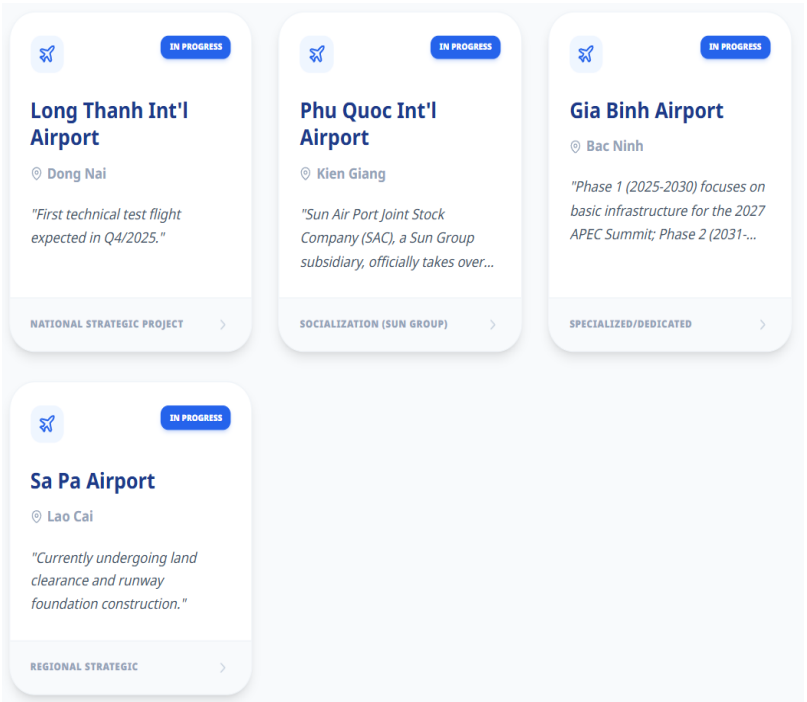
Source: Mirae Asset Securities (Vietnam) Research; compiled from the Vietnam Government Portal and the Ministry of Construction (MOC)

IMPLEMENTATION OF KEY PROJECTS

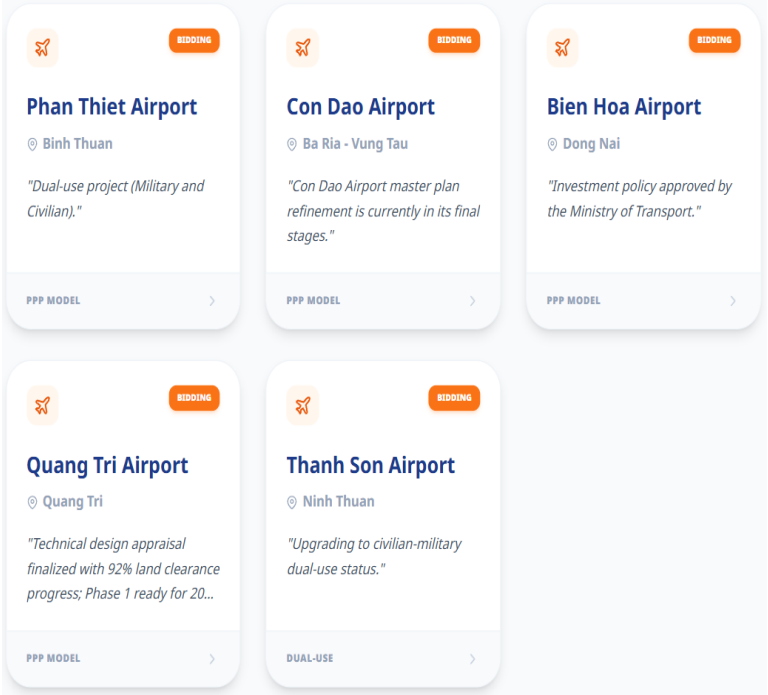
Transport infrastructure: Airways

- The most significant highlight is Long Thanh International Airport officially receiving its **first technical flight on December 19, 2025**, providing a direct connection to the Cai Mep Ha super-port.
- Simultaneously, the completion of Terminal T3 at Tan Son Nhat and the expansion of Terminal T2 at Noi Bai has brought the total national passenger capacity to **155mn passengers/year**, a 1.6-fold increase compared with 2020. Additionally**, 100% biometric technology and VNeID are being applied at all airports.**

