BRI International Green Development Coalition

BRI Green Development Outlook 2025:

Building an Integrated Pathway toward a Low-Carbon Future with the Global South

Preamble

On September 24, 2025, Chinese President Xi Jinping delivered a video address at the United Nations Climate Summit, solemnly announcing China's new round of Nationally Determined Contributions (NDCs) and calling on all parties to strengthen confidence, shoulder responsibilities, and deepen cooperation. This important declaration injected new momentum into global climate governance, demonstrating China's sense of responsibility as a major country and its firm commitment to building a community with a shared future for mankind and a clean, beautiful world.

The world today is undergoing profound changes unseen in a century. The three intertwined global ecological crises—climate change, biodiversity loss, and environmental pollution—pose severe challenges to the survival and development of humankind. Green and low-carbon transformation has become both an inevitable trend and a historic opportunity, requiring solidarity and cooperation among all nations to turn crises into new opportunities and chart a sustainable future.

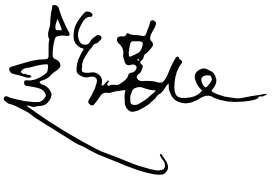
Against this backdrop, the BRI International Green Development Coalition (BRIGC), established in 2019, upholding the vision of a Green Silk Road, has built international consensus on green development, promoted open, inclusive, and mutually beneficial cooperation, and supported developing countries in enhancing their green development capacity—emerging as a key platform and a model for global environmental governance.

The "BRI Green Development Outlook" is one of the flagship series research reports of the BRIGC, aims to systematically review progress in building the Green Silk Road and to provide innovative insights for promoting green transition and deepening international cooperation among Belt and Road partner countries. Since its first launch during UNFCCC COP29 in 2024, the Outlook has received significant attention and commendation from all sides. This BRI Green Development Outlook 2025 is jointly initiated by the BRIGC and the United Nations Sustainable Development Solutions Network (SDSN), with collaborative support from the Boston University Global Development Policy Center, the Columbia Center on Sustainable Investment, and the Amazon Environmental Research Institute, among others. These institutions play influential roles in global sustainable development, responsible investment, and ecological conservation, providing a strong foundation for the report's international perspective and data analysis. The preparation of this report reflects the synergy of industry–academia–research collaboration, South–South cooperation, and China–International think tank exchanges, embodying the spirit of openness, knowledge-sharing, and joint progress in advancing global green development. The research team, despite time constraints, has focused on key regions including ASEAN, Latin America, and Africa, analyzing China's successful green development practices and exploring their localized applications. The report

provides replicable and scalable pathways for Belt and Road partner countries, fully demonstrating the effectiveness of the Belt and Road green development and BRIGC's contribution to supporting global sustainability.

Green development concerns the shared future of humanity. With resolve and foresight, China has explored a broad pathway toward high-quality economic and social development driven by green and low-carbon transformation. This journey offers practical solutions, valuable experiences, and new opportunities for joint cooperation under the Belt and Road framework. Through the Green Belt and Road Initiative, China is advancing global sustainable development, putting the global governance principle of extensive consultation, joint contribution, and shared benefits into practice. It is fostering innovation to help build a more just and equitable global governance system, as all parties work together toward a shared future for mankind.

Looking ahead, the BRIGC will continue to work hand in hand with global partners to deepen consensus, promote practical collaboration, and foster synergies among green finance, technology, and industry. By sharing China's experience and wisdom, the BRIGC will contribute to the green and low-carbon transition of developing countries, jointly building a harmonious and sustainable home for humanity and nature.



BRI International Green Development Coalition

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Executive Summary

Global green transition has become a key driver of economic and governance transformation worldwide,yet it remains constrained by deep structural inequalities. As climate change intensifies, energy security deteriorates, and sustainable development stalls, the world stands at a critical turning point. Amid these crises lies opportunity: the rapid advancement of low-carbon technologies is accelerating the deep transition of high-emission sectors, becoming one of the most dynamic sources of global economic growth. However, the structural imbalance of the green transition persists, marked by a coexistence of "shared destiny" and "divergent paths." While developed countries control the majority of capital and technology, climate risks and transition pressures disproportionately shift to the Global South, where financing gaps remain significant. How the Global South can, based on their national contexts, seize emerging opportunities in critical minerals and renewable energy to power sustainable development has become a central question for global governance.

China's green development practices provide new momentum and confidence for the world. As the world's largest renewable energy market and promoter of clean technologies, China has firmly pursued a low-carbon development path. Through systematic strategic planning and practical action, China has built a comprehensive green development system encompassing policy, industry, and finance. Chinese President Xi Jinping's announcement at the United Nations Climate Summit of China's nationally determined contribution target by 2035 further demonstrates the country's firm commitment to advancing global climate governance through concrete action. China's green development practices not only offer valuable experience for the world but also provide important lessons for developing countries facing financing and technological constraints.

China, together with the Global South, is advancing green transition cooperation, injecting strong momentum into building a fair and mutually beneficial global green transformation framework. Association of Southeast Asian Nations (hereinafter referred to as "ASEAN") constrained by insufficient energy supply and delays in cross-border grid development, are making efforts to adjust their energy structures. China's experience and technology in new energy development and infrastructure construction can provide vital support in overcoming these challenges. Latin America and the Caribbean (hereinafter referred to as "Latin America") are seeking to strike a balance between biodiversity conservation and resource development, exploring ways to promote the transformation of ecological value through green finance. China and Latin American countries can leverage existing cooperation platforms to align green finance mechanisms with ecological conservation goals. Africa has long faced the severe challenge of insufficient investment in clean energy. Through strengthening pre-feasibility studies of green projects

and building the capacity of financing platforms, China-Africa cooperation is expected to enhance Africa's ability to develop renewable energy projects.

Looking ahead, green cooperation will become a cornerstone of shared global prosperity. The green and low-carbon transformation is not only the trend of The Times but also the key path to global common prosperity. The international community should work together to build a fairer, more inclusive, and mutually beneficial framework for green development, providing strong support for the global green transition and the path to carbon neutrality:

1. Technology Sharing: establish a collaborative and risk-sharing technology cooperation system that benefits the Global South, and develop replicable and scalable green transition models through technology demonstration projects;

2. Financial Co-creation: Utilizing green finance, carbon markets, and other innovative tools to improve capital allocation efficiency, with complementary financing instruments jointly supporting the transition;

3. Institutional Connectivity: Leveraging national and regional platforms to mobilize resources and integrate efforts, generating multi-channel, cross-border synergy in green transition. From early exploration and pilot application to large-scale replication, these approaches provide strong support for South–South cooperation and the global carbon neutrality agenda.

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I. The Landscape and Opportunities of Global Green Development

(I) Current Status of Global Green Development

Currently, global green development is entering a period of acceleration and stands at a critical juncture in the transformation toward a green and low-carbon future. The triple intertwined challenges of climate change, energy security, and sustainable development have forged a broad international consensus on advancing this transformation. While the global economy is moving steadily toward low-carbon and sustainable pathways, overall progress remains insufficient. According to the *Sustainable Development Goals Report 2025*, under the framework of the 2030 Agenda for Sustainable Development, only 35 percent of SDG indicators are on track or making moderate progress, nearly half are advancing too slowly, and a worrying 18 percent are regressing. The United Nations has called for urgent, ambitious actions in six critical SDG areas: food systems, energy access, digital transformation, education, employment and social protection, and climate and biodiversity.

From the perspective of global economy and investment, the low-carbon transformation is emerging as a new engine for revitalizing global growth, injecting much-needed momentum into an otherwise sluggish world economy. According to *World Economic Situation and Prospects (WESP) 2025*, global economic growth is projected to remain modest at 2.8 percent in 2025, with East Asia (4.7 percent) and South Asia (5.7 percent) and other regions with a cluster of emerging economies as the main drivers, largely supported by green investment. In the energy sector, the rapid rise of green finance has opened unprecedented opportunities for the Global South countries, providing critical funding for renewable energy projects. The International Energy Agency's (IEA's) *World Energy Investment Report 2025* forecasts that global energy investment will reach USD 3.3 trillion in 2025, of which more than USD 2.2 trillion will flow into renewable energy, nuclear power, and related fields, over twice the amount invested in fossil fuels. By 2025, solar investment alone is expected to hit a historic record of USD 450 billion, with battery-equipped photovoltaic systems becoming a major force in driving energy investment in emerging and developing economies. This trend is not only reshaping the global energy structure but also creating a "latecomer advantage" for resource-rich Global South countries, opening a window of opportunity for leapfrog development.

The United Nations Department of Economic and Social Affairs (UN DESA) stresses the strategic importance of critical minerals (such as lithium, cobalt, and rare earths) in the energy transformation. These resources are providing new engines of growth and employment for resource-endowed developing countries, such as Latin America and Africa, with their wealth of renewable energy resources playing a crucial role in the global green transformation: Latin America holds nearly 58 percent of global lithium reserves and accounts for 40 percent of global copper output, while Africa supplies approximately 70 percent of the world's cobalt. These materials directly support the expansion of key emerging

industries, including electric vehicles and energy storage. For the Global South, this natural resource advantage represents not only an immediate economic opportunity but also the potential opportunity for these countries to leap forward in the global green value chain, especially if coupled with green finance mechanisms that transform resource wealth into sustainable development outcomes.

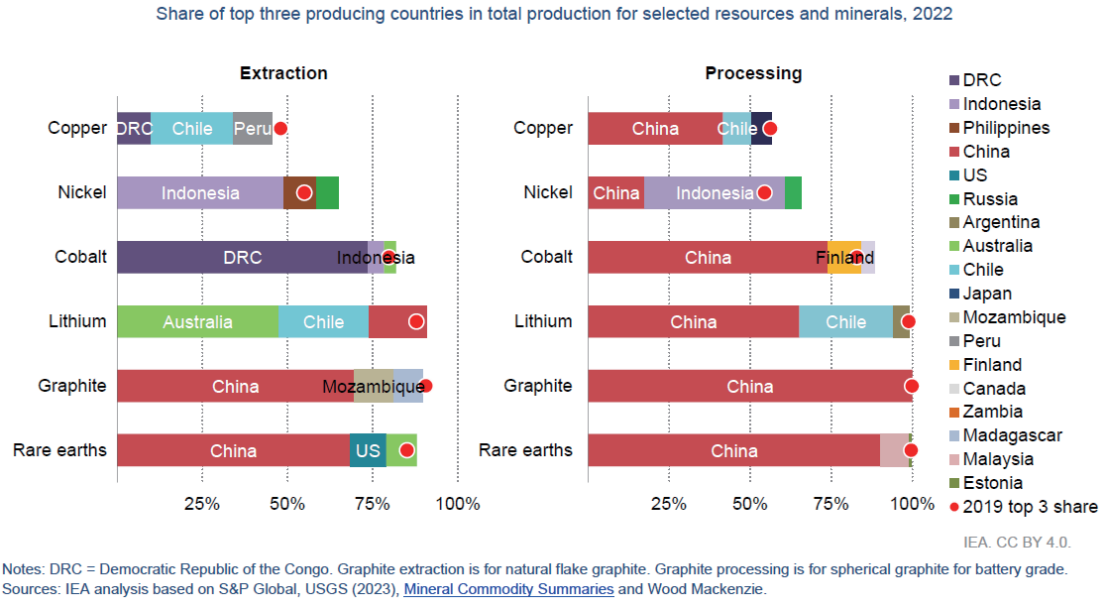


Figure 1. Share of top three producing counties in total production for selected resources and minerals, 2022

(Source: Compiled by the author based on the IEA Critical Minerals Market Review 2023)

Nevertheless, global green development is marked by deep regional disparities and structural obstacles, with the "North-South Divide" and internal inequalities standing out. According to the *Asia-Pacific Sustainable Development Goals Progress Report 2025*, of the 117 targets monitored, only 16 are on track for achievement in the Asia-Pacific region, while progress on climate action is significantly lagging. This reflects both the magnitude of regional gaps and the enormous demand for low-carbon economic transformation and renewable energy investment in ASEAN and other Global South countries, and indicates great potentials for cooperation.

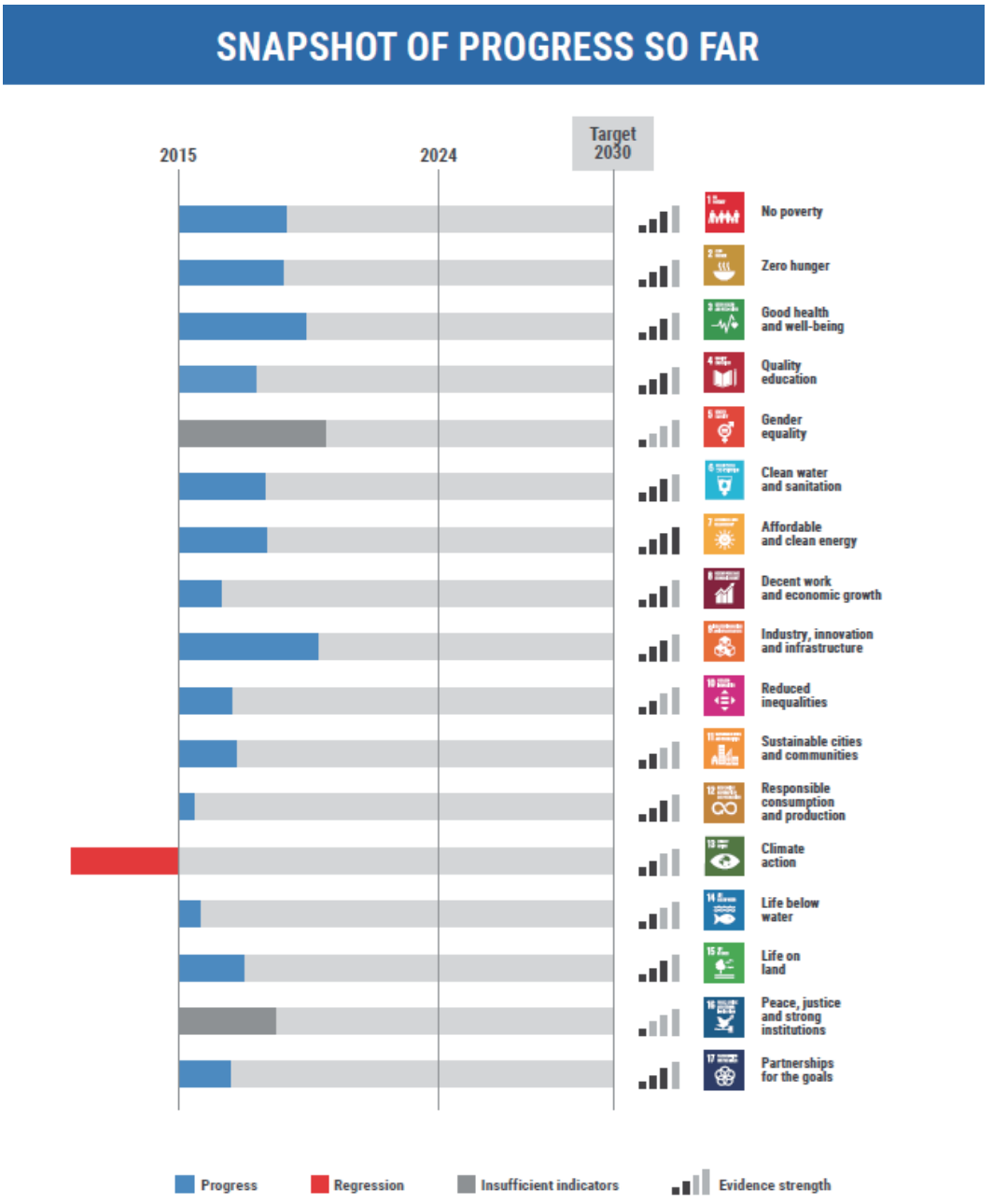


Figure 2. Asia-Pacific SDG Progress by 2024

(Source: Compiled by the author based on the UN ESCAP Asia and the Pacific SDG Progress Report 2025)

Meanwhile, international climate governance is shifting from a single mitigation-focused framework to a comprehensive “mitigation-adaptation-resilience” approach. At the Fourth International Conference on Financing for Development (FfD4) in July 2025 and the Second African Climate Summit (ACS2) in September 2025, adaptation moved from the periphery to the core, with both conferences integrating adaptation into their agendas. FfD4 established a dedicated working group on adaptation and resilience,

while ACS2, through the Addis Ababa Declaration, emphasized that nature-based solutions (NbS) are crucial for enhancing climate resilience and advancing green development, positioning resilience as a key driver of green industrialization. Analysis by the World Resources Institute (WRI) of 320 adaptation projects worldwide indicates that every dollar invested generates an average total benefit exceeding ten dollars, with a return on investment of up to 27%. More than half of these benefits—such as improved productivity, increased employment, economic growth, and emission reductions—do not depend on the occurrence of climate disasters. Additionally, nearly half of the adaptation projects deliver significant mitigation co-benefits.

