Leveraging Blended Finance to Enable Local Green Transition[1]

An Innovative Practice in Green Finance in Ningbo, Zhejiang Province

Abstract: Against the backdrop of the binding "dual carbon" goals, urban green and low-carbon transition has entered a critical stage. Local governments face bottlenecks including low efficiency of fiscal funding, an insufficient pipeline of high-quality green projects, and inadequate risk-sharing mechanisms. Meanwhile, micro, small, and medium-sized enterprises (MSMEs) face financing constraints and financial institutions lack adequate risk assessment tools and information sources. Ningbo has a high concentration of energy-intensive industries while facing significant financing gap for a green transition. Leveraging the pilot opportunity provided by the Asian Development Bank (ADB), Ningbo established a blended financing mechanism combining philanthropic grants, sovereign loans, commercial bank lending, and local government special-purpose bonds. By leveraging the differentiated strengths of various sources of capital and strengthening the green finance capabilities of local financial institutions, the mechanism provides a replicable model for similar industrial cities.

Keywords: Green finance innovation; blended finance; urban green transition

I. Background

As China advances its "dual carbon" goals, green finance practices are entering a more mature phase, with financial innovation at the local level becoming an increasingly important driver of the green and low-carbon transition. At present, local blended finance innovation faces three major challenges: insufficient leverage, difficulties in project selection, and inadequate risk-sharing mechanisms.

First, the leverage potential of concessional capital dedicated to sustainable development has not been fully realized and remains insufficient to meet local green transition financing needs. Second, local capacity to identify and select green projects remains relatively weak, while emerging green sectors lack well-prepared, investment-ready projects, resulting in a shortage of bankable projects and assets. Third, sources of catalytic capital at the local level remain limited and are dominated by public capital, while philanthropic capital has yet to participate fully. In addition, government-backed financing guarantee institutions operate under performance requirements for the preservation and appreciation of state-owned assets, resulting in low risk tolerance and limiting their ability to effectively share risks with commercial capital. Micro, small, and medium-sized enterprises also face difficulties in obtaining financing and relatively high financing costs in areas such as carbon emission reduction, energy efficiency improvement, and renewable energy utilization.

Ningbo is one of the major economic centers in China's Yangtze River Delta and an important base for energy production and advanced materials manufacturing in China. Its major industries include petrochemicals, textiles, machinery, metallurgy, electronics, and building materials. Given the relatively large share of industry in its economy and its high energy intensity, Ningbo faces significant pressure to reduce carbon emissions. Between 2011 and 2020, Ningbo's carbon emissions increased from 77.8 million tonnes to 100.1 million tonnes, representing an increase of 22%. Therefore, how to

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maintain economic vitality while controlling the growth of fossil fuel consumption and carbon emissions has become a major challenge for Ningbo's green and low-carbon transition. As a market-based mechanism for mobilizing resources, green finance is an important means for Ningbo to address this challenge. However, its implementation continues to face prominent problems, including a mismatch between risk protection mechanisms and the needs of green transition, insufficient targeting of green finance support, and relatively high financing costs. There is an urgent need for more targeted and effective financial support for the green transition through innovation in "finance + insurance" products.



Figure 1. Integrated Wind, Solar, and Energy Storage Low-Carbon Terminal at Meishan Port Area of Ningbo-Zhoushan Port

(Source: China News Service)

Against this backdrop, Ningbo, Zhejiang Province, applied for a sovereign loan from the Asian Development Bank (hereinafter referred to as "ADB") to pilot the Urban Green and Low-Carbon Development Project, exploring a four-tier blended financing structure comprising philanthropic grants, sovereign loans, local commercial bank loans, and local government special-purpose bonds. This provides a practical example of developing local green and low-carbon projects and innovating financing mechanisms, thereby supporting local green transition. The project is expected to reduce greenhouse gas emissions by 750,000 tonnes of carbon dioxide equivalent annually.