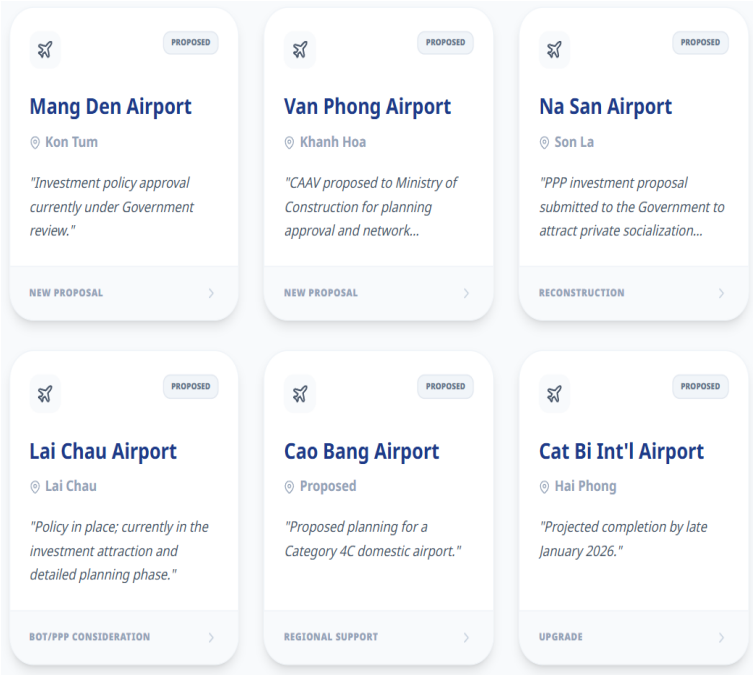
In progress



Bidding



Proposed



Source: Mirae Asset Securities (Vietnam) Research; compiled from the Vietnam Government Portal and the Ministry of Transport (MOT)

Click for details

IMPLEMENTATION OF KEY PROJECTS

Overview of Long Thanh International Airport super-project

Scale & position

- **Investment: US$16bn (all phases).**
- **Airport City:** 43,000 ha in Dong Nai.
- **Capacity:** 100mn passengers/year and 5mn tons of cargo/year.
- **4F Infrastructure:** 4,000 m runway; 373,000 m^2 lotus-shaped terminal.
- **Position:** Designed to become the largest international air transshipment hub in Vietnam and the region.

Progress & capacity (roadmap)

- **Milestone, Dec. 19, 2025:** Receiving technical flights and inaugurating key projects.
- **Phase 1 (Operation 2026):** US$5.45bn capital; serving 25mn passengers/year and 1.2mn tons of cargo/year.
- **Phase 2 (2028–2032):** Total investment of VND80tr.
- **Construction spirit:** Maintaining "work through holidays, work through Tet" to ensure progress.

Multi-modal connectivity (logistics)

- **Roadway:** Two routes connecting T1, T2 to National Highway 51 (QL51) and the HCMC - Long Thanh - Dau Giay expressway.
- **Railway:** Direct connection to the North-South High-Speed Railway and the Thu Thiem - Long Thanh line.
- **"Air - Sea - Road" Chain:** Close linkage with the Cai Mep - Thi Vai port complex via the Bien Hoa - Vung Tau expressway.

Socio-economic impacts:

- **Regional economic leverage:** Boosting growth for the Dong Nai - Ba Ria Vung Tau - HCMC economic triangle.
- **Real estate market:** Activating a new growth cycle for suburban areas, especially Vung Tau and satellite urban areas around the airport.
- **Digital technology:** 100% of airport operational processes are integrated with biometric technology and VNeID electronic identification from the very first day of operation.