(II) Green Development Opportunities for the Global South Countries

Green development in the Global South countries is characterized by a coexistence of vast potential and daunting challenges. On the positive side, many Global South countries demonstrate strong political will and momentum for transformation, with breakthroughs already achieved in renewable energy. According to the International Renewable Energy Agency (IRENA), global renewable power capacity expanded by 585 gigawatts (GWs) in 2024, with Asian emerging economies contributing the largest share of this increase.

Meanwhile, countries in the Global South face even more severe challenges. First, climate risks exert immediate and severe impacts. World Bank projections estimate that by 2050, productivity losses in low-income countries (including some Global South countries) could reach 6.2 percent, compared with just 0.2 percent in high-income countries, while annual economic losses may amount to 2 percent of GDP, and adaptation costs as high as 3.5 percent. Second, financing shortfalls and structural contradictions remain severe. The Global South countries face an annual infrastructure and climate financing shortfall of USD 3.8–4.3 trillion, with the energy sector absorbing the largest portion. However, in 2024, private climate finance accounted for less than 35 percent of total flows, heavily concentrated in low-risk projects. Vulnerable regions such as Africa and small island developing states secured only 10 percent of their funding needs, revealing a stark “Matthew effect” in climate finance distribution. Third, the energy mix transformation remains difficult. Coal continues to dominate, accounting for 36 percent of global electricity generation, with reliance even higher in developing economies. Meanwhile, renewable energy projects face grid access delays, shortages of skilled personnel, and financing bottlenecks, causing widespread postponements of solar and wind projects under construction.

The 2024 29th Conference of the Parties (COP29) to the United Nations *Framework Convention on Climate Change (UNFCCC)* in Baku approved the New Collective Quantified Goal on Climate Finance (NCQG), establishing institutional arrangements for global climate finance in the next decade. The

decision set two key targets: scaling up climate finance to developing countries to at least USD 1.3 trillion per year by 2035 from all efforts of public and private entities, and tripling developed-country contributions from USD 100 billion to USD 300 billion annually by 2035. While this milestone promises greater financing support for developing countries, many stress that it remains far short of the over USD 1 trillion in annual financing actually required.

In general, the global trend of a green, low-carbon transformation and the Global South's development opportunities are closely intertwined. At the global level, green investment and clean energy are gaining irreversible momentum. Regionally, ASEAN, Latin America, and Africa regions each present distinctive opportunities shaped by their resource endowments and development needs. Institutionally, South-South cooperation provides the Global South countries with new policy and financing mechanisms. Together, these dynamics create a strong foundation and wide space for China to deepen green cooperation with the Global South.

Against this backdrop, green finance is emerging as a critical enabler of industrialization and modernization in the Global South, serving as a key tool to bridge financing gaps. The *Global Report on South-South and Triangular Cooperation 2025* by the United Nations Office for South-South Cooperation highlights digital collaboration, green finance, and South-South cooperation as vital pathways for developing countries to increase green financing and capacity-building. Green finance not only creates new engines of growth and provides fresh impetus for socio-economic development in the Global South, but also positions these countries as active participants, not mere beneficiaries, in rule-making and innovation in the global green development system.

As a central mechanism for resource mobilization and allocation, green finance functions as the "lifeblood" and "catalyst" of the global green and low-carbon transformation. Through innovative instruments such as green bonds, sustainability-linked loans, and carbon markets, it channels capital into low-carbon projects, supporting infrastructure, renewable energy deployment, and climate adaptation. For the Global South, in particular, green finance offers a way to overcome structural financing obstacles, mobilize private-sector participation, and leverage scarce public funds more effectively. By harnessing green finance strategically, the Global South countries can not only advance their own green and low-carbon transformations but also add new dimensions of financial cooperation to South-South collaboration, thereby contributing to the achievement of global SDGs.

(III) Green Cooperation Opportunities in the Global South

The Global South encompasses an array of countries marked by significant internal diversity, offering broad space and enormous potential for cooperation in green development. ASEAN, Latin America and Africa, as important components of the Global South, stand out due to their unique regional characteristics, development needs, and established cooperation with China. Their distinct resource endowments, stages of development, and core demands create differentiated cooperation scenarios, while their deep-rooted ties with China make them key partners in advancing South-South green cooperation and sharing "China's experience." According to the World Economic Forum's *Global Cooperation Barometer 2025*, while overall global cooperation remains subdued, collaboration in climate and natural capital demonstrates strong resilience. Trade and capital flows in clean technologies, such as solar and wind energy, continue to grow, offering China a strategic window to deepen green cooperation with Global South countries.

1. ASEAN

ASEAN has achieved rapid economic growth. However, uneven regional development, lagging energy integration, and a heavy reliance on fossil fuels, which still accounted for over 75 percent of its total primary energy consumption in 2023, make green and sustainable development particularly critical for its future growth.

ASEAN has established an increasingly comprehensive green governance system. The 2009 *ASEAN Socio-Cultural Community Blueprint (2009–2015)* identified the environment and sustainable development as priority areas. The ASEAN Economic Community Blueprint 2025 set targets of 23 percent renewables in the energy mix by 2025 and over 30 percent by 2050. In 2019, the *ASEAN Catalytic Green Finance Facility (ACGF)* was launched to mobilize capital for green investment in Southeast Asia. In 2023, ASEAN issued the *Framework for Circular Economy for the ASEAN Economic Community*, the *ASEAN Strategy for Carbon Neutrality, and the ASEAN Taxonomy for Sustainable Finance (Version 2)*, thereby building a systematic governance framework.

China and ASEAN share a profound friendship and close economic ties. The Belt and Road Initiative (BRI) is highly aligned with ASEAN's development strategies. The two sides have already carried out extensive cooperation in green infrastructure, clean energy, and ecological and environmental protection, laying a solid foundation for the region's green transformation. After the Central Conference on Work Related to Neighboring Countries in 2025, President Xi Jinping paid state visits to Vietnam, Malaysia, and Cambodia, advancing cooperation in infrastructure connectivity, integrated green industrial chains, and regional innovation. These achievements strengthened mutual trust between China and ASEAN and created new opportunities for cooperation in digital-driven green transformation, sustainable development governance, and the development of green investment and financing mechanisms.

2. Latin America

Latin America is home to extraordinary biodiversity and unique ecosystems, containing nearly half of the world's known species. The Amazon accounts for 50 percent of the world's tropical rainforests, while the Andes Mountains, with their distinctive alpine ecosystems, hold rich mineral deposits, including critical minerals essential for the global green and low-carbon transformation. The region therefore carries vital global significance for ecological protection and sustainable development.

China's relations with Latin American countries continue to deepen through mechanisms such as the China-Community of Latin American and Caribbean States (hereinafter referred to as "CELAC") Forum. Today, China is Latin America's second-largest trading partner, and green development is becoming a new highlight of China-LAC cooperation.

China is working with Brazil on Amazon rainforest protection, while Chinese enterprises have invested in solar energy storage projects that strongly support Argentina's clean energy transformation and sustainable development. Green and low-carbon industries are emerging as new growth drivers of China–LAC cooperation. The year 2025 marks the 10th anniversary of the China-CELAC Forum, where both sides reaffirmed their commitment to multilateralism and international cooperation, and expanded collaboration in energy transformation and sustainable infrastructure. President Xi Jinping proposed that China and LAC partners jointly advance "five major initiatives" in trade, investment, infrastructure, agriculture, science and technology, new energy, and education, aligning their development strategies with the BRI and working together to build a China–LAC community with a shared future. This provides institutional guarantees and policy space for deepening green cooperation.

The upcoming 30th Conference of the Parties (COP30) to the UNFCCC to be held in Brazil in 2025 further highlights Latin America's pivotal role. As an essential component of the Global South, the region not only serves as a bridge in South-South cooperation but also as a strategic pivot for China to expand green investment and finance, ecological protection, and global sustainable governance.

3. Africa

Africa plays a vital role in global green development. The continent is rich in natural resources and has immense renewable energy potential. Yet, Africa is among the region's most severely affected by climate change, facing mounting challenges. According to the United Nations' Intergovernmental Panel on Climate Change (IPCC), the rate of temperature rise in Africa is faster than the global average, intensifying water shortages, food insecurity, and biodiversity loss, and directly threatening the region's economic and social development.

Recognizing the urgency and importance of green development, African countries have adopted national green strategies, demonstrating their firm determination to pursue a green transformation and establishing the policy foundation for regional sustainable development.

China and Africa enjoy a long-standing partnership in green cooperation. Under the Forum on China-Africa Cooperation (FOCAC), the two sides have conducted extensive collaboration in clean energy, ecological protection, and climate change response. Chinese enterprises have actively participated in renewable energy projects across Africa, implementing hundreds of clean power generation and grid projects that provide stable electricity supplies while significantly reducing carbon emissions. The 2024 Beijing Summit of FOCAC further clarifies the China-Africa cooperation on green development, and builds a higher-level platform for cooperation in energy transformation, ecological protection, and green industry development. This cooperation not only supports Africa's green and low-carbon transformation and enhances its role in global climate governance, but also opens new opportunities for Chinese enterprises to expand overseas markets, promote green technologies and standards, and consolidate China–Africa leadership in South-South green cooperation.

ASEAN, Latin America, and Africa, with their unique regional characteristics and diverse needs in global green development, together represent the most significant arenas for green and low-carbon transformation in the Global South. China's accumulated experience in green investment, finance, and project management through mechanisms such as the BRI and FOCAC, provides strong support for these regions' transformations and offers valuable references for other Global South countries. By deepening green cooperation with these regions, China can promote the internationalization of its green technologies and financing models, while driving the overall upgrading of South-South cooperation. This will foster a more inclusive and sustainable global green development framework, lay a solid foundation for future collaboration in policy, industry, finance, and multilateral governance, and contribute to building a community with a shared future for mankind.

II. China's Green Development Practices

Over the past decade, China's green development has progressed from conceptual exploration to comprehensive practice, gradually forming a system of institutions and development pathways with distinct Chinese characteristics and global influence. This progress has strongly driven China's economic and social transformation toward a green, low-carbon model while providing valuable, practical experience for the Global South countries. The year 2025 marks the 20th anniversary of the concept that "lucid waters and lush mountains are invaluable assets." By continually accumulating and systematizing its own green development practices, China is emerging as a key global reference point for sustainable development. Through South-South cooperation and global green governance platforms, China's practices and insights are contributing increasingly rich "Chinese solutions" and "Chinese wisdom" to the world.

(I) Continuous Improvement of the Policy System: The Concept of Green Development Takes Root

China's top-level design for green development began in 2012, when the 18th CPC National Congress proposed the goal of building a "Beautiful China" and incorporated ecological civilization into the "Five-Sphere Integrated Plan." The *Overall Plan for the Reform of the Ecological Civilization System*, issued in 2015, established institutional frameworks for natural resource asset management, ecological compensation, and environmental regulation, laying the foundation for green development. In 2017, China reaffirmed the principle that "lucid waters and lush mountains are invaluable assets" and set a timetable for building a Beautiful China, aiming for a fundamental improvement in the ecological environment by 2035.

In 2020, China announced at the UN General Assembly its dual-carbon goals: to strive for carbon peaking before 2030 and achieve carbon neutrality before 2060. This commitment marked a major turning point in global climate governance and has driven the overall upgrading of China's green development strategy. To meet the dual-carbon goals, since 2021 China has established a "1+N" policy framework, with the *Action Plan for Carbon Dioxide Peaking Before 2030* as the overarching guideline. Supplementary sectoral policies in energy, industry, transportation, urban and rural development, and finance have set institutional requirements to advance low-carbon transformation across all sectors.

Table 1: Major policy documents on China's green development issued in recent years

Issuing time	Document name	Issuing authority
April 2015	*Opinions on Accelerating the Construction of Ecological Civilization*	CPC Central Committee and the State Council
September 2015	*Integrated Reform Plan for Promoting Ecological Progress*	CPC Central Committee and the State Council
June 2018	*Opinions on Comprehensively Strengthening Ecological and Environmental Protection and Fighting the Tough Battle of Pollution Prevention and Control*	CPC Central Committee and the State Council
September 2020	*Proposal of the "Dual Carbon Goals"*	President Xi Jinping announced at the United Nations General Assembly
February 2021	*Guiding Opinions on Accelerating the Establishment and Improvement of a Green, Low-carbon and Circular Development Economic System*	The State Council
September 2021	*Working Guidance for Carbon Peaking And Carbon Neutrality in Full And Faithful Implementation of the New Development Philosophy*	CPC Central Committee and the State Council
October 2021	*Action Plan for Carbon Peaking Before 2030*	The State Council
October 2021	*Opinions on Promoting Green Development in Urban and Rural Development*	General Office of the CPC Central Committee, and the General Office of the State Council
2021 to present	*Implementation plans of carbon peaking in multiple sectors including energy, industry, and transport*	National Development and Reform Commission, Ministry of Ecology and Environment, Ministry of Industry and Information Technology, and other ministries
November 2021	*Opinions on Deepening the Fight Against Pollution Prevention and Control*	CPC Central Committee and the State Council

Issuing time	Document name	Issuing authority
July 2021	*Launch of the national carbon emissions trading market*	Ministry of Ecology and Environment
December 2023	*Guidelines on Comprehensively Promoting the Development of A Beautiful China*	CPC Central Committee and the State Council
October 2023	*Measures for the Administration of Voluntary Greenhouse Gas Emission Reduction Trading (Trial)*	Ministry of Ecology and Environment, State Administration for Market Regulation
July 2024	*Work Plan for Accelerating the Construction of a Carbon Emission Dual Control System*	General Office of the State Council
July 2024	*Opinions on Accelerating the Comprehensive Green Transformation of Economic and Social Development*	CPC Central Committee and the State Council
May 2025	*Opinions on Promoting Green and Low-Carbon Transformation and Strengthening the Construction of the National Carbon Market*	General Office of the CPC Central Committee, and the General Office of the State Council

At the international level, China has proactively contributed global governance solutions by proposing and advancing the Global Development Initiative, the Global Security Initiative, the Global Civilization Initiative, and the Global Governance Initiative. The Global Development Initiative explicitly identifies green and low-carbon transformation as a priority, providing direction for global green development. Under the BRI, China has consistently emphasized green development as a defining principle of international cooperation. Policy documents such as the *Belt and Road Ecological and Environmental Cooperation Plan* and the *Opinions on Jointly Promoting Green Development of the Belt and Road* have provided concrete guidance, helping transform the "Green BRI" from a proposal into a broad consensus and collective action within the international community. From constructing domestic environmental governance systems to actively engaging in global green governance and assuming greater international responsibilities, China's green development policies have undergone a strategic upgrade, forming a dual framework that balances domestic transformation needs with global shared interests. On September 2025, Chinese President Xi Jinping further proposed at the United Nations Climate Summit that China will achieve a 7%~10% reduction in net greenhouse gas emissions across the entire economy by 2035 compared to the peak level, demonstrating China's steadfast commitment to global climate governance through concrete action.