II. Key Measures

(1) Leveraging ADB Sovereign Loans to Strengthen Local Commercial Banks

To strengthen the capacity of Ningbo's financial institutions to identify projects in the green and low-carbon sectors, foster the development of energy-saving service companies, establish a climate finance platform serving MSMEs, and reduce the economic costs of green development, ADB approved a US$200 million sovereign loan (approximately RMB 1.447 billion) for the Ningbo Urban Green and Low-Carbon Development Project in June 2024. With a maturity of 20 years, including a six-year grace period, the loan is provided through an on-lending arrangement by Bank of Ningbo, Ningbo Commerce Bank, and Ningbo Donghai Bank in the form of green credit to eligible subprojects, creating a blended financing portfolio totaling approximately US$500 million.

This approach creates a coordinated mechanism combining sovereign loans with commercial financing, effectively combining sovereign credit with market-based financial instruments and leveraging the extensive local reach of commercial banks to serve MSMEs. At the same time, the introduction of ADB's standards and innovative approaches in climate finance helps strengthen local commercial banks' capacity to identify green projects and assess their carbon emission reduction potential.

(2) Supporting Capacity Building through Philanthropic Grants to Address Upstream Gaps in Blended Finance

During the same period, a philanthropic foundation signed a strategic framework agreement with ADB to provide dedicated philanthropic grant support for the Ningbo Urban Green and Low-Carbon Development Project. The funding is primarily used for research and analysis related to low-carbon development, climate finance capacity building, low-carbon technology promotion, regional cooperation, and knowledge sharing. One of the core functions of philanthropic grants is to address upstream institutional and capacity gaps that commercial finance is unable to cover. The grants focus on strengthening the capacity of local financial institutions in four key areas: transition strategy development, alignment with international standards, optimization of internal management, and matching green assets, thereby establishing a solid foundation for implementing the blended financing structure.

Under this framework, Bank of Ningbo, Ningbo Commerce Bank, and Ningbo Donghai Bank developed tailored climate strategies, established green credit growth targets, and formulated medium- and long-term green asset plans. Bank of Ningbo published China's first ESG report by a city commercial bank prepared in accordance with ISSB Standards, advancing climate risk management from qualitative commitments toward portfolio stress testing. The three banks integrated the Environmental and Social Management System (ESMS) throughout the entire lending process—including pre-loan due diligence, loan approval, and post-loan monitoring—established dedicated green finance departments, and leveraged expert exchange mechanisms to strengthen their capacity to identify and price risks associated with projects in sectors such as clean energy, energy conservation, and environmental protection.

(3) Developing a Green Project Pipeline to Transform Green Needs into Bankable Assets

Led by the Ningbo ADB Project Office, in collaboration with industry experts and think tanks, Ningbo established a dynamic green project pipeline screening mechanism. Green and low-carbon projects undergo technical feasibility assessments and environmental benefit evaluations, transforming local green development needs into bankable assets that financial institutions can identify, assess, and finance. To date, five projects have been implemented, including cascade utilization of waste heat among industrial enterprises, waste sorting and recycling centers, and renewable energy power generation projects.



Figure 2. ADB visit to a completed cascade energy utilization project, August 2025

(Source: Ningbo Municipal Bureau of Finance)

This mechanism helps address the shortage of bankable projects in local green finance. Many localities possess green and low-carbon assets but lack mature, standardized, and bankable projects. Through the development of a dynamic project pipeline, Ningbo can continuously screen and update green projects and leverage ADB's long-term sovereign lending facility to match financing with green projects, thereby improving capital utilization efficiency and project implementation capacity.