Source: Mirae Asset Securities (Vietnam) Research; compiled from Feasibility Study Report for Long Thành International Airport Construction Project - Phase 1 and the Vietnam Government Portal

IMPLEMENTATION OF KEY PROJECTS

LONG THANH INTERNATIONAL AIRPORT SUPER-PROJECT

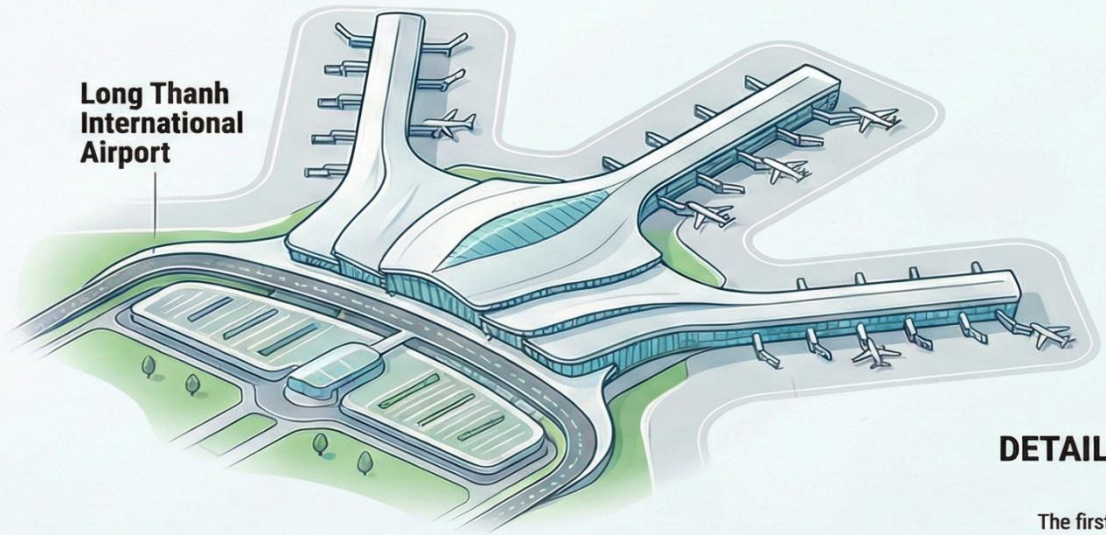
A new international airport project envisioned as a super-project.

PROJECT VISION & SCALE

16 billion USD
Total Investment Capital for the project.

Strategic Vision:
An international transshipment hub

A key goal is to develop an "Airport City" covering **43,000 ha.**



IMPLEMENTATION ROADMAP

December 19, 2025
Inauguration of key components & Technical flight.

Late 2026
Official commencement of commercial operations.

2023 – 2032 Period
Commencement of Phase 2.

PROJECTED CAPACITY

100 million passengers/year
The whole capacity for passenger traffic upon full completion

5 million tons of cargo/year
The whole capacity for cargo handling upon full completion

Phase 1 Capacity
25 million passengers/year
1.2 million tons of cargo/year

The initial phase will handle 25 million passengers/year and 1.2 million tons of cargo/year.

MULTI-MODAL CONNECTIVITY SYSTEM

Synchronized Transport Network

The project is integrated into a comprehensive connectivity system.

Roadway
HCMC – Long Thanh – Dau Giay Expressway and National Highway 51 (QL51)

Railway
North-South High-Speed Railway.

Waterway
Connectivity to the Cai Mep Ha seaport complex.

DETAILS OF PHASE 1 COMPONENT PROJECTS

Phase 1 Sub-Projects

The first phase is broken down into four primary component projects with distinct investors and purposes.

PROJECT 1	PROJECT 2	PROJECT 3	PROJECT 4
Headquarters for State Management Agencies	Air Traffic Management Tower (ATC Tower)	Core Infrastructure & Cargo Terminal No. 1	Supplemental Aviation Services
293.26 Billion VND	3,435.25 Billion VND	99,625.02 Billion VND	6,363.97 Billion VND
Government Agencies or PPP	VATM	ACV (Airports Corporation of Vietnam)	Ministry of Transport