(II) Accelerated Industrial Transformation: The "New Three" Lead the Global Green Trend

First, China continues to optimize its energy structure by transforming both the model and drivers of energy development, transforming the primary energy sources from fossil fuels to non-fossil sources. This transformation is essential to overcoming resource and environmental constraints and achieving its carbon peaking and carbon neutrality goals. According to the National Energy Administration, China added 373 million kilowatts of new renewable energy capacity in 2024, a year-on-year increase of 23 percent, accounting for 86 percent of total new power installations. Renewable energy generation reached 3.46 trillion kilowatt-hours in 2024, a 19 percent year-on-year increase, representing about 35 percent of total electricity generation.

Second, green products represented by the "new three" — photovoltaic products, lithium-ion batteries, and new energy vehicles — have become new pillars of export growth. In photovoltaics and other new energy industries, China has established globally competitive, full-scale industrial chains. Its products are exported to over 200 countries and regions, accounting for more than 80 percent of global solar modules and 70 percent of wind power equipment. Over the past decade, China has helped reduce the global average cost per kilowatt-hour of wind power by more than 60 percent and of solar power by over 80 percent. This has not only expanded global supply and eased inflationary pressures but also significantly advanced the green energy transformation and stabilized the global energy market.

Third, the green transformation of traditional industries has accelerated. In May 2025, the State Council reviewed and approved the *Action Plan for Advancing Green and Low-Carbon Development in Manufacturing (2025–2027)* making the deep green transformation of traditional industries a top priority, with a focus on steel, non-ferrous metals, petrochemicals and chemicals, and building materials. Measures include expanding the use of green raw materials, increasing reliance on clean energy, promoting green technologies, and broadening the adoption of green products, thereby unlocking the low-carbon potential of traditional industries and driving their upgrading and transformation.

Fourth, the integration of digitalization and green development has become a defining trend. By promoting the deep convergence of new digital infrastructure with green and low-carbon strategies, China has built a green digital green management system, advanced digital green design and production, and developed digitalized green industrial and supply chains. As a result, China has become home to the world's largest clean energy system and digital economy. Technologies such as artificial intelligence and big data are widely applied in smart energy management, low-carbon intelligent manufacturing, and ecological monitoring, significantly improving resource efficiency and reducing carbon emissions. This integration not only generates new engines of growth but also contributes "Chinese solutions" to global climate governance.

(III) The Leading Green Finance Innovation: Market Mechanism Gradually Becomes Mature

1. Institutional Development in Top-Level Design for Green Finance

First, green finance policies continue to improve. In recent years, China has continuously improved its green finance policy framework, gradually establishing a comprehensive system that integrates policy guidance, market mechanisms, financial innovation, and international cooperation. The People's Bank of China has led the release of green finance policy documents; the China Securities Regulatory Commission has advanced the establishment of standards for green bonds and environmental information disclosure; and the former China Banking and Insurance Regulatory Commission has strengthened assessment criteria for green credit and risk management. Together, these measures have placed green finance at the core of the national financial system.

Second, the scale of green credit has expanded steadily. According to the statistics from the People's Bank of China, by the end of 2024, the outstanding balance of green loans had increased from RMB 9.9 trillion in 2019 to RMB 36.6 trillion, representing year-on-year growth of 21.7 percent, 14.5 percentage points higher than overall loan growth, with a net annual increase of RMB 6.52 trillion in 2024. **By purpose,** the outstanding balances of loans for green infrastructure upgrading, clean energy, and energy conservation and environmental protection reached RMB 15.68 trillion, RMB 9.89 trillion, and RMB 5.04 trillion, up 19.8 percent, 25.6 percent and 19.6 percent year on year, with annual increases of RMB 2.6 trillion, RMB 2.02 trillion, and RMB 824.4 billion. **By sector**, outstanding green loans for the electricity, heat, gas, and water production and supply industries totaled RMB 8.85 trillion, up 20.9 percent year on year, with an annual increase of RMB 1.52 trillion, while those for the transport, warehousing, and postal industries reached RMB 5.92 trillion, up 11.5 percent year on year, with an annual increase of RMB 614.5 billion. Meanwhile, cumulative issuance of green bonds stood at RMB 4.1 trillion by the end of 2024, including RMB 1.7 trillion in green financial bonds, providing a stable funding source for financial institutions to expand green credit. These measures are driving the mainstreaming of green finance and laying a solid foundation for China's financial system to engage globally.

2. Innovation and Development of Green Financial Instruments

China has made continuous breakthroughs in green financial innovation, with an expanding array of green financial instruments such as green bonds, green trusts, carbon-neutral bonds, and sustainability-linked bonds (SLBs). In 2024, the Industrial and Commercial Bank of China (ICBC) successfully issued a multi-currency, carbon neutrality–themed overseas green bond, providing robust financial support for countries and regions participating the BRI.

First, the carbon market provides a benchmark for pricing green financial products. Since its launch in 2021, China's unified national carbon emissions trading market has been in operation for four years. By the end of June 2025, it recorded a cumulative trading volume of 669 million tons of carbon allowances, with a transaction value of about RMB 46 billion. In 2025, the market was expanded to cover high-emission industries such as steel, non-ferrous metals, building materials, and petrochemicals. As global carbon pricing mechanisms gradually mature, the experience of various countries offers valuable market-based references for partner countries to develop their own carbon markets.

Second, specific monetary policy instruments have been employed to support emissions reduction in key areas. On one hand, the Carbon Emission Reduction Facility (CERF) continues to provide financing support for enterprises in critical emissions-reduction sectors and further expands its policy coverage; on the other hand, the special central bank lending program for the clean and efficient use of coal fully leverages its existing funds to balance energy security while promoting the economy's transition toward green and low-carbon transformation. By the end of 2024, the outstanding balances of these two tools were RMB 438.5 billion and RMB 207.3 billion, respectively. Collectively, these mechanisms have enabled financial institutions to issue over RMB 1.2 trillion in emissions-reduction loans.

Third, climate investment and finance are driving the development of green finance. By the end of 2024, climate investment and finance pilot programs had been launched in 23 jurisdictions, encompassing more than 5,400 projects with a total investment exceeding RMB 3 trillion. The Eco-Environment Oriented Development (EOD) model has been actively promoted, with financial institutions extending over RMB 210 billion in credit and issuing RMB 72 billion in loans to support 92 projects. Pilot zones for green finance reform and innovation have been established in 10 cities and regions, including Quzhou, Zhejiang Province, encouraging policy innovation and demonstration projects.

3. "Going Global" Strategy and Green Cooperation with the Global South

At the international level, China's policy banks and financial institutions have played a pivotal role in green investment and finance. Institutions such as the China Development Bank, the Export–Import Bank of China, and the Silk Road Fund have supported numerous the BRI green projects through green credit and equity investments. With China's financial backing, projects such as the Garissa Solar Power Plant in Kenya and the Port Qasim Power Plant in Pakistan have been successfully implemented, improving local energy structures while creating jobs and fostering sustainable development opportunities. China has also actively engaged in global green finance governance. As the lead of the G20 Sustainable Finance Working Group, China has advanced the establishment of international frameworks, including green finance taxonomy and environmental information disclosure standards. In April 2021, the People's Bank of China, together with the National Development and Reform Commission and the China

Securities Regulatory Commission, jointly issued the *Green Bond Endorsed Project Catalogue (2021 Edition),* which standardized the definition of green projects across relevant regulatory bodies. In June 2022, the People's Bank of China and relevant EU authorities released an updated version of the Sustainable Finance Taxonomy, promoting compatibility of green standards and facilitating cross-border flow of green capital. At the same time, research on transition finance was actively conducted to provide standardized guidance for financial support of green and low-carbon development. In 2022, the former China Banking and Insurance Regulatory Commission issued the *Green Insurance Business Statistical System*, clarifying statistical standards for green insurance to enable monitoring and measurement. In the same year, the China Securities Regulatory Commission released the *Carbon Financial Products* industry standard to assist financial institutions in identifying, utilizing, and managing carbon-related financial products. In 2025, the People's Bank of China, the China Banking and Insurance Regulatory Commission, and the China Securities Regulatory Commission jointly issued the *Green Finance Support Project Catalogue (2025 Edition)*, which will take effect on October 1, 2025. Its release is expected to further improve market efficiency and regulatory effectiveness, enhance alignment with international mainstream green standards, and facilitate the cross-border circulation of green capital. Overall, China's green development policy system has become increasingly comprehensive, with notable achievements in industrial upgrading and deepening financial innovation, forming an integrated framework of policy, industry, and finance. This framework not only facilitates China's own green and low-carbon transformation but also offers replicable and scalable models for the Global South countries.

It should be noted that financing gaps remain the primary obstacle to green transformation in the Global South. The *Global Outlook on Financing for Sustainable Development 2025* released by Organization for Economic Co-operation and Development (OECD) reports that the annual funding gap to achieve the SDGs has reached USD 3–4 trillion. According to the UN Trade and Development (UNCTAD), from 2023 to 2030, developing countries face an annual investment shortfall of approximately USD 4 trillion for sustainable development. This indicates that international public funds alone are insufficient to meet the enormous demand, highlighting the need for greater multilateral cooperation and financial innovation mechanisms. In this context that global climate governance faces challenges in financing gaps and shared responsibility, China's green development practices provide practical cooperation pathways for developing countries, particularly in ASEAN, Latin America, and Africa.

China actively promotes green finance internationally, particularly through multilateral mechanisms such as the BRI and the Forum on China-Africa Cooperation, prioritizing green development as the core of collaboration. First, in financial support, according to the *China Actions on South-South Cooperation on Climate Change* published by the BRI International Green Development Coalition (BRIGC), China has,

since 2016, provided and mobilized more than RMB 177 billion in climate-related financing to developing countries to enhance their capacity to address climate change. At the same time, during the High-Level Forum on Green Development at the Third Belt and Road Forum for International Cooperation, the BRIGC launched the Green Investment and Finance Partnership (GIFP) together with domestic and international partners. The Partnership aims to leverage the respective professional strengths of all partners, actively promote cooperation on green investment and financing, and provide practical solutions to address financing bottlenecks in the construction of a green Belt and Road. It serves as a platform for communication and collaboration, facilitating resource sharing and synergy among stakeholders. Second, in terms of material assistance, as of October 2025, China has signed 55 documents on South-South cooperation in addressing climate change with 43 developing countries, and implemented nearly 100 mitigation and adaptation projects. China has actively promoted the establishment of low-carbon demonstration zones for South-South cooperation on climate change with countries such as Lao PDR and Nigeria, advancing low-carbon transformation in energy, buildings, transport, and management within industrial parks. These demonstration zones have become model projects of South-South cooperation on climate change, offering replicable and scalable pathways for the green and low-carbon development of comprehensive industrial zones in Belt and Road countries. China has also developed and implemented the “African Light Belt” Project for South-South Cooperation on Climate Change, under which cooperation agreements have been signed with seven countries, including Togo and Nigeria. Through this initiative, China will donate approximately 20,000 sets of solar power generation equipment, supporting African countries in achieving green and low-carbon development. Furthermore, the Ministry of Ecology and Environment of China (MEE), together with the World Meteorological Organization (WMO) and the China Meteorological Administration (CMA), has jointly signed a *Tripartite Cooperation Agreement Supporting the UN Early Warnings for All Initiative*, and launched the first cooperative project under this framework with Pakistan. Third, in terms of capacity building, since the launch of the South-South Cooperation Capacity Building Program on Climate Change in 2011, China has hosted annual training workshops focusing on mitigation, adaptation, climate finance, and negotiations, to support talent development for developing countries in addressing climate change. To date, China has organized over 300 capacity-building workshops, providing training opportunities for more than 10,000 participants from over 120 developing countries.

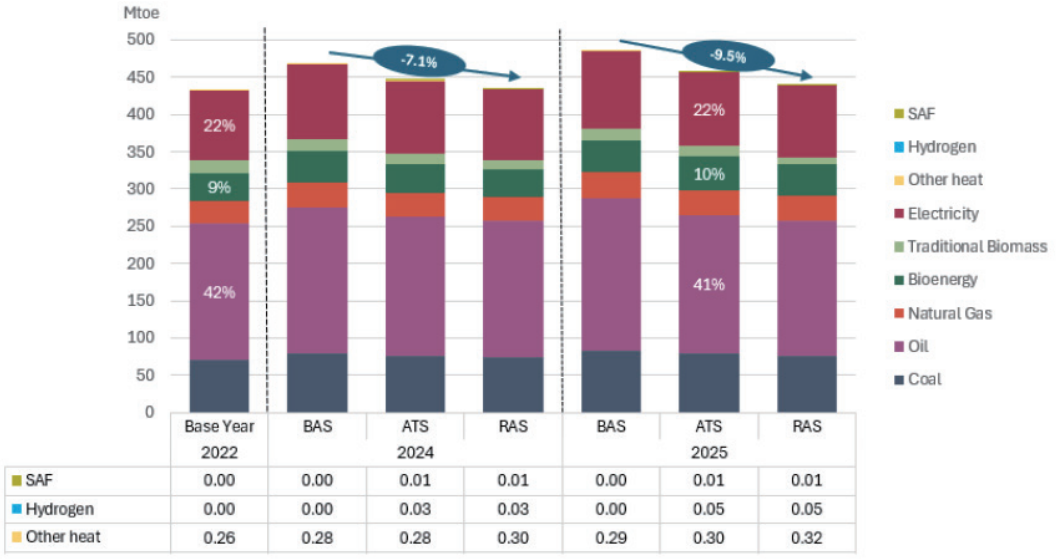
III. ASEAN: Green Development Path in the Backdrop of Energy Transformation and Regional Cooperation

As the world's fifth-largest economy and one of the fastest-growing regions in the world, ASEAN's energy demand is expected to more than double by 2050, positioning it as a critical energy frontier. The choices the region makes today will shape economic competitiveness and climate outcomes for decades to come. Meeting this growing demand will require substantial investment in solar, wind, hydro, geothermal, and other low-carbon energy sources, alongside an interconnected regional power grid enabling cross-border energy flows. Such a clean and interconnected grid is not only essential for meeting energy needs but is also more reliable, efficient, cost-effective, and resilient than isolated national grids. Moreover, the regional clean energy network underpins ASEAN's rapidly expanding regional economy. The competitiveness of key sectors, such as mineral industries, digital hubs, and clean fuels for maritime and other uses, depends on an integrated regional energy system powered by low-carbon energy.