Catalyzed and guided by philanthropic funding and financing from multilateral development institutions, Ningbo has identified and developed a number of green and low-carbon projects. For example, the Photovoltaic-Hydrogen Corridor Development Project, initiated in 2025, integrates transportation and energy systems and enables direct connection to green electricity, providing traceable green electricity to export-oriented enterprises along the corridor. The project is expected to generate 250 million kWh of green electricity annually and contribute 115,000 tonnes of carbon dioxide equivalent in annual emissions reductions. Under this project, RMB 1.5 billion in green loans from ADB and commercial banks will leverage RMB 2 billion in corporate financing and RMB 4 billion in local government special-purpose bonds, forming a diversified local financing structure.



Figure 3. Rendering of the photovoltaic installation for the eastern extension of Huancheng South Road, part of the upcoming Photovoltaic-Hydrogen Corridor Development Project

(Source: Ningbo Municipal Bureau of Finance)

III. Lessons and Insights

(1) Blended Finance Can Effectively Amplify the Impact of Public and Philanthropic Capital

The Ningbo case demonstrates that urban green and low-carbon transition projects often involve large financing needs, long investment horizons, and high requirements for technical and environmental benefit assessments. Standalone fiscal funding or commercial lending alone is often insufficient to fully meet these financing needs. By combining philanthropic grants, sovereign loans from multilateral development institutions, local commercial bank on-lending, and local government special-purpose bonds, the blended financing model serves both cost-sharing and innovation-piloting functions.

Financing from multilateral development institutions provides long-term, low-cost capital; local commercial banks expand green lending; local government special-purpose bonds enhance project implementation capacity; and philanthropic grants support early-stage research, capacity building, environmental and social risk management, and alignment with international sustainable disclosure standards. This model not only reduces financing costs and improves the bankability of green projects, but also helps strengthen the green finance and climate finance capabilities of local financial institutions, creating a sustainable and replicable financing framework for urban green and low-carbon transition projects.

(2) Capacity Building of Local Financial Institutions and Platform Support as a Foundation for Sustainable Green Finance Development

The Ningbo practice focused on strengthening four key capabilities of local financial institutions:

First, strategic guidance for transition. Bank of Ningbo, Ningbo Commerce Bank, and Ningbo Donghai Bank developed tailored climate strategies, established targets to ensure that green credit growth would not be lower than overall loan growth, set medium- and long-term targets for the share of green assets, and developed differentiated service approaches for leading enterprises and MSMEs.

Second, alignment with international standards. Bank of Ningbo published the first ESG report among Chinese city commercial banks prepared in accordance with ISSB Standards, driving a substantive shift in climate risk management from qualitative commitments toward portfolio-level stress testing and establishing a positive feedback mechanism linking improved disclosure quality, lower capital costs, and accelerated transition in the real economy.

Third, internal control enhancement. The three banks integrated the Environmental and Social Management System (ESMS) into the entire lending process, including pre-loan due diligence, loan approval, and post-loan monitoring, established dedicated green finance departments, and systematically strengthened internal control capabilities. Meanwhile, philanthropic grants supported the establishment of expert exchange mechanisms, significantly enhancing banks' capacity to identify projects and price risks in areas such as clean energy and energy conservation and environmental protection.

Fourth, matching green assets to financing. Ningbo established a dynamic green project pipeline screening mechanism, transforming green development needs into financial assets through technical feasibility assessments and environmental benefit evaluations. By making full use of ADB's long-term, low-interest sovereign lending facility with a 20-year maturity, Ningbo continuously updated and matched on-lending resources with green projects.

Looking ahead to the 15th Five-Year Plan period, the Ningbo experience demonstrates that the focus of local green finance innovation can shift from innovation in individual financial instruments

toward the systemic integration of financing, projects, capacity, and risk management. By leveraging the blended catalytic effects of different sources of capital, local commercial banks can be encouraged to expand green credit provision, while the capacity of local financial institutions and project development capabilities can be strengthened. This can gradually establish a green transition financing and investment cycle of "capital catalysis → capacity building → project development → financing implementation", providing a replicable practical pathway for cities with strong industrial foundations and significant transition pressures.