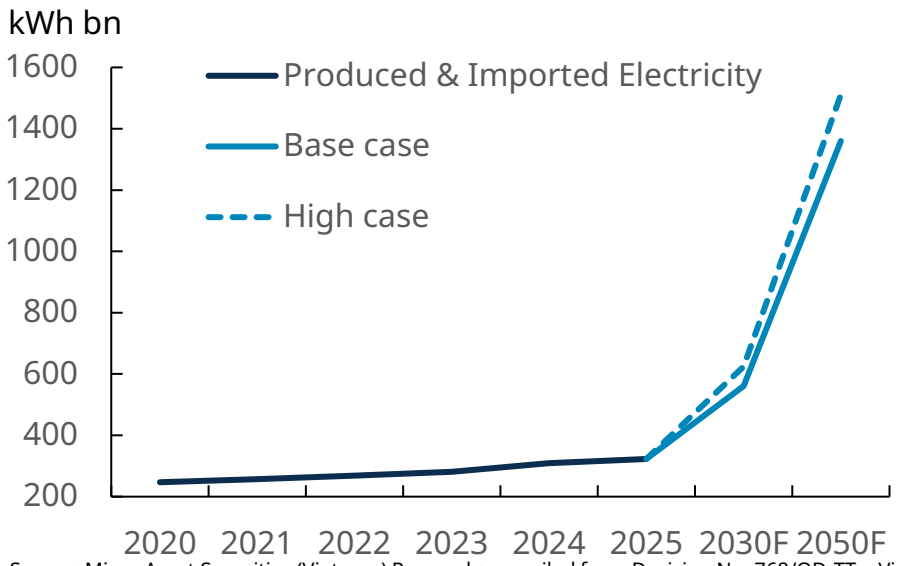
ENERGY SECURITY FOR THE DIGITAL ECONOMY

Requirements for Data centers and the Semiconductor industry in Vietnam

- To meet the high computing demands of AI technology, data centers and the semiconductor industry in Vietnam will require **large-scale power consumption capacity.**
- According to IEA forecasts, the share of electricity consumption by artificial intelligence (AI) in data centers will increase from 8% (2023) to approximately 15–20% by 2028.
- Mr. Bui Quang Xuan (Chairman of VDCC - Vietnam AI Research and Application Center) pointed out 3 core requirements :

Extreme power consumption

Power capacity: Previously, 1 rack required 4–6 kW; now it can reach 30–120 kW. Specifically, high-intensity AI applications can exceed 500 kW.



Improving technical mechanisms & standards

- **Improving regulations and guidelines** on Power Usage Effectiveness (PUE) and carbon emission control to approach international standards.
- **Strengthening renewable energy connectivity:** Implementing Direct Power Purchase Agreements (DPPA) to facilitate foreign investors' access to clean energy sources.

Challenges in battery energy storage systems (BESS)

- **Requirement for stability:** Due to the volatile nature of renewable energy, developing BESS is a necessary condition to ensure clean, continuous 24/7 power for specialized fields like semiconductors and Data Centers.
- **Upgrading integrated infrastructure:** Need to modernize the smart grid to optimize the charging/discharging capacity of BESS.

Smart grid is an intelligent power network that allows for two-way energy and data exchange, helping the system automatically detect incidents and easily connect various clean energy sources.

Source: Mirae Asset Securities (Vietnam) Research; compiled from Decision No. 768/QD-TTg, Vietnam Electricity (EVN) and Vietnam's Energy Sector

NEW DECREE ON DPPA PRICE MECHANISM

Optimizing clean energy sources for enterprises

On March 3, 2025, the government officially issued Decree 57/2025/ND-CP (replacing Decree 80/2024) to complete the legal corridor for Direct Power Purchase Agreements (DPPA). This new decree is expected to unlock resources for over 1,500 large customers — a group accounting for 1/4 of total national electricity consumption — facilitating access to renewable energy and the realization of Net Zero goals.



Rooftop solar benefits

- **Surplus electricity mechanism:** Allowing the sale of up to 20% of surplus output to EVN.
- **Clear legal framework:** Resolving the previous lack of specific guidance.



Expanding power source scale

- **Hydropower:** Removing capacity limits, applicable to all power plant types.
- **New energy:** Adding biomass power to the DPPA list via the national grid (alongside wind and solar over 10 MW).