(I) ASEAN's Energy Structure Adjustment and Development Potential

ASEAN economies have sustained steady growth, reflecting robust regional dynamism. The region's economic growth is projected to remain around 4% in 2025. Driven by industrialization, urbanization, and population growth, ASEAN's energy demand is expected to increase at an annual rate of about 3%, while electricity demand may rise by as much as 4%, significantly exceeding the global average. At the international level, the resurgence of the "America First" foreign policy has led to the freezing of tens of billions of U.S. dollars in foreign aid, and the U.S. has also proposed the termination of the Just Energy Transition Partnership (JETP) agreement, pausing certain energy infrastructure feasibility studies, stakeholder engagement, and capacity-building projects. Despite potential delays for some ongoing initiatives, ASEAN's energy transformation and decarbonization are expected to progress steadily.

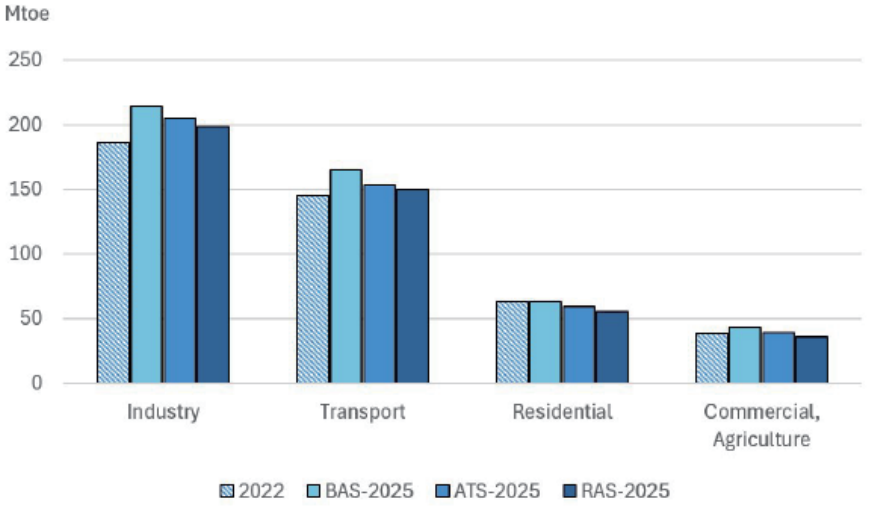
According to the *ASEAN Energy in 2025* issued by the ASEAN Centre for Energy (ACE), without policy intervention, ASEAN's energy demand in 2025 is projected to rise 12.2% compared with 2022, driven by population and economic growth. Fossil fuels will remain dominant, with petroleum accounting for the largest share of energy consumption at 41.4 percent. If member states implement national policies (ATS, i.e., ASEAN Member States Target Scenario), adjustments to the fuel structure will increase the share of electricity and bioenergy in total energy consumption to 21.8 percent and 9.9 percent, respectively. This improvement is primarily attributable to the transport sector's strong promotion of electric vehicles and the enforcement of mandatory biofuel standards. By deploying more efficient and sustainable technologies across end-use sectors, energy consumption and reliance on fossil fuels are expected to decline significantly. Under the ATS, energy-saving measures are projected to reduce energy consumption of ASEAN by 5.8 percent in 2025 compared to the Baseline Scenario (BAS).



	Base Year 2022	BAS 2024	ATS 2024	RAS 2024	BAS 2025	ATS 2025	RAS 2025
SAF	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Hydrogen	0.00	0.00	0.03	0.03	0.00	0.05	0.05
Other heat	0.26	0.28	0.28	0.30	0.29	0.30	0.32

Figure 3. ASEAN Fuel Energy Demand Forecast

In ASEAN, the transport sector, alongside the industrial sector, is one of the largest energy-consuming sectors. Under the Regional Aspiration Scenario (RAS), total energy consumption in the transport sector is projected to decrease by 3 percent to 149 million tons of oil equivalent by 2025 through implementation of the ASEAN Fuel Economy Roadmap's commitments to improve vehicle energy efficiency. Although sustainable aviation fuels (SAF) and hydrogen energy are expected to begin contributing to the industrial and transport sectors in 2025, they remain in the early stages of deployment. Therefore, accelerating the promotion and adoption of alternative fuels is essential for ASEAN to achieving regional energy transformation goals.



Note: The three scenarios are derived from the assumptions in *8th ASEAN Energy Outlook 2023-2050*: BAS (Baseline Scenario) is no new policy intervention; ATS (ASEAN Member State Target Scenario) is implementation of existing national policies; RAS (Regional Aspiration Scenario) is regional synergy + cost optimization

Figure 4. Energy Demand Projection of Various Industries of ASEAN

From the perspective of the primary energy structure, fossil fuels continue to dominate ASEAN's energy structure. In 2022, renewable energy accounted for approximately 16 percent of primary energy supply and 34 percent of total installed power capacity. Under the ATS, the share of renewable energy in total energy supply is expected to rise to 33 percent by 2025, corresponding to 145 million tons of oil equivalent.

In terms of regional energy interconnection, several regional cooperation projects, such as the ASEAN Power Grid (APG), the Trans-ASEAN Natural Gas Pipeline (TAGP), and the Carbon Capture and Storage (CCS) framework, are progressing steadily, supporting clean energy development and energy security. Stable power supply is critical for ensuring energy security, and ASEAN countries generally prioritize the efficient use of clean energy while actively promoting renewable sources including solar, wind, hydropower, and geothermal energy. Examples from individual ASEAN countries illustrate this approach: Malaysia promotes solar and energy storage development through photovoltaic tenders, green certificates, and virtual electricity trading; Singapore emphasizes rooftop and floating solar installations, building energy storage systems to integrate distributed energy, and actively participates in ASEAN multilateral electricity trade to enhance energy security and diversification; Indonesia encourages solar, wind, and geothermal development through renewable energy legislation, tenders, and policy incentives, while also promoting electric vehicle and biodiesel adoption; Thailand enhances the flexibility and reliability of its energy system through direct power purchase agreements, distributed photovoltaic projects, and cross-border power interconnections, supporting its carbon neutrality goals.

By 2022, fossil fuels, primarily coal and natural gas, accounted for 66.4 percent of ASEAN's installed power capacity. According to different scenarios, it is forecasted that by 2025, ASEAN's installed power capacity will increase from 315.7 GW in 2022 by approximately 9 percent (BAS), 18 percent (ATS), and 22 percent (RAS). Under the RAS, hydropower remains the dominant source of renewable generation, projected to grow 21 percent year-on-year, while solar and wind are expected to make significant contributions, reaching 82.7 Terawatt-hour (TWh) and 56.4 TWh, respectively.

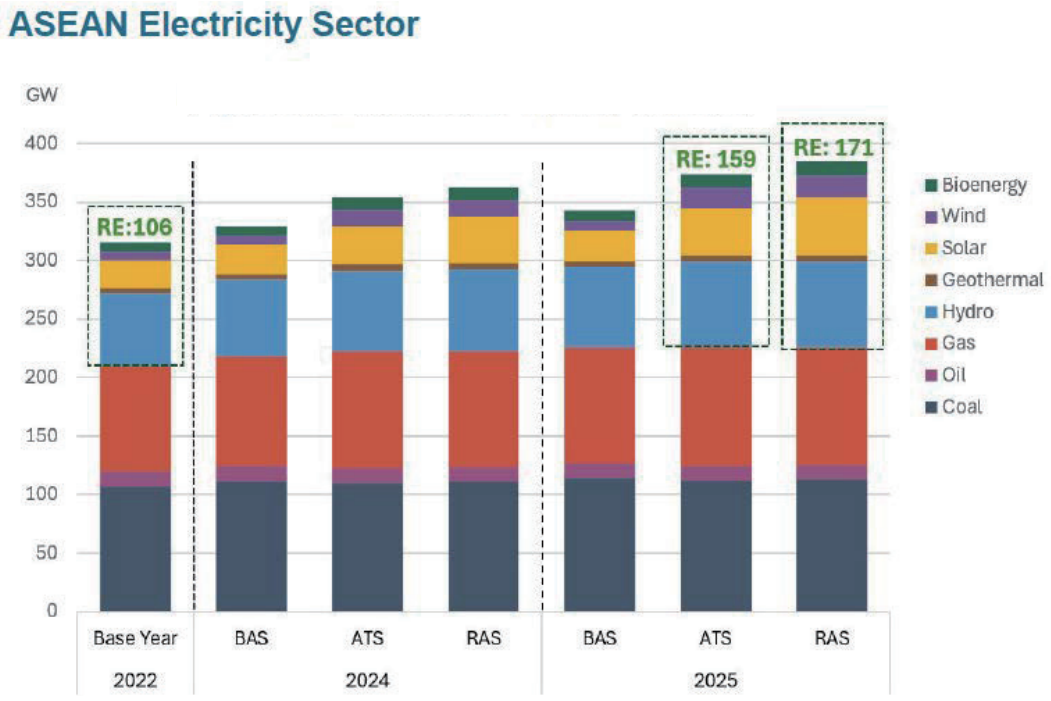


Figure 5. ASEAN installed power capacity Projection under Different Scenarios

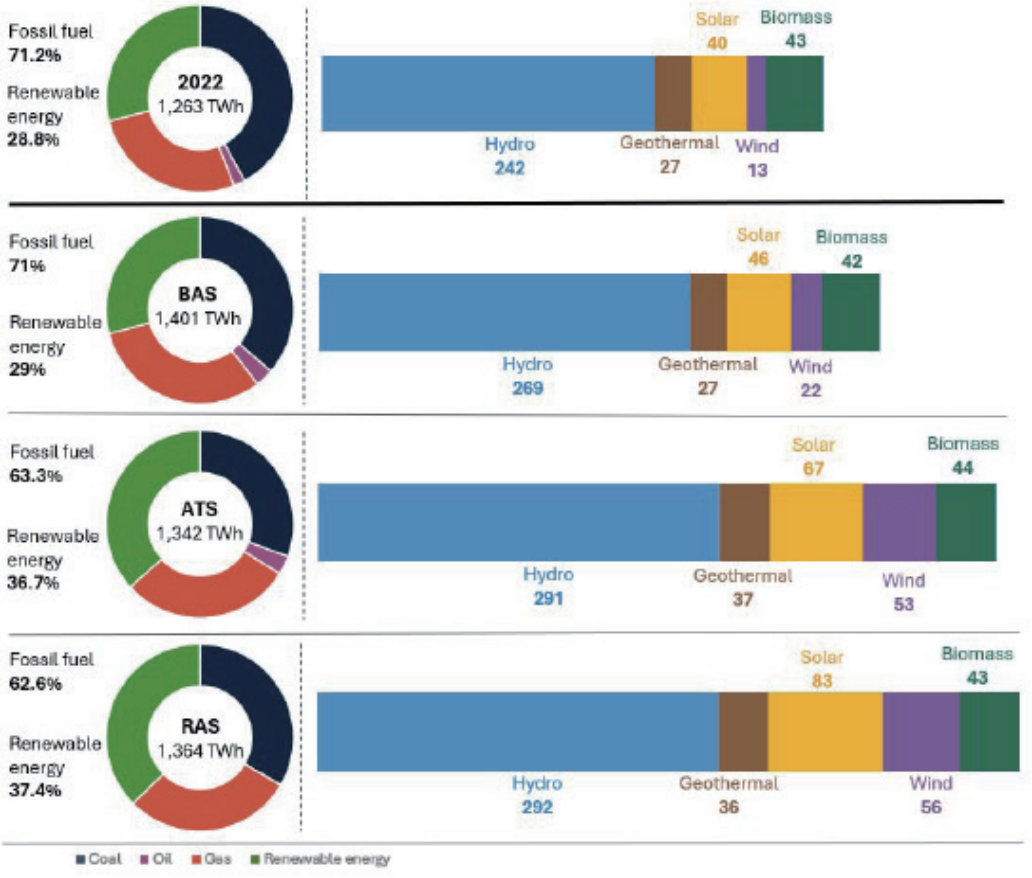
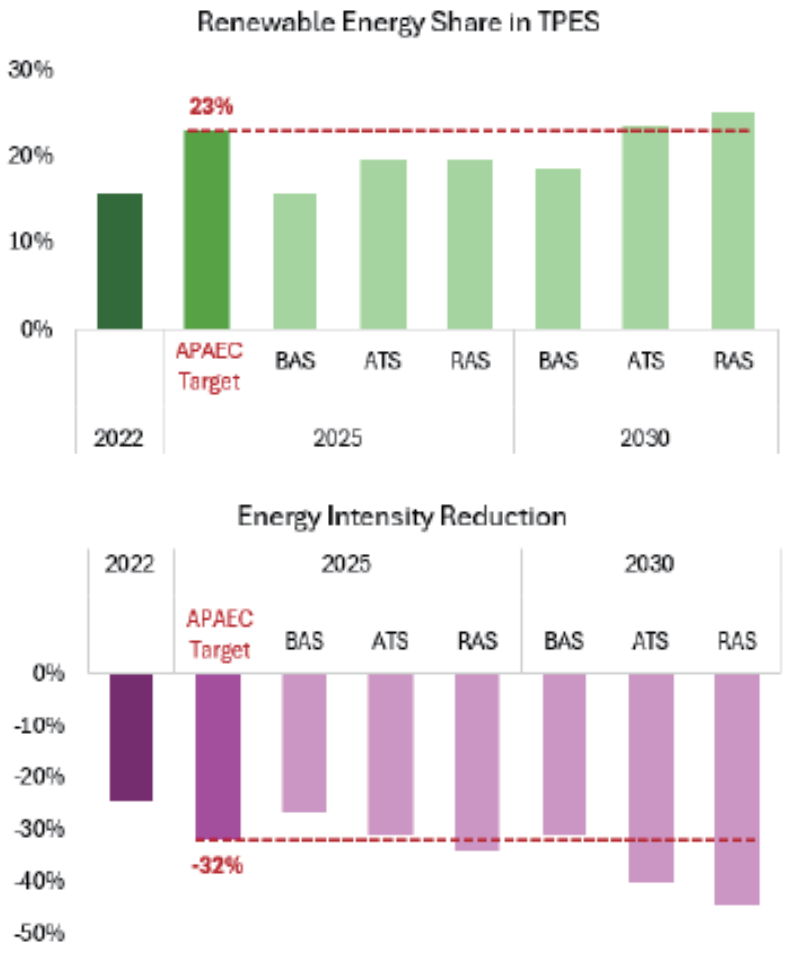


Figure 6. ASEAN Power Generation Projection under Different Scenarios

According to the ASEAN Action Plan on Energy Cooperation (2016–2025), ASEAN aims for renewable energy to account for 23 percent of total primary energy supply by 2025. As of 2022, renewable energy only accounts for 15.6 percent, making it a significant challenge to reach the target within three years. With the adoption of national renewable energy policies (ATS) across member states, the share of renewable energy is expected to rise to 19.6 percent by 2025. Under the ATS, ASEAN's overall target is projected to be achieved by 2030, whereas under the RAS, the goal could be met by 2029. In terms of installed power capacity, the 2025 target is 35 percent. In 2022, capacity had already reached 33.6 percent, and under the ATS and RAS, it is expected to reach 39.6 percent and 41.3 percent, respectively. By 2030, the renewable share is projected to increase sharply, reaching 44.1 percent under ATS and 49.3 percent under RAS.

Regarding energy efficiency, ASEAN aims to reduce energy intensity (EI) by 32 percent by 2025 relative to 2005. By 2022, EI had declined by 24.5 percent from 2005, demonstrating substantial progress, though still short of the target. Projections indicate that by 2025, the ATS scenario could achieve a 31 percent reduction, slightly below the target, while the RAS scenario could meet or even exceed the target.



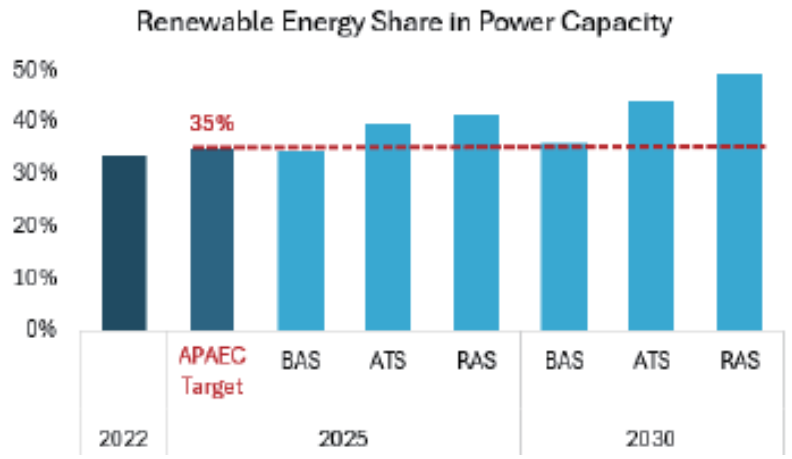


Figure 7. ASEAN Energy Goals Assessment for 2025

To sum up, ASEAN has made notable progress in adjusting its energy structure and unlocking development potential, yet it continues to face multiple challenges: a high reliance on fossil fuels, the need to accelerate renewable energy deployment, the early-stage development of alternative fuels, and ensuring energy security. Moving forward, further policy implementation, regional cooperation, and technological innovation will be essential to advancing the energy transformation and establishing a low-carbon, reliable, and sustainable regional energy system.

(II) China-ASEAN Clean Energy Cooperation and the Practical Experience

China plays an irreplaceable role in realizing ASEAN's vision of regional energy integration. Over the past five years, since China set the goals of "reaching the carbon peaking by 2030 and achieving carbon neutrality by 2060," the country's installed renewable energy capacity has surpassed 2.159 billion kilowatts, ranking first globally, while the annual production and sales of new energy vehicles have both exceeded 12 million, leading global sales for ten consecutive years. In recent years, China and ASEAN have deepened energy cooperation, gradually expanding from traditional oil and gas to include new energy, green low-carbon solutions, and digital energy. The BRI aligns closely with ASEAN's Master Plan on Connectivity 2025. Following the completion of negotiations to upgrade the China-ASEAN Free Trade Area to Version 3.0, clean energy, new energy vehicles, and green supply chains have been identified as priority areas. Alignment of green standards, green trade, and green financial cooperation is becoming a new focal point of bilateral collaboration. Against the backdrop of climate change mitigation and energy transformation, this cooperation not only complements each side's development strategies but also aligns closely with global trends in green governance.

China has pledged to deepen regional cooperation, bringing valuable experience from rapid industrialization and accelerated investment in clean energy. Chinese enterprises are actively participating in ASEAN's energy transformation, and the country's leading solar manufacturing capacity can be strategically deployed to accelerate the construction of key infrastructure. Specific initiatives include:

First, at the policy and strategic level, China's goals of "carbon peaking and carbon neutrality" are highly aligned with ASEAN's Action Plan for Energy Cooperation (APAEC). Through multilateral frameworks such as the ASEAN +3 Energy Ministers' Meeting, the East Asia Summit Clean Energy Forum and other multilateral frameworks, as well as platforms such as the Clean Energy Capacity Building Program, both sides have established stable channels for policy communication and collaboration. This institutionalized arrangement ensures consistency and long-term direction for regional energy cooperation.

Second, at the project and practice level, Chinese enterprises have become key participants in ASEAN's clean energy market. For instance, Chinese photovoltaic enterprises have constructed several large-scale photovoltaic power plants in Vietnam, Thailand, and the Philippines, significantly increasing local renewable energy capacity and promoting the localization of the green industry chain. In Laos, China Corporation have participated in hydropower and transmission projects, effectively supporting cross-border clean electricity transfer and serving as a cornerstone for ASEAN's regional power grid interconnection. Additionally, Chinese enterprises are actively promoting geothermal projects in Indonesia and biomass energy projects in Malaysia, contributing to a diversified clean energy system.

Case 1: 257 MW Solar Power Plant, Hoa Hoi City, Phú Yên Province, Vietnam

Vietnam possesses abundant solar resources, with a total potential of 500 GW, providing a significant advantage in attracting foreign investment. Since 2017, Vietnam has actively promoted utility-scale solar power projects through competitive and incentive-based investment policies, establishing itself as a regional leader in solar energy. With the implementation of Vietnam's Eighth National Power Development Plan (PDP 8), the government has clarified its future energy transformation direction and aims to significantly increase solar power generation capacity. This growing demand presents a strategic opportunity for China to deepen cooperation with Vietnam under the BRI.

The 257 MW solar powerplant in Hoa Hoi City, Phú Yên Province, is Vietnam's largest single-operation solar facility and one of the largest in Southeast Asia. In October 2020, the project's investor, Phú Yên TTP (a joint venture between B.Grimm Power and Truong Thanh Group Vietnam Joint Stock Company), signed a USD 186 million loan agreement with the Asian Development Bank. Financing included a USD 27.9 million loan from the Asian Development Bank (ADB), a USD 148.8 million syndicated loan from commercial banks (Loan B), and a USD 9.3 million loan from the Leading Asia Private Infrastructure Fund. The syndicated loan represents the first green B loan certified by the Climate Bonds Initiative in the Asia-Pacific region and one of the largest of its kind in Vietnam. Participating commercial banks included Bangkok Bank, Kasikorn Bank, Kiatnakin Bank, Industrial and Commercial Bank of China, and Standard Chartered Bank.

The EPC general contractor, Power Construction Corporation of China, was responsible for engineering, procurement, and construction, ensuring timely, high-quality, and on-budget project completion. Solar modules were supplied by Chinese manufacturers, with JA Solar providing 221.388 MW and Trina Solar supplying 35 MW. The project exemplifies innovative financing, multi-stakeholder participation, and positive social impact, showcasing the strength of Chinese enterprises in overseas new energy projects, their capacity to provide "one-stop" solutions, and their ability to promote green, low-carbon development in BRI countries through technological and operational expertise.

Case 2: China-Loas Vientiane Saysettha Low-Carbon Demonstration Zone

The Vientiane Saysettha Comprehensive Development Zone (SCDZ), located near the terminal station of the China-Laos Railway in Laos, is the only state-level overseas economic and trade cooperation zone of China in Laos and a state-level special economic zone of Laos. In July 2020, China and Laos signed a Memorandum of Understanding to establish Laos' first low-carbon demonstration zone under the framework of "South-South Cooperation." The project aims to foster green and modern production and lifestyles, promote sustainable development, and position the new city of Vientiane as a model for low-carbon urban development in Laos and Southeast Asia.

In terms of material support, China has provided Laos with two batches of aid, including 2,000 sets of solar-powered LED streetlights, 12 new-energy buses, eight new-energy trucks, eight new-energy environmental law enforcement vehicles, and five sets of environmental monitoring equipment. These contributions facilitate a shift toward low-carbon lifestyles through low-carbon transportation, enhance green infrastructure via low-carbon lighting, and strengthen Laos' capacity for climate change adaptation and awareness of low-carbon development through technical exchanges and outreach programs. On the technology front, the *Low-Carbon Development Plan of Laos Vientiane Saysettha Comprehensive Development Zone*, jointly developed by Chinese and Lao experts, guides the SCDZ's long-term low-carbon development. It promotes "fourfold low-carbonization" across energy, infrastructure, industry, and management in the SCDZ, enhancing Laos' resilience to climate change. The demonstration zone was officially inaugurated in April 2022. Following the deployment of the first batch of new-energy vehicles, the zone is expected to reduce annual carbon emissions by approximately 1,243 tons, equivalent to planting over 100,000 trees.

Sommad Pholsena, Vice President of the Lao National Assembly, stated: "The Saysettha Low-Carbon Demonstration Zone is an excellent project that has made significant contributions to Laos' green economy and brought tangible benefits to our people." The zone features an iconic Laotian-style entrance set against lush plains, straight roads connecting north and south, neatly arranged colorful standardized factory buildings, and solar-powered streetlights illuminating the night. New-energy buses shuttling between the SCDZ and Vientiane city have become a local highlight. Driven by the demonstration area, the SCDZ has earned recognition from local residents for its attractive environment, high-quality employment and investment opportunities, and harmonious living conditions.

Case 3: Singapore Zero Carbon and Smart Energy Hub Project

Envision Group (jiancheng refer to as “Envision”), a global leader in new energy systems, is committed to promoting global zero-carbon transformation, with business spanning wind power, energy storage, green hydrogen, smart batteries, and AIoT systems. In recent years, Envision has advanced its “green energy going global” strategy, expanding its business across ASEAN and collaborating closely with local enterprises and governments. Among ASEAN countries, Singapore serves as a strategic hub for Envision’s regional deployment. In 2018, Envision won the tender to provide an AIoT platform for the Government Technology Agency, supporting Singapore’s “Smart Nation 2025” plan. In 2023, Envision established its AIoT business headquarters in Singapore, along with a Zero Carbon Center of Excellence and a Digital Battery Center of Excellence. The former focuses on green finance, sustainable transportation, and real estate transformation, while the latter emphasizes energy storage safety, life cycle management, and battery network systems. Additionally, Envision partnered with PSA Singapore to promote green port construction and participated in Singapore’s largest energy storage project, the Jurong Island 200 MW/200 MWh Energy Storage System.

Third, at the market and investment level, China’s green financial instruments and investment mechanisms are providing new momentum for ASEAN’s energy transformation. Through green bonds, equity investment, and development finance, Chinese financial institutions offer long-term, stable funding for ASEAN clean energy projects. This financial support not only accelerates project implementation but also fosters the development of ASEAN’s green financial market.

Case 4: China Everbright Group'Practice of Green Financial Support and Environmental Protection Project Cooperation

Everbright Group has actively supported high-quality BRI projects and played a key role in China-ASEAN green cooperation. Everbright Bank has established partnerships with 112 banks across eight ASEAN countries, facilitating financing for green transformation, renewable energy, and digital infrastructure projects, contributing to regional sustainable development. Everbright Environment Group, a subsidiary, is a global leader in waste-to-energy (WtE) investment and comprehensive environmental services, with 621 environmental protection projects worldwide, including six in Guangxi, China, and two WtE projects in Can Tho and Hue, Vietnam. These projects have improved local solid-waste management and clean energy supply and received strong recognition from governments and residents. The Can Tho WtE project was designated a BRI green development benchmark project by the relevant ministries of China, exemplifying how Chinese enterprises promote green and low-carbon transformation.

Fourthly, at the level of technology and innovation, China's industrial strengths in new energy equipment, smart grids, energy storage, electric vehicles, and hydrogen energy provide practical solutions for ASEAN's energy transformation. Through joint R&D and demonstration projects, both sides are exploring models for technology sharing, industrial implementation, and market promotion.

Case 5: Electric Vehicle Demonstration Operation Project in Thailand

BYD promotes green travel in Southeast Asia by entering Thailand and Singapore's public transport systems, using its highly visible EV buses as a brand vehicle. In Thailand, BYD has established a factory with an annual capacity of 150,000 vehicles, captured a 41 percent market share, and maintained the top position in NEV sales for 18 consecutive months — BYD not only reached significant goals in the market sales, but also actively explored the scenario of public transportation.

In April 2024, Rêver Group, BYD's official distributor, launched the B70 EV bus demonstration project in Thonglor, Bangkok. The vehicles feature USB ports, barrier-free access, and intelligent safety systems, ensuring comfort and convenience for diverse passengers. The trial routes cover hospitals, commercial centers, and subway stations, providing a visible example of green urban transport and a replicable model for regional urban mobility transformation.

Fifth, China and ASEAN have significant potential for cooperation in energy capacity building and digital energy. ASEAN countries often face a shortage of skilled personnel and experience in energy governance and project management, while China has trained numerous energy management and technical professionals through courses, joint research, and enterprise exchanges. With accelerating digitalization, China's experience in green data center operations, smart dispatch, and energy digital platforms aligns closely with ASEAN's digital economy strategies. Cooperation in big data, AI-optimized dispatch, and smart energy management offers new "digital-driven" momentum for ASEAN's energy transformation.

China-ASEAN cooperation projects have not only increased clean energy penetration and regional energy interconnectivity but also improved local livelihoods and business environments, promoting sustainable economic development. Building on outcomes from the GCC-China-ASEAN Summit in Kuala Lumpur, deeper regional integration is taking shape. While GCC partners provide long-term capital and off-take guarantees, the financial and industrial institutions of China and ASEAN collaborate through technical support, project development, and blended financing to create a new model of cross-regional green investment and supply chain synergy.

(III) Regional Energy Cooperation Pathways for Green Transformation

The green ASEAN Power Grid will unlock the potential of a broader regional energy system, enabling the interconnection of power generation and storage facilities with integrated energy system modules, including industrial corridors, data hubs, digital infrastructure, regional ports with clean fuels, and industries. These areas must be planned as part of an integrated regional energy system to fully leverage the unique and complementary resource advantages of member countries, thereby maximizing competitiveness. Drawing on ASEAN's current energy landscape and the experience of China-ASEAN clean energy cooperation, regional energy transformation can be promoted through the following approaches:

First, it is to speed up the interconnection of regional power grids and the optimization of energy resources. Enhancing cross-border transmission networks and establishing a unified electricity market will enable efficient circulation of clean energy such as solar, wind, and hydropower across ASEAN countries. This approach not only improves energy supply reliability but also allows each country to harness its unique and complementary resources, forming an efficient, coordinated regional energy system.

Second, it is to promote the replicable clean energy demonstration projects. Emerging sectors, such as hydrogen energy, energy storage, smart energy systems, and electric transportation, offer substantial growth potential. Joint demonstration projects and technological innovation can generate scalable business models and management practices, accelerating the large-scale deployment of clean energy in ASEAN while providing clear investment directions for private capital.