Customer conditions & management

Standards: Replacing the 200,000 kWh/month consumption threshold with flexible Ministry of Industry and Trade regulations.

Operational: Between EPTC and NSMO to ensure safe grid operation.

Impact: Decree 57 helps businesses more easily achieve green certificates (RE100), minimizes carbon tax pressure (CBAM) when exporting to high-standard markets, and reduces long-term energy cost pressure.

Source: Mirae Asset Securities (Vietnam) Research; compiled from Decree No. 57/2025/ND-CP

"GUIDING STAR" FROM RESOLUTION 70-NQ/TW (08/2025)

National Energy Strategy orientation toward 2030

Quantitative targets

• Renewable energy sources (excluding hydropower) to reach a share of **approximately 28–36%** by 2030; orientation toward 2050 **targets a share of 74–75%.**

• **Greenhouse gas emissions reduction:** Decrease by **15–35%** compared with the business-as-usual (BAU) scenario.

• **Energy saving:** Reach a level of **8–10%** of total final energy consumption.

• **Clean power output:** Within a total output of **560–624bn kWh**, prioritize maximizing mobilization from wind and solar sources.

• **LNG infrastructure:** Developing sufficient capacity to import Liquefied Natural Gas (LNG); forming harmonized regional LNG energy centers.

• **Reliability & access:** Power supply reliability and electricity access index to be within **the top-3 leading ASEAN countries.**

Special priority energy groups

• **Offshore wind:** The resolution calls for immediate removal of legal "bottlenecks" to deploy large-scale projects.

• **Rooftop solar:** Strongly encouraging the "self-production and self-consumption" model (used on-site, not sold to the grid or with limited sale) to reduce pressure on the transmission system.

• **Nuclear power:** Affirming the research and development of nuclear power as a clean baseload source to gradually replace coal-fired power.

• **Gas power (LNG):** Developing modern LNG thermal power hubs, considering this a vital "buffer energy source" during the energy transition process.

Core strategic solutions

• **DPPA mechanism**: Implementing the direct power purchase model to innovate pricing mechanisms and allow enterprises to proactively choose clean energy partners.

• **BESS system:** Investing in large-scale battery storage stations (10,000–16,300 MW) to overcome the instability of wind and solar power and stabilize the grid.

• **Market price & carbon:** Eliminating cross-subsidies, applying green electricity pricing, and forming a carbon credit market to increase clean energy revenue for enterprises.

• **Smart grid:** Upgrading Smart Grid infrastructure and attracting private investment in transmission to effectively absorb large-scale renewable energy sources.

Source: Mirae Asset Securities (Vietnam) Research; compiled from Resolution No. 70-NQ/TW

" GUIDING STAR" FROM RESOLUTION 70-NQ/TW (08/2025)

Key changes in Resolution 70-NQ/TW

Category	Before Resolution 70	After Resolution 70
Pricing & finance	• Retail price structure needs comprehensive reform to reflect actual costs • Persistent cross-subsidization of electricity prices between customer groups • Incomplete renewable energy mechanisms to optimize FDI attraction	• Apply two-part electricity tariffs (capacity and energy) to accurately reflect market value • Gradually replace current mechanisms to ensure fairness and transparency in cost allocation • Improve Internal Rate of Return (IRR), attracting green investment funds and long-term capital into the energy sector
Retail market	• EVN holds a monopoly in distribution and retail; consumers lack choice • Lack of legal framework for direct electricity purchase without intermediaries	• Consumers are empowered to proactively choose suitable electricity suppliers • Officially issue the Direct Power Purchase Agreement (DPPA) mechanism, allowing generators to sell directly to end-users
Infrastructure & private sector	• State-owned enterprises (EVN, PVN, TKV) bear most stages; private investment remains modest • EVNNPT/NSMO are the sole entities managing and operating transmission infrastructure	• State focuses on the leading role in transmission and nuclear power • Legalize private investment in transmission infrastructure and expansion into the LNG segment
Administrative procedures	• Project approval processes, especially in oil and gas, face time lags due to current decentralization regulations • Implementation progress of oil and gas projects heavily depends on long approval cycles and management levels	• Commit to reducing administrative compliance time and costs by 30–50% • Strongly decentralize to corporations (e.g., PVN) to self-approve exploration and production projects
Supply structure	• Heavy reliance on traditional fossil fuels (coal, oil) • Nuclear power projects suspended since 2016 • Renewable energy share remains modest (approximately 15–20%)	• Diversify supply sources with LNG, offshore wind, and hydrogen • Restart and strongly develop nuclear power in the 2030–2035 period • Raise renewable energy target to 25–30% of total supply by 2030