Third, it is to improve the green investment and financing and financial support mechanism. Establishing a regional green energy fund and promoting financial instruments such as green bonds and sustainable development loans can provide long-term, stable funding for energy projects. This approach mirrors China's investment practices in ASEAN, ensuring smooth project implementation from planning to execution while attracting diversified capital for energy transformation initiatives.

Fourth, it is to strengthen the coordination of policies, standards and technologies. Aligning energy policies, promoting mutual recognition of green energy standards, and fostering regional carbon markets and carbon capture technology cooperation can improve technology efficiency and reduce project risks. This approach draws on China's experience in developing a national electricity trading system and scaling clean energy deployment, offering practical guidance for ASEAN countries.

Fifth, it is to strengthen capacity building and personnel training. Through policy research, technical exchanges, and training platforms, ASEAN countries can enhance energy governance capabilities and

provide institutional and intellectual support for clean energy project implementation. Building human capacity ensures the long-term, stable operation of regional energy cooperation and lays the foundation for achieving the goal of carbon neutrality.

In summary, the energy cooperation between ASEAN and China can form a full-chain model that ranges from policy alignment, project implementation to technological innovation and investment and financing support. This approach enhances the efficiency and quality of regional energy transformation, provides replicable experience for regional integration and global South-South cooperation, and injects lasting momentum into green and low-carbon development. At the same time, potential challenges must be considered, including investment risks, policy uncertainties, balancing clean energy development with ecological protection, and climate change impacts on energy infrastructure.

ASEAN's energy transformation is not only critical for the sustainable development of the regional economy but also an essential component of global carbon neutrality. China's experience has provided "new impetus" to ASEAN's energy transformation, and bilateral cooperation in clean energy, grid interconnection, investment and financing, technology, and capacity building has delivered substantial results. China's strategic, long-term investment in ASEAN's clean energy sector will support regional development while yielding stable, long-term returns for China. Looking ahead, China and ASEAN will further deepen their green partnership, accelerate the formation of an energy community with shared destiny, and contribute more wisdom and practical solutions to the regional and global low-carbon energy transformation.

IV. Latin America: Biodiversity and Ecosystem Services Driving Green Development

Latin America is renowned for its unique natural endowments and rich biodiversity. With ecosystems such as the Amazon rainforest, the Andes Mountains, and the Caribbean coral reefs, the region is indispensable to global green development strategies. Latin America boasts the world's largest tropical rainforests, the most complex river systems, and the richest ecosystems. Brazil, Colombia, Ecuador, Mexico, Peru, and Venezuela are recognized as "megadiverse countries," providing essential ecological services for both the region and the world. The region's natural capital not only directly underpins economic development and social well-being but also plays a crucial role in global climate governance and ecological balance.

(I) Ecological Resource and Climate Policy in Latin America

1. Advantages of Ecological Resources and Natural Capital

Latin America possesses unique advantages in biodiversity, and its ecological resources are a core foundation for green development. The Amazon Basin, which spans more than 7 million square kilometers across eight countries including Brazil, Peru, and Colombia, represents the region's forest ecosystems. Known as the "lungs of the Earth," the Amazon is home to approximately 10 percent of the world's known species. The forest absorbs roughly 2.2 billion tons of carbon dioxide annually, playing a decisive role in the global carbon cycle and climate regulation. Through transpiration, it also contributes about 20 percent of South America's rainfall, supporting agriculture, hydropower, and urban water supply.

The natural capital of Latin America extends beyond forests to include the alpine ecosystems of the Andes, the wetlands of Patagonia, and the coastal marine ecosystems of the Caribbean. These ecosystems provide irreplaceable services in regional water security, food production, disaster regulation, and tourism, highlighting the central role of natural capital in the regional economic structure.

2. Climate Policy Goals of Latin American Countries

Under the global climate governance framework, Latin American countries have strengthened their Nationally Determined Contributions (NDCs), demonstrating proactive commitment to green development and emission reduction. Brazil has pledged to achieve "zero growth" in illegal deforestation by 2030 and carbon neutrality by 2050. The government aims to maintain renewable energy's share in the power structure above 45 percent while promoting hydrogen and biofuel development. Chile targets carbon neutrality by 2050 and drives its transformation through carbon pricing and renewable energy expansion. By 2023, renewable energy accounted for over 60 percent of Chile's installed power capacity, setting a regional benchmark for energy transformation. Colombia has set a goal of reducing greenhouse gas emissions by 51 percent by 2030, emphasizing nature-based solutions (NbS) such as forest

restoration and wetland conservation. Argentina has accelerated wind and photovoltaic energy development, aiming for a 30 percent renewable energy share by 2030.

Beyond national policies, Latin American countries enhance cooperation through regional mechanisms. The Platform of Latin America and the Caribbean for Climate Action on Agriculture (PLACA), launched in 2019, provides an institutional platform for countries in the region to strengthen the coordination of climate policy under the *Paris Agreement*. The upcoming COP30 to the UNFCCC, to be held in Brazil in 2025, further underscores Latin America's prominent role in the global climate agenda.

3. Contradiction Between Ecological Protection and Economic Development

Despite the positive policy goals, Latin America faces structural tensions between ecological protection and economic development. Regional economies remain highly dependent on agricultural, mineral, and fossil-fuel exports: agricultural exports from Brazil and Argentina support global food security, while Chile and Peru are major global suppliers of key minerals such as copper and lithium. These industries are vital for foreign exchange earnings and local employment. However, they also represent major sources of regional carbon emissions and ecological degradation. In Brazil, for example, deforestation and land-use change accounted for approximately 49 percent of the country's greenhouse gas emissions (2021).

Balancing economic development needs with ecological protection has become a central challenge in Latin America's green transformation. As the world's richest region in biodiversity and carbon reserves, Latin America's climate policies have implications beyond the sustainable development of the region, directly influencing global carbon neutrality efforts. By fully leveraging the value of forest carbon sinks and biodiversity, Latin America can pursue a "natural capital-driven economic growth model" to achieve dual benefits: safeguarding ecological security while generating new green economic momentum. For China, Latin America's green development needs and policy objectives offer significant opportunities to deepen South-South cooperation, foster green investment, and advance technological exchange.

(II) Pathways for Realizing the Value of Natural Capital in Latin America

Latin America is a global pioneer in integrating natural capital into sustainable development strategies. Its ecosystem services are valued at trillions of dollars and encompass provisioning services (such as timber and food), regulating services (such as climate regulation and water purification), cultural services (such as recreation), and supporting services (such as nutrient cycling). Several Latin American countries have adopted the UN's *System of Environmental-Economic Accounting* (SEEA) as a standardized framework for assessing natural capital, enabling them to quantify their natural capital status, the ecosystem services' economic value and the environmental costs of economic activities. Countries such as Brazil, Colombia, and Chile have established national natural capital committees to integrate natural capital

accounting into national economic accounts, quantify the economic value of ecosystems, thereby informing policy and decision-making.

· Brazil

Boasting the world's largest tropical rainforest, the Amazon, Brazil is a global leader in leveraging natural capital. Research indicates that the Amazon's ecosystem services are worth billions of dollars annually, influencing global climate patterns and regional economic development. Brazil promotes sustainable natural capital use through the REDD+ mechanism (Reducing Emissions from Deforestation and Forest Degradation) and the development of the bioeconomy.

The REDD+ mechanism, proposed by developing countries under the UNFCCC in 2005, provides economic incentives to reduce greenhouse gas emissions from deforestation. It enables Brazil to access international funding for forest conservation, advancing both national and global sustainable development. At the national level, the Amazon Fund, established in 2008 and managed by the Brazilian Development Bank (BNDES), mobilizes international resources for Amazon protection. At the state level, regions such as Mato Grosso have implemented state-level REDD+ systems to monitor environmental safeguards and execute projects. Furthermore, the Brazilian National Institute for Space Research (INPE) employs advanced satellite monitoring to track deforestation in real time, providing critical data for assessing carbon storage and water cycle services. In 2023, Brazil launched the Amazon 2030 Plan, which integrates natural capital accounting to restore degraded lands and protect biodiversity. Through the REDD+ mechanism, carbon credits provide economic incentives to local communities for forest protection. By 2024, REDD+ projects have funded the conservation of approximately 120 million hectares, substantially reducing deforestation rates.

Brazil is also actively developing a bioeconomy that emphasizes the sustainable utilization of non-timber forest products, generating income for local communities while preserving forests. This approach promotes employment, reduces poverty, and advances social equity. The Brazil Restoration & Bioeconomy Finance Coalition (BRB FC) aims to mobilize USD 10 billion by 2030 for conservation and bioeconomy initiatives. The Agrobiodiversity Initiative (AGBI) promotes zero-tillage farming and forest maintenance, preserving natural capital while increasing agricultural productivity.

· Costa Rica

Costa Rica is internationally recognized as a pioneer in natural capital valuation. Since 1997, the country has innovatively initiated the Payments for Ecosystem Services (PES) program, which compensates landowners for protecting forests. This program explicitly acknowledges forests' contributions to carbon sequestration, water conservation, biodiversity maintenance, and landscape value. PES has successfully

reversed deforestation trends, raising forest cover from the 1980s' low point to over 50 percent today.

The PES program of Costa Rica continues to expand and innovate. First, it is integrated with tourism, promoting ecotourism in protected areas; 25 percent of Costa Rican land is designated as national parks, nature reserves, or Other Effective Area-Based Conservation Measures (OECMs), harnessing of these ecological resources to promote ecotourism, and generating 6–8 percent of annual GDP. Second, with the support of the United Nations Development Programme (UNDP) and the REDD+ mechanism, Costa Rica has received tens of millions of dollars in results-based payments to extend PES coverage in indigenous areas and strengthen forest fire prevention. Third, with World Bank support, Costa Rica launched its first Marine PES pilot project in 2025, focusing on mangrove protection in the Gulf of Nicoya. This project provides funding to local communities engaged in sustainable mollusk harvesting to incentivize the conservation of mangroves critical to their livelihoods, marking an important expansion of PES from terrestrial to marine ecosystems.

· Regional Sphere

At the regional sphere, Latin American countries are pioneering the integration of natural capital assessment with green finance. The Economic Commission for Latin America and the Caribbean (ECLAC) has established a database and cross-border sharing mechanism based on the UN's System of Environmental Economic Accounts (SEEA), covering indicators in key areas such as forests, wetlands, water resources, and marine ecosystems. This provides essential data reference for countries to formulate green finance policies and climate adaptation strategies. By 2025, the database included 10 countries and supported 20 green finance projects. The cross-border sharing mechanism also facilitates cooperation among Amazon Basin countries in carbon sink trading and water resource management.

The World Wide Fund for Nature (WWF) and the Latin American and Caribbean Development Bank (CAF) jointly launched the Amazon Natural Capital Project to quantify the value of ecosystem services in the Amazon rainforest as an operational financial assets. Green bonds are a core financial instrument, designed around forest carbon sinks and water resource values. Carbon credits embedded in bonds attract international investment, while funds raised from water service valuation support river basin restoration and water management infrastructure.

Latin American countries have thus developed a diversified system for identifying, measuring, financializing, and community-integrating natural capital. Through PES, debt-for-nature swaps, community forestry, natural capital accounting, and nature-based infrastructure, they protect ecosystems while achieving employment, poverty alleviation, and social equity, providing replicable models for other developing countries.

(III) Cases of China-Latin America Cooperation in Green Development

In Latin America, the tension between industrial development and ecological protection has long been considered a key challenge constraining sustainable transformation. China has supported the region in pursuing a green development path tailored to local contexts through green investment, technology transfer, and knowledge sharing.

Case 6: "Made in China" Deep Down in the Heart of the Amazon Rainforest

Since the Brazilian government established a free trade zone in Manaus, the capital of its northwestern Amazonas state, in 1967, the region has gradually evolved into a platform balancing economic development with ecological protection. Several Chinese enterprises have invested in and operated in the zone, actively exploring low-carbon and sustainable development pathways. As one of the earliest Chinese companies to enter the Brazilian market, Gree Electric invested in a factory in Manaus in 2001. All air conditioners produced use environmentally friendly refrigerants with high energy efficiency, exerting "zero damage" to the ozone layer, and reflecting the company's commitment to green, energy-saving, and sustainable practices. The factory has six production lines, four producing household air-conditioning models and two producing light commercial models, with an annual capacity of 2 million units and a leading market share in Brazil. The intelligent manufacturing of "Made in China" has provided strong momentum for the Manaus Free Trade Zone. In 2024, the Zone recorded its highest revenue in 57 years, and monthly performance in 2025 continues to exceed historical benchmarks. Serving as a core pillar for Amazon rainforest protection, the industrial park provides abundant employment opportunities, preventing local communities from engaging in agriculture and livestock activities that would lead to deforestation, thereby preserving 97 percent of the Amazon rainforest.

Case 7: Signing of the Joint Statement of Intent on Sharing Spatial Data Between the China National Space Administration and the Ministry of Science, Technology and Innovation of Brazil

On May 13, 2025, witnessed by the leaders of China and Brazil, the China National Space Administration (CNSA) and Brazil's Ministry of Science, Technology and Innovation signed the *Joint Statement of Intent on Sharing Space Data with Latin American and Caribbean Countries* during the Fourth Ministerial Meeting of the China-CELAC Forum. Under this agreement, the two countries will share data from the China-Brazil Earth Resources Satellites (CBERS) with CELAC countries and provide relevant capacity-building and training support. China and Brazil have jointly developed and successfully launched five CBERS satellites, which have significantly contributed to economic development and social progress, serving as a model of "South-South cooperation" in high technology. Sharing CBERS data and space technology enables agricultural and forestry monitoring, environmental protection, disaster early warning, and climate change response across Latin America and the Caribbean. This initiative represents an important implementation of the Global Development Initiative, the Global Security Initiative, and the Global Civilization Initiative, further strengthening space cooperation between China and CELAC countries and promoting the building of a community of shared future for mankind in outer space.

Case 8: China-Cuba Sericulture Cooperation Project Achieved Fruitful Results

In July 2014, the Cuba-China Sericulture Science and Technology Cooperation Center was inaugurated in Havana, the capital of Cuba. In June 2015, the China-Cuba Sericulture Science and Technology Cooperation Center was opened in Zhenjiang, China. Since 2020, projects under this framework have leveraged high-tech nanotechnology and biomedicine, combining China's and Cuba's strengths in mulberry cultivation, sericulture, and biomedicine to jointly develop innovative silk-based high-tech products and technologies. The cooperation aims to help Cuba establish a comprehensive sericulture research and production system, making it the second-largest sericulture research and production hub in Latin America after Brazil. Jorge Luis Tapia Fonseca, Deputy Prime Minister of Cuba, recently expressed sincere gratitude to the Chinese government in Havana for supporting Cuba's sericulture sector, praising the collaboration as a successful example of the BRI in Latin America and a new symbol of China-Cuba friendship.

(IV) Green Finance Instruments Facilitating the Realization of Ecological Value in Latin America

In Latin America, biodiversity and ecosystem services are not only crucial components of natural capital but also strategic resources for sustainable economic development. Translating ecological value into tangible economic benefits has become a central concern for policymakers, financial institutions, and enterprises across the Latin America countries. Innovative green financial instruments play a pivotal role in this process. By leveraging capital allocation and risk-sharing mechanisms, they effectively link ecological conservation with market value, serving as a crucial driver for advancing the realization of ecological value in Latin America.

· Brazil: Innovative Multilateral Mechanism to Provide Finance Facilities for Tropical Rainforest Conservation

In November 2023, the Brazilian government first introduced the concept of the Tropical Forest Forever Facility (TFFF) at COP28 in Dubai. TFFF is an innovative global financing mechanism designed to mobilize sustainable funds for tropical rainforest conservation through multilateral cooperation. Currently, a number of countries—including tropical rainforest nations and potential investors—are participating in the preparatory work. The facility is scheduled to be officially launched at the COP30 Leaders' Summit in Belém, Brazil, in November 2025. The World Bank will serve as trustee, and TFFF will complement existing mechanisms such as the Global Environment Facility and REDD+. By integrating public and private capital and operating in a market-oriented mode, TFFF aims for long-term financial returns, providing performance-based forest protection funding to eligible countries. Its core mechanism achieves capital appreciation through portfolio management and allocates compensation according to each country's actual conservation outcomes (e.g., forest coverage and deforestation rates), rather than relying on traditional grants or carbon credit systems.

In November 2024, Brazil also launched the Brazil Climate and Ecological Transformation Investment Platform (BIP), marking a significant step forward in the financialization of ecological value. BIP integrates cross-sector priorities, mobilizes domestic and international capital, and supports ecological protection and green transformation in the Amazon. Its focus areas include combating deforestation, forest restoration, clean energy, and industrial decarbonization. The BIP is led by the Ministry of Finance and jointly guided by a steering committee comprising the Ministry of Environment and Climate Change, the Ministry of Minerals and Energy, and the Ministry of Development, Industry, Trade, and Services, with BNDES serving as Secretariat, BIP manages project selection and fund allocation. The platform not only supports Brazil to achieve the goal of carbon neutrality in 2050, but also establishes an institutionalized channel for international capital to enter ecological investment. Its core significance lies in embedding

"ecosystem services" directly into the agenda of national strategies and capital market operations through cross-sector coordination and multi-capital mobilization.

· Colombia: Natural Capital Bonds Lead Sovereign-Backed Financing Innovation

Colombia is a regional leader in green sovereign bonds. In 2020, the country adopted a sovereign special bond issuance framework and launched the sovereign green bond framework in 2021. Under this framework, principal and interest payments are made from government appropriations and are not directly tied to specific green project performance. The Financial Superintendency of Colombia issued a good practice guide referencing international standards, establishing Latin America's first dedicated regulatory framework for green bonds. Colombia has also actively promoted the stipulation of a national Green Taxonomy to help market participants identify and evaluate projects meeting environmental sustainability standards across energy, construction, agriculture, forestry, and waste management The taxonomy will be included by the sovereign framework after completion. Based on this framework, the Ministry of Finance plans to issue USD 547 million in sovereign green bonds, funding 27 projects in six sectors: 40 percent for water management, 27 percent for sustainable transport, 16 percent for biodiversity conservation, and 14 percent for renewable energy transformation.

· Chile: The Synergy Mechanism of Green Bonds and Carbon Pricing

Chile, among the first Latin American countries to issue green and sustainable bonds, has raised funds for projects in clean transportation, energy efficiency, renewable energy, biodiversity and marine resource protection, and water resource management. It is particularly noteworthy that that in 2025, Chile's Ministry of Finance updated the "Sustainability-Linked Bond (SLB) Framework", integrating biodiversity conservation into key performance indicators (KPIs) for the first time, making it a new benchmark for ESG finance in Latin America. The new framework sets two major goals: raising terrestrial protected areas from 21.6 percent to 30 percent by 2030 and ensuring 10 percent of protected areas meet international management standards. Unlike traditional green bonds, SLBs do not restrict the use of proceeds but incentivize issuers to achieve ESG goals, such as emission reduction and renewable energy adoption, through interest rate adjustments. Chile's approach demonstrates how national development goals can be aligned with international standards, offering a practical path for ecological value quantification and monetization.

· Ecuador: The World's Largest Debt-for-Nature Swap

Ecuador, one of the world's most biodiverse countries, hosts the Galapagos Islands, the UNESCO-listed World Natural Heritage, and a globally crucial ecosystem. However, Ecuador has faced high external debt pressure for a long time, with its sovereign debt cost rocketing and solvency limited, which also has

a negative impact on its biodiversity conservation and green low-carbon transformation. Debt-for-nature swaps have re-emerged as an innovative financial instrument. While gathering extensive attention from the international community in recent years, it links the evaluation of debt relief with environmental commitment, providing a fiscal space for debtor countries, and promoting the ecological protection, so as to achieve a win-win situation between economic development and ecological protection. In 2023, Ecuador, in partnership with the Inter-American Development Bank (IDB) and the International Development Finance Corporation (DFC) of the United States, completed the world's largest natural debt swap, totaling USD 1.628 billion. The debt swap of Ecuador not only significantly reduced the country's debt burden, but also provided long-term financial support for the ecological protection of the Galapagos Islands.

In summary, green financial instruments in Latin America facilitate ecological value transformation in diverse ways. Brazil emphasizes the use of multilateral cooperation to carry out financial innovation, focusing on the construction of institutionalized platforms with cross-sector coordination; Colombia links sovereign financing innovation to ecological performance; Chile harnesses the carbon pricing mechanism to achieve synergy between green bonds and national strategies; Ecuador uses debt-for-nature swaps to achieve debt relief and biodiversity conservation simultaneously. These practices show that green finance is not merely a funding tool but a bridge connecting ecological value with socioeconomic development. Looking ahead, the standardization of natural capital assessment, unification of green finance standards, and enhanced cross-border capital flows and carbon market interconnection could further enable Latin America to efficiently convert its abundant natural capital into sustainable development momentum.

V. Africa: Exploring New Green Transformation Pathways through a Pre-Feasibility Study Facility Model

Amid the global wave of green and low-carbon transformation, Africa, a region rich in resource endowments but highly vulnerable to climate change, has huge potential for the development of renewable energy. However, it is confronted with a bottleneck of shortage of funds in the early stage of project development, especially in the pre-feasibility study stage. Problems such as insufficient funds, limited technical capabilities, and information asymmetry in the market have seriously restricted the advancement of green energy projects. To address this issue, the Southern African Development Community (SADC) is currently considering the establishment of a Green Africa Pre-feasibility Facility (GAPF). GAPF aims to assist project developers in completing pre-feasibility studies by providing grants, seed funding and financial structuring consulting services. This initiative will create a dynamically updated pipeline of bankable projects, significantly enhancing the efficiency of identifying quality projects and attracting investments. This model also has the potential to be scaled up for wider application across the continent.

China, a significant force in global green transitions and an active advocate of South-South cooperation, has recently established multiple fund mechanisms supporting green development in developing countries. These include the Global Development and South-South Cooperation Fund and the China-Africa Green Industry Chain Special Fund. The GAPF initiative offers Chinese financial institutions and aid agencies a valuable opportunity to further engage in early-stage renewable energy project development in Southern Africa. Participation in GAPF helps share the costs and risks of pre-feasibility studies, establish local cooperation networks, engage in project screening early on and foster projects aligned with both policy and commercial objectives. Currently, GAPF is still in its design phase. Chinese stakeholders can actively participate in its early-stage development through resource investment, governance involvement and mechanism coordination, further consolidating its leadership role in global green transitions and South-South cooperation.

(I) From “Pre-Feasibility Study” to “Bankable Feasibility Study”: Critical Steps for Early-Stage Green Project Development

Amid the escalating global climate crisis, accelerating the energy transition has become a global consensus. For many developing countries, transitioning to sustainable energy is not only strategically important for environmental sustainability but also practically necessary for expanding energy access, driving economic growth and improving livelihoods.

Developing renewable energy projects involves multiple stages, from initial concept formulation to bankable feasibility studies. Projects that achieve bankable feasibility can secure funding and proceed to construction, operation and maintenance. The core purpose of a feasibility study is to confirm a project's

bankability by providing detailed technical, environmental, social, governance and economic analyses, thereby laying the groundwork for investment decisions. Additionally, feasibility studies help in early identification of project risks, clarify the value for money and direction of the project and facilitate successful financing.

Feasibility studies rely on thorough investigations and evaluations of project parameters. However, reaching this stage requires meeting several prerequisites, which typically occur during the pre-feasibility study (PFS) phase. Taking power projects as an example, this phase includes preliminary assessments of environmental and social impacts; initial grid integration studies; preliminary procurement estimation; full-cycle construction and operations and maintenance costs; and setting of power purchase agreement tariffs. It also involves securing various permits such as environmental permits, water usage licenses and electricity generation licenses.

Source: Authors' elaboration from Southern African Power Pool (2024).

Figure 8. Project Life Cycle

Commercial banks usually do not engage at this stage. Developers often do not have the financial resources and are reluctant to assume risks without guaranteed financing, causing many projects to stall at the conceptual phase. However, projects with early-stage funding, characterized by higher risk tolerance that supports pre-feasibility studies, are more likely to progress to bankable feasibility study stage and increase their chances of successful project financing.

In Africa, despite abundant renewable energy resources and significant potential for clean energy transitions, institutional weaknesses and limited project development capacity exacerbate early-stage funding shortages. The funding gap during the pre-feasibility stage thus becomes a significant obstacle to project advancement. Most local developers and start-ups in renewable energy markets typically lack the financial resources needed for preliminary technical, financial and environmental assessments. Due to limited public funding, project owners often rely on potential Engineering, Procurement, and Construction (EPC) contractors for early involvement as advisors in project planning and initial studies.

However, EPC contractors, as potential bidders for the construction work, lack incentives to focus on long-term operational planning from the project owner's perspective and instead prioritize the construction phase. This traditional approach often results in inadequate feasibility studies and incomplete risk identification, ultimately reducing project success rates and bankability. Additionally, limited resources often lead developers to replicate successful projects in convenient locations using proven pathways, while innovative projects in remote areas receive insufficient support. This trend limits the diversification of green energy projects and often makes energy accessibility improvements harder for underserved communities. While the region has several cross-border project preparation facilities—such as the Development Bank of Southern Africa (DBSA) Project Preparation Facility, the DBSA-managed Southern African Development Community (SADC) Project Preparation and Development Facility (PPDF) and the Southern African Power Pool (SAPP) Project Advisory Unit's Project Preparation Fund—few are dedicated to renewable energy. As a result, renewable energy projects are forced to compete with other sectors for limited pre-feasibility funding. Many existing facilities are grant-funded and risk drying up over time. This fact underscores the need for sustainable, revolving funding mechanisms to close the significant renewable energy capacity gap.

Early development stages are crucial to the success of green energy projects, with pre-feasibility studies providing the foundation. In many developing countries, the absence of stable public funding and commercial capital participation has led to chronic underinvestment in this phase, turning into a critical obstacle to the green transition. Therefore, establishing public funding mechanisms to bridge this critical gap is essential to reduce early-stage uncertainties and remove investment barriers. Addressing the funding shortfall at the pre-feasibility study stage is crucial to ensuring projects advance to the next phase and to improving financing success rates. Although international public funding mechanisms, such as Germany's KfW, the World Bank and USTDA, have provided partial support, challenges such as inconsistent aid flows, high barriers to access and insufficient support for green transitions have constrained comprehensive advancement of green projects in developing countries.

(II) Pre-Feasibility Study Facility Model: Mechanism, Functions and Governance Structure

To support the early-stage development of renewable energy projects by addressing its financing needs, SADC explored the possibility of establishing a Green Africa Pre-feasibility Facility (GAPF) initiative at the SADC Development Finance Institutions (DFI) Network meetings in June 2025. Established in 2000, the SADC-DFI Network comprises 51 mostly national development finance institutions from SADC member states. The SADC Development Finance Resource Center (DFRC) aims to mobilize funding and achieve

regional strategic goals (2020—2030) through technical assistance, capacity building, policy advocacy and consultation.

GAPF targets the early-stage financing bottlenecks faced by green transition projects in Africa, providing financial support for pre-feasibility studies for green infrastructure with significant carbon reduction potential. Specifically, GAPF offers three types of support: grants or small loans for land surveys, resource assessments and technical selection; non-repayable small seed funding for developers or local enterprises involved in project development; and assistance in structuring financing and risk-sharing mechanisms. GAPF employs an open application process for eligible public or private institutions, including local or regional developers, international energy companies already operating in Africa, green infrastructure projects led by public entities and project consortia involving technology suppliers or EPC companies.

Initial funding for GAPF will primarily come from public-sector contributors including multilateral and bilateral development finance institutions, governments and philanthropic foundations, pooling funds as grants or loans under joint management. Initial capitalization is projected at $10-15 million. To ensure sustainability, GAPF will explore diversified revenue mechanisms, such as a "success fee" levied proportionally at the financial close of projects to recoup upfront development costs and reinvest in the fund. Fees will vary depending on project nature and sector; for example, DFIs in the region such as the DBSA and the Industrial Development Corporation typically charge a return ranging from three percent for municipal projects to eight percent for private sector projects. GAPF may also introduce additional revenue streams, such as the Project Development Pipeline Preferential Access Fee charged to investors who wish to participate at this stage of project development. To further enhance long-term sustainability, it could also retain a small equity stake or other form of participation in project financing.

In GAPF's governance structure, anchor investors occupy the top layer, providing core funding and appointing members to the board or trust council and holding rights to capital returns. The Board of Trustees/Directors oversees strategic direction and major decisions, including appointment of the fund management company that will manage and supervise the Facility and develop investment policies. The board establishes and appoints members to key operational bodies and committees, such as the Investment Committee (IC), ensuring compliance with the Facility's objectives.