Source: Mirae Asset Securities (Vietnam) Research; compiled from Resolution No. 70-NQ/TW

"GUIDING STAR" FROM RESOLUTION 70-NQ/TW (08/2025)

Resolution 70 promotes the implementation of the Amended Electricity Law and Adjusted Power Development Plan VIII (Decision 768/QĐ-TTg)

Criteria	Power Development Plan VIII	Adjusted Power Development Plan VIII - Decision 768/QĐ-TTg
GDP scenario	Forecast growth of 6.5–7%	Raised to **~10%/year.**
Offshore wind	Fixed target of 6,000 MW by 2030	Focused breakthrough development with a **target of 6,000–17,032 MW** by 2030 and aiming for clean energy exports to regional countries
Rooftop Solar	Allocated additional capacity of approximately 2,600 MW for regions	Prioritize **self-production and self-consumption** models with a target of 50% of office buildings and residential houses using it for on-site consumption by 2030
LNG power	Total LNG power capacity is 22,400 MW	Develop synchronized and modern LNG import infrastructure **to reach a scale of 22,524 MW by 2030**, playing a role as a crucial backup power source
Nuclear power	Not yet included in specific implementation plans	Restart research and commission **Ninh Thuan 1 & 2 plants with a scale of 4,000–6,400 MW in the 2030–2035 period** as a clean baseload power source
Transmission grid	Focused on traditional 500 kV–220 kV grids	**Construct HVDC (High Voltage Direct Current) axes; ASEAN grid connectivity**
Energy storage	Small scale (approximately 300 MW)	Develop to **10,000–16,300 MW** (BESS/pumped-storage hydropower)

Source: Mirae Asset Securities (Vietnam) Research; compiled from Power Development Plan VIII and Adjusted Power Development Plan VIII(Decision 768/QĐ-TTg)

GOVERNMENT'S DETERMINATION TO IMPLEMENT KEY PROJECTS

Mega LNG projects shaping the future energy landscape

2024–2025: Investment preparation & infrastructure disbursement phase (strongest public investment capital flow)

2025–2030 Operational Phase: LNG Quang Ninh, LNG Thai Binh, LNG Quang Trach II, LNG Hai Lang Phase 1, Nhon Trach 3 & 4 Power Plants, LNG Hiep Phuoc Phase I, LNG Long An I, BOT Son My I Power Plant, BOT Son My II Power Plant, LNG Bac Lieu, LNG Nghi Son, LNG Ca Na, LNG Quynh Lap, LNG Hai Phong Phase I, LNG Hiep Phuoc Phase II with **expected capacity from 1,500 MW–3,200 MW**

2031–2035 Operational Phase (New Projects & Conversion): LNG Long Son, LNG Long An II, LNG Cong Thanh, LNG Hai Phong Phase II, LNG Vung Ang III, LNG Quang Trach III with **expected capacity from 1,500 MW – 3,200 MW**

- **Additionally, list of backup LNG thermal power plants for development (2031–2035):** LNG Quang Ninh 2, LNG Thai Binh Phase 2, LNG Hoa Ninh Phase I, LNG Thanh Hoa, Expansion of Ca Mau 1 & 2 thermal power plants with expected capacity of 1,500 MW
- Notably, the Nhon Trach 3 & 4 thermal power plant cluster with a total investment of US$1.4bn is a flagship project expected to commence operations on January 1, 2026

Source: Mirae Asset Securities (Vietnam) Research; compiled from Appendix III.1 attached to Decision No. 768/QD-TTg

GOVERNMENT'S DETERMINATION TO IMPLEMENT KEY PROJECTS

Nuclear power – Pillar of national security

2024: National Assembly agreed to maintain licenses

1Q25: Establish steering committee & specific mechanisms

2Q25: Assign EVN & PVN as investors; pass Atomic Energy Law

End-2025: Complete land clearance

2025–2027:

- Technical phase & technology selection (Russia/Japan/USA)
- Finalize research reports and technical design dossiers

2028: Issue construction permits

2028 - 2035: Construction & Operation.

Ninh Thuan 1	Ninh Thuan 2
Capacity: 2,000–3,200 MW **Investment: US$11bn** **Expected operation:** 2030–2035 (according to Adjusted Power Development Plan VIII) **Ownership:** State-owned	**Capacity:** 2,000–3,200 MW **Investment:** US$11 bn **Expected operation:** 2030–2035 (according to Adjusted Power Development Plan VIII) **Ownership:** State-owned

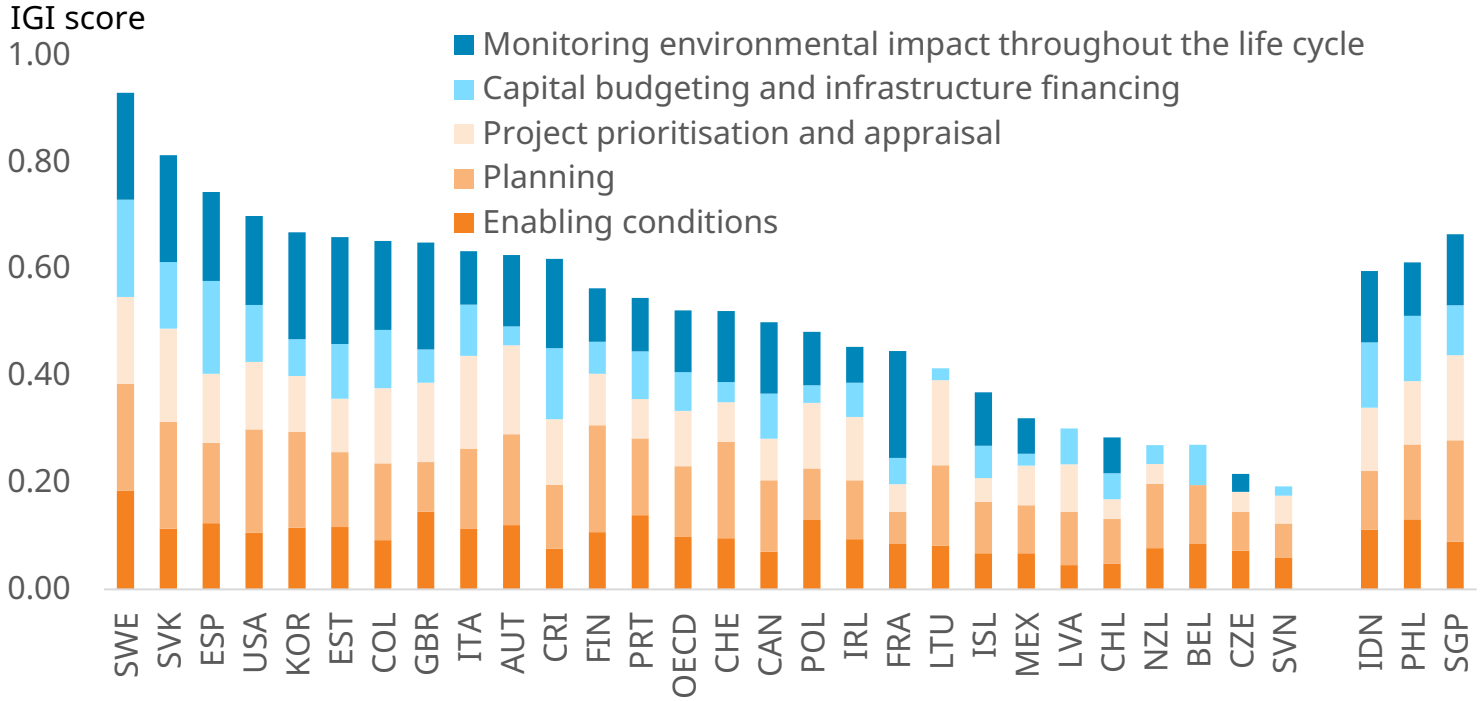
Source: Mirae Asset Securities (Vietnam) Research; compiled from the Vietnam Government Portal