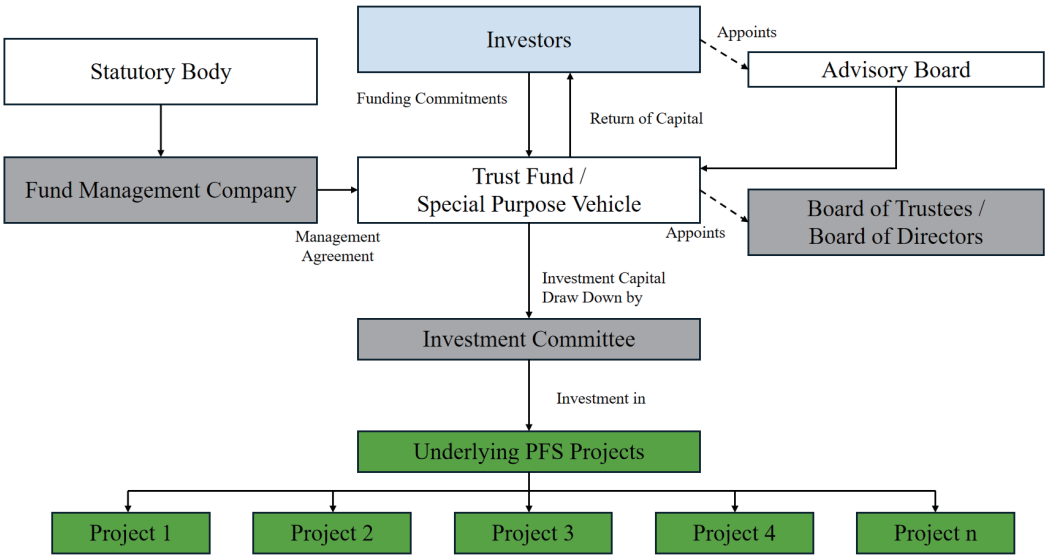


Figure 9. GAPF Fund Structure

(Source: Compiled by the author)

The daily operations of GAPF are managed by a dedicated and fully resourced fund management company, which will establish a Special Purpose Vehicle (SPV), or other appropriate structure as agreed by the initial investors, as the legal entity for the Facility's operations. According to the agreement signed between the fund management company and the investors, the company will handle the day-to-day administrative tasks, including receiving project applications, conducting preliminary reviews, coordinating the due diligence process, recommending projects to the IC, supervising Facility disbursements and tracking and evaluating projects' performance. All projects will be logged and undergo a structured pre-screening process by the fund management company staff, covering initial assessments of technical, legal, institutional, environmental and financial viability with input from independent advisors where necessary. Only projects that meet the preliminary viability criteria will be presented to IC for approval. Rather than undertake the full screening process, the primary role of IC is to review and approve shortlisted projects. The IC is composed of experts from diverse backgrounds with relevant track record such as in energy, finance, environment, social and engineering, and will be supported by independent advisors to ensure that projects have been adequately assessed and confirmed as viable. Projects approved by IC advance to the Pre-Feasibility Study Projects pool, which consists of green projects receiving support and undergoing pre-feasibility studies. Each supported project completes critical preliminary tasks—including site selection, resource assessment, preliminary environmental impact assessment and financial modeling—to lay a strong foundation for subsequent bankable feasibility studies and, ultimately, eventual financing.

(III) Potential Benefits of Participating in the Pre-Feasibility Study Facility Mechanism for China-Africa Renewable Energy Cooperation

Under the framework of South-South cooperation, new financing mechanisms are increasingly bridging funding gaps in developing countries. In 2023, during the third Belt and Road Forum for International Cooperation, Chinese leader Xi Jinping announced eight major steps to support high-quality Belt and Road cooperation. The announcement explicitly positioned green development as a core priority, with an emphasis on collaboration in green infrastructure—especially green energy and green transport. At the concurrent high-level Green Development Forum, China and 16 international and domestic institutions jointly launched the Green Investment and Finance Partnership (GIFP). This initiative aims to integrate multi-party resources to establish green investment and financing standards, evaluate ESG performance and enhance green project management capabilities. It provides feasible and replicable financing and project evaluation solutions for partner countries. In 2024, the green development and energy accessibility goals of the Forum on China-Africa Cooperation (FOCAC) highlighted these areas as essential in China's collaboration with developing countries. China's external financing cooperation has gradually shifted from traditional large-scale infrastructure projects to smaller, diversified and environmentally sustainable investments. In April 2025, during his visit to the BRICS New Development Bank (NDB), Xi further emphasized that the BRICS Cooperation has entered a phase of high-quality development, and that it is necessary to realize its original intention of providing more high-quality, low-cost and sustainable infrastructure financing in line with the development needs of the global South. These policy advancements not only signal China's interest in participating in global green financing mechanisms but also provide practical conditions and platforms for establishing pre-feasibility study funds to support early-stage green project development in the Global South.

To engage in pragmatic cooperation, China has recently established a series of special funds targeting sustainable development in developing countries, with continuous expansion. This reflects China’s determination and policy orientation to play a more significant role in global green transitions, particularly by supporting green development in the Global South.

Table 2: China's Dedicated Project Support Funds for Developing Countries in Recent Years

Funding Mechanism	Managing Authority/time of establishment (launch)	Chinese Contribution	Support Areas & Implemented Projects
Global Development and South-South Cooperation Fund (formerly China South-South Cooperation Assistance Fund)	Announced by Chinese President Xi Jinping at the United Nations Sustainable Development Summit in New York on September 26, 2015	Established with an initial contribution of two billion US dollars and increased to four billion US dollars	The Fund supports eight priority areas of the Global Development Initiative, including poverty reduction, food security, pandemic response and vaccines, development financing, climate change and green development, industrialization, digital economy and connectivity. It aligns fully with the 17 Sustainable Development Goals (SDGs) of the *United Nations 2030 Agenda*.
Global Development Initiative Special Fund	Launched in 2024 by the China Development Bank (CDB) and CIDCA	Five billion US dollars equivalent	The Fund supports the same areas as the Global Development and South-South Cooperation Assistance Fund. It operates on a commercial basis via joint financing, syndicated loans and blended finance. It is open to co-investment with foreign governments, financial institutions and multilateral development banks. The Fund covers both pre-project planning and construction, with funding decisions based on evaluation of economic feasibility, technical viability, social benefits and potential risks.
China-Africa Green Industry Chain Special Fund	Announced at the 2024 FOCAC Summit in Beijing under China-Africa Development Fund	Five billion Chinese Yuan equivalent	The Fund supports full upstream and downstream cooperation in green industrial chains between China and Africa, including clean energy, green transport, green mining and green upgrades of traditional industries. In November 2024, the Fund launched the 100 MW TFC Solar Power Plant (Phase I) in South Africa in collaboration with CGN Energy International, Sinosteel Group and local partner KONA Holdings.

Funding Mechanism	Managing Authority/time of establishment (launch)	Chinese Contribution	Support Areas & Implemented Projects
China-World Bank Group Partnership Facility (CWPF)	Jointly established in 2015 by China's Ministry of Finance and the World Bank	50 million US dollars	From 2015 to 2022, China provided 52.74 million US dollars to CWPF, with an additional 50 million pledged in 2024. Funds are issued as grants. By the end of 2022, a total of 44 grants had been awarded, amounting to 23.83 million US dollars, for 18 projects in Africa and nine focused on energy and green finance.
China's Grant to the G20 Global Infrastructure Facility	Established by China's Ministry of Finance in 2014	25 million US dollars	The grant aims at addressing the shortage of bankable infrastructure projects in emerging markets and developing economies (EMDEs) and improving private sector mobilization.

Source: Compiled by the author.

Efficient identification of projects with preliminary development conditions, manageable risks and strong economic and technical feasibility is crucial for matching funding supply with project demand and ensuring effective allocation of China's South-South cooperation funds. As these funds often serve both policy and commercial objectives, they must address the needs of developing countries and fulfill commitments for external financial support. At the same time, they are expected to generate commercial returns for participating financial institutions/investors and ensure sustainable operations. Moreover, stringent risk management is essential to prevent asset losses due to insufficient and/or inadequate risk control.

To develop high-quality, efficient green South-South cooperation projects and strengthen collaboration with other developing countries, Chinese institutions must be able to promptly identify potential project opportunities, participate early in project development, screen projects aligned with policy and commercial objectives and build local partnerships. It is therefore necessary to establish a streamlined and unified mechanism for early-stage project information gathering and screening. Such a system would help identify projects with strong potential to reach bankability and reduce individual costs and time lost to duplicating information searches and due diligence by different institutions. This mechanism should also systematically inform potential partners about available funding mechanisms and application process, effectively matching supply and demand.

The forthcoming GAPF mechanism for SADC offers Chinese financial institutions a platform to strengthen their involvement in early-stage renewable energy project development in Southern Africa. GAPF not only offers financial support for pre-feasibility studies but also maintains an actively updated "bankable project pipeline." Potential funders can leverage the mechanism to access pre-screened projects, shifting from an internal proactive development model to a "facility-supported developer reporting–funder follow-up" model. As the facility grows in scale, it encourages more developers to submit proposals to funders, allowing funders to conduct project screening and risk assessments and extend preliminary support more systematically.

This mechanism reduces the high management costs and information asymmetry risks associated with individual feasibility studies, thereby contributing to more efficient resource allocation and greater transparency in investment decisions. Under the GAPF governance structure, funders can seek co-financing partnerships, share risks and facilitate the aggregation and collaboration of financial, engineering and technical service resources across project value chain. Projects screened through pre-feasibility studies may attract multiple investors, though such screening does not guarantee exclusive investment rights. Nonetheless, it positions funders on equal footing with commercial competitors by providing direct access to project information and involvement in early-stage project design and selection—advantages that can translate into stronger competitiveness. Investment participation is determined based on the most favorable market terms for each project.

Compared to traditional models, GAPF participation improves facility-use efficiency by enabling broader and denser project intelligence collection at lower upfront cost and reduced sunk, while also reducing opportunity costs associated with project failures. For specialized fund managers seeking to balance fund utilization rates, investment risks and commercial returns, GAPF represents a more controlled and efficient pathway for advancing green projects in developing countries.

Green projects in developing countries often face narrow financing channels, information asymmetry and difficulty accessing funds during the early development stages, which could significantly restrict project advancement. Meanwhile, China has established multiple South-South cooperation special funding mechanisms focused on green development. These mechanisms provide practical financial commitment that function as global public goods to support green transitions. A pre-feasibility study funding mechanism can bridge the gap between funding demand and supply. Currently, the SADC-DFRC is conducting research on the establishment of a GAPF mechanism to attract non-traditional resource providers such as the BRICS New Development Bank and African development banks to participate in governance and pool development. The goal is to create a multilateral funding mechanism rooted in and serving Southern Africa, but also scalable for the rest of the continent. To amplify the role of Chinese

development finance institutions and aid agencies in South-South cooperation, they should actively participate in the early conceptualization of the GAPF mechanism across three dimensions: resource input, governance participation and mechanism coordination.

• First, China should participate in the Facility's construction in a comprehensive manner through targeted funding allocation, additional contributions or the establishment of new green pre-development sub-funds. Drawing on existing models like the China-Africa Green Industry Special Chain Fund and the China-World Bank Group Partnership Facility, a mix of grants and recoverable mechanisms should be explored to balance financial risk and returns. In addition, encouraging Chinese financial institutions to pool and coordinate their contributions would enhance China's influence while strengthening the mechanism's long-term sustainability.

• Second, active participation in the Facility's governance structure would ensure that China has a voice in critical areas, including facility utilization, project selection and standard setting. Securing positions as investor representatives on the Facility's Board of Trustees or Directors would allow direct involvement in strategic decision-making. Additionally, experts familiar with China-Africa green cooperation to the Facility's Investment Committee should have a seat at the table. Their engagement would ensure that technical choices, ESG considerations and commercial structuring not only meet international standards but also integrate China's practical experience and policy goals. At the operational level, Chinese consulting firms and project management companies have the opportunity to oversee project execution, support the development of evaluation indicators and performance management systems and promote the integration of Chinese approaches within a globally benchmarked governance process.

• Third, institutionalize collaboration between GAPF and GIFP. As the world's largest green financial market, China leads the GIFP platform and brings extensive experience and global networks in matching supply and demand for green finance, standard-setting and capacity-building—areas of great interest to developing countries and the international community. The functions of GIFP strongly complement those of GAPF, with potential to support GAPF through capacity-building, financial matchmaking and the integration of insurance mechanisms. Establishing a "GIFP-GAPF Joint Project Support Mechanism" under GIFP could further provide follow-up financing and matchmaking services for projects that successfully complete feasibility studies.

VI. Prospects for Green Development in the Global South

Looking ahead, the transition to a green and low-carbon future represents the trend of our times. Despite the countercurrent actions of a few individual countries, the international community must stay on the right course, strengthen confidence and action in green and low-carbon development, enhance solidarity and cooperation, and work together to build a global community of shared future and a clean, beautiful, and sustainable world.

(I) Technology Sharing: Leveraging Knowledge Exchange to Promote Inclusive Green and Low-Carbon Technologies in the Global South

At this critical stage of global green transformation and deep restructuring of energy systems, strengthening South–South cooperation in the technological domain is a key instrument for overcoming clean energy deployment bottlenecks in Global South countries and accelerating low-carbon transitions. China has established a relatively complete industrial chain and technological ecosystem in fields such as renewable energy, energy storage, smart grids, and electric vehicles, providing a solid foundation for in-depth technological collaboration with regions including ASEAN, Africa, and Latin America. Other regions in the Global South are also witnessing the emergence of numerous innovative practices. Systematically summarizing and sharing these experiences across the Global South helps build a South–South cooperation framework for matching green technology demand, sharing services, achieving standard harmonization, and co-managing technological development risks. This approach promotes an upgrade from “unidirectional technology transfer” to “bilateral collaboration,” using technology demonstration projects to create replicable and scalable models of technology-enabled green development and transformation that can be transferred and promoted to other Global South countries, thereby advancing green and low-carbon transitions rapidly and efficiently.

(II) Financial Co-creation: Diversified and Innovative Financing Models to Accelerate Green Transition in the Global South

In advancing the green transformation of the Global South, China, ASEAN, Africa, Latin America, and other regions have gradually developed distinctive pathways for green investment and financing, demonstrating complementary potential and synergistic effects. China has established the world’s largest green financial system, accumulating extensive experience in green credit, green bonds, environmental disclosure, and carbon market construction. At the same time, innovative regional mechanisms have emerged. For example, the African Renewable Energy and Energy Efficiency Pre-Feasibility Fund (GAPFREE) addresses the “Death Valley of ” challenge in early-stage project financing, while Brazil’s TFFF explores the financialization of natural capital. Systematic documentation and dissemination of these practices are crucial to building diversified, localized, and sustainable

financing mechanisms rooted in South-South and tripartite cooperation. Such mechanisms should facilitate project information sharing, joint risk assessment, and mutual recognition of green standards. Building on this foundation, and in line with the emerging trend in global climate governance shifting from a single focus on mitigation to a comprehensive "mitigation-adaptation-resilience" approach, breaking down policy and financing barriers and promoting integrated investments that simultaneously enhance resilience, foster development, and deliver mitigation benefits can effectively strengthen the Global South's capacity for coordinated action in complex geopolitical contexts, improve its ability to respond comprehensively to climate challenges, and elevate its voice in global climate governance.

(III) Institutional Connectivity: Deepening South-South Cooperation, Accelerating the Development of Green Investment and Financing Platforms, and Promoting Cross-Regional Linkages

In the context of geopolitical tensions, it is strategically significant for Global South countries to reinforce local green investment and financing platforms and foster cross-border collaboration. At present, many Global South countries face systemic challenges in their green transformation, including incomplete policy frameworks, limited institutional capacity, and immature market mechanisms, which hinder capital absorption, project implementation, and exacerbate financing gaps and risks. Leveraging China's South–South cooperation capacity-building mechanisms, Global South countries can establish localized, efficient national green investment and financing platforms. Differentiated cooperation pathways should be designed in line with regional characteristics, encompassing ASEAN, Latin America, and Africa. Simultaneously, multilateral initiatives such as the BRI can facilitate the alignment of China's green investment and financing networks with regional platforms, thereby enhancing the overall effectiveness of green transformations in the Global South. In the future, efforts should be made to enhance cross-regional capacity building, systematically upgrade the professional expertise of Global South countries in developing, managing, and operating green projects, and actively mobilize capital from governments, private sectors, international development institutions, and other stakeholders. This will help establish a diversified and collaborative green investment and financing framework, injecting sustained momentum into South-South cooperation.

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