SUSTAINABLE INFRASTRUCTURE GOVERNANCE AND CLIMATE ADAPTATION

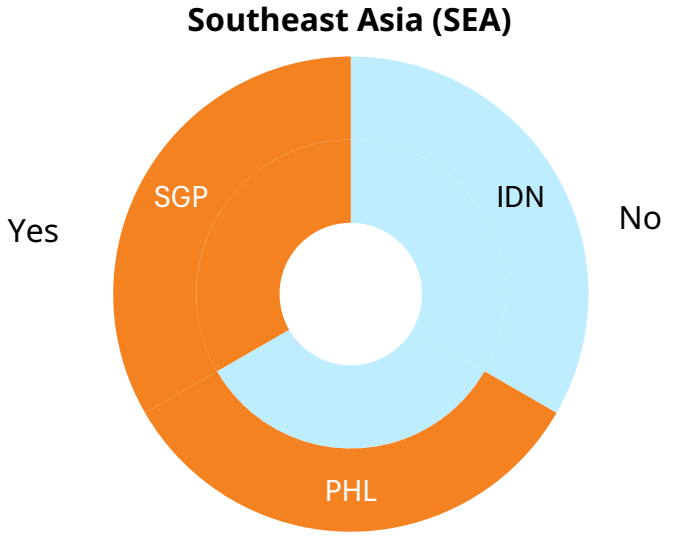
Sustainable infrastructure: Intersection of environment and digital governance

- **Integrating international standards into regional infrastructure:** OECD's IGI index **establishes an infrastructure governance framework that is both environmentally friendly and climate-resilient**. Southeast Asian countries like Singapore (0.66), the Philippines (0.61), and Indonesia (0.60) are pioneering and exceeding the OECD average (0.52), emphasizing the development and construction of infrastructure integrated with environmental risk management.
- **Challenge — completing technical guidelines:** Catching up with the green roadmap requires effort in developing detailed standards. Vietnam can learn from the models of Singapore and the Philippines in integrating **nature-based solutions (NbS) and biodiversity conservation** right from the planning and design stages.

Delivering environmentally sustainable and resilient infrastructure, SEA countries (2024–2025) and OECD countries (2022)



Level of integration of environmental standards and biodiversity in infrastructure across SEA



Inner circle: Integrating (NbS) into infrastructure design.
Outer circle: Integrating biodiversity considerations into infrastructure planning.

Source: Mirae Asset Securities (Vietnam) Research; compiled from OECD Survey on the Governance of Infrastructure, 2024-2025 (SEA) and 2022 (OECD)

APPENDIX

Parameters and formulas for Growth Accounting Model

To clarify the objectivity of the research results, this appendix presents details on the assumption system and theoretical framework applied.

Assumptions	Data	Data source/reference
K/Y ratio in 2012	2.5	Penn World Table (PWT)
Depreciation rate (δ)	5%	Circular 45/2013/TT-BTC and depreciation period = 20 years
Capital elasticity (α)	0.5	Factor contribution report from the National General Statistics Office

Indicator	Formula	Data source/reference
Production function	Y= A·K^{α}·$L^{1-\alpha}$	Cobb-Douglas
Capital stock (K_t)	K_t =(1-δ) $K_{t-1} + I_{t-1}$	Calculated accumulation from base capital and investment (I)
Base year capital	$K_{2012} = Y_{2012} *$ K/Y ratio in 2012	

- **Regarding the database:** The input indicator system is built based on realistic assumptions about the depreciation rate (5%) and capital elasticity (0.5), combined with data from the Penn World Table and the National General Statistics Office to ensure model accuracy.
- **Regarding the methodology:** The research applies the Cobb-Douglas production function and the capital accumulation method from the base year 2012 to analyze and calculate fluctuations in capital stock (K), labor (L), and Total Factor Productivity (TFP) in the model.

APPENDIX 1

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