

## CHINA-AFRICA EXPERIENCE SHARING IN ECO-FRIENDLY MODERNIZATION UNDERPINNED BY PEACE AND SECURITY AND COMMON PROSPERITY

Bekaye Coulibaly

Department of Political Science and International Relations,

University of Abuja, Abuja, Nigeria

Phone: +234 810 638 5608

### Abstract

*This paper explores the evolving partnership between China and Africa in the context of eco-friendly modernization, focusing on the experience-sharing mechanisms that underpin peace, security, and common prosperity and sustainable development. Drawing on key case studies, this study examines how China's technological advancements and infrastructural investments contribute to Africa's green growth, particularly in sectors such as renewable energy, sustainable infrastructure, and ecological conservation. The paper critically analyzes the challenges facing this cooperation, including environmental safeguards, debt sustainability, power asymmetries, and transparency issues. Based on these insights, the paper offers policy recommendations to enhance the effectiveness of China-Africa green initiatives, emphasizing the need for stronger environmental governance, local capacity building, and transparent financial frameworks. Ultimately, this research highlights the potential of China-Africa cooperation as a model for sustainable, peace-driven development that can support both the continent's growth and the global climate agenda.*

---

**Keywords:** China-Africa Experience Sharing, Eco-Friendly, Modernization, Peace and Security, Common Security

### Introduction

The strategic partnership between China and Africa has deepened considerably over the past two decades, moving beyond traditional aid paradigms to encompass a multidimensional engagement rooted in mutual development, political solidarity, and economic interdependence. Central to this evolving relationship is the increasing emphasis on eco-friendly modernization development trajectory that integrates environmental sustainability with economic growth and social inclusivity. Both China and Africa, albeit from different starting points, have recognized the imperative of greening their development processes to address climate change, biodiversity loss, and resource depletion while fostering peace and prosperity (UNEP, 2022; African Union, 2015). On September 2024, President Xi Ji PING's opening speech of the Beijing Summit relating to the Forum on China-Africa Cooperation (FOCAC) highlighted that green development is a hallmark of modernization in the new era. President Xi called on China and Africa to **jointly advance modernization that is eco-friendly** stating that China is ready to help Africa build "green growth engines," and to jointly push for the global transition to green and low-carbon development. He further emphasized that Modernization would not be possible without a peaceful and stable environment for development.

China's domestic experience in pursuing "Ecological Civilization"—a guiding principle enshrined in its national policy agenda—provides valuable insights for developing countries seeking to

balance modernization with environmental stewardship. Through initiatives like the 14th Five-Year Plan and the Belt and Road Initiative (BRI), China has attempted to mainstream ecological considerations into its development model, including in its overseas engagements (Zhang & Wen, 2021). For African nations, which face compounded challenges of poverty, conflict, and environmental degradation, sustainable modernization is not merely aspirational but essential. The African Union's *Agenda 2063* underscores this necessity, envisioning a future of inclusive growth, environmental sustainability, and structural transformation (African Union, 2015). At the heart of this China-Africa cooperation is the sharing of experiences, strategies, and technologies aimed at promoting low-carbon, resource-efficient, and socially just development pathways. Mechanisms such as the Forum on China-Africa Cooperation (FOCAC) and the BRI Green Development Coalition serve as platforms through which both parties engage in policy dialogue, technical exchange, and joint project implementation. These collaborations are increasingly framed not only around environmental goals but also within broader concerns of peace, security, and common prosperity—recognizing that environmental and socio-political stability are mutually reinforcing (Tan-Mullins et al., 2017; Li, 2020).

This paper critically examines how China and Africa share experiences in eco-friendly modernization and how such exchanges are embedded in frameworks promoting peace, security, and collective well-being. Drawing on case studies, policy reviews, and scholarly analysis, the study seeks to answer the following questions: What lessons from China's ecological modernization are relevant to African contexts? How do African peace and security shape or constrain eco-development strategies in Africa? And in what ways do China-Africa cooperation frameworks facilitate or hinder the realization of common prosperity? In addressing these questions, the paper contributes to broader debates on South-South cooperation, green development, and global governance in the 21st century.

## Literature Review

The relationship between China and Africa in eco-friendly modernization has become a focal point of academic and policy discussions. As China expands its influence across Africa through infrastructure and development projects, scholars have increasingly analyzed the environmental, economic, and political dimensions of this cooperation. This section reviews key literature on China-Africa relations, particularly focusing on the intersection of sustainable development, environmental governance, and the role of China in fostering eco-friendly modernization in Africa.

### 1. China-Africa Development Cooperation

A growing body of literature highlights China's role in Africa's development through the Belt and Road Initiative (BRI) and Forum on China-Africa Cooperation (FOCAC). Authors such as **Brautigam (2020)** and **Tull (2019)** argue that China has shifted from a purely economic relationship with Africa to one that increasingly incorporates environmental concerns. While China's investments have been framed as part of a "win-win" strategy, critics caution against a potential "debt-trap diplomacy" that could place African nations at risk of unsustainable debt (Brautigam, 2020). Others like **Shinn and Eisenman (2023)** emphasize the need for China to move beyond traditional infrastructure projects toward green development models that align with global sustainability goals.

### 2. Environmental and Social Dimensions of China-Africa Projects

The integration of environmental considerations into China-Africa projects has been a focus point in the literature. **Li and Qian (2022)** argue that while China's green policies under the BRI have seen notable successes in areas such as renewable energy and environmental conservation, there remains a significant gap in implementation. Issues like inconsistent environmental impact assessments (EIA), inadequate social safeguards, and the prioritization of rapid development over long-term ecological sustainability are common criticisms (Bosshard, 2008). In the context of African nations, **Tan-Mullins et al. (2017)** discuss how China's projects, especially in resource extraction industries, often neglect local environmental and social consequences. These concerns are exacerbated by a lack of local capacity to monitor and enforce compliance with environmental regulations.

### 3. Debt Sustainability and Financial Risks

The financial aspects of China-Africa relations have sparked significant debate. While Chinese financing offers much-needed infrastructure funding, critics warn of the potential for **debt distress**. **CARI (2021)** underscores that many African countries are at risk of falling into a cycle of debt, exacerbated by high-interest loans and opaque loan agreements. This financial burden could hinder the continent's long-term development, especially in areas related to environmental sustainability and eco-friendly modernization. However, **Bosshard (2008)** and **He (2020)** note that China has made efforts to restructure debt and introduce more flexible repayment terms, acknowledging the need for a more sustainable financial model that prioritizes Africa's long-term growth over immediate economic returns.

### 4. Power Asymmetries and Governance Issues

One of the most significant critiques of China-Africa cooperation is the power asymmetries embedded within it. **Brautigam (2020)** and **Tull (2019)** argue that despite claims of mutual benefit, China's economic and political leverage often outweighs that of African countries, making it challenging for African governments to assert full ownership over the projects. This imbalance extends to the environmental governance of joint initiatives, where African stakeholders often have limited control over project execution and oversight. **Tan-Mullins et al. (2017)** discuss the role of **elite capture**, where local political elites benefit disproportionately from Chinese investments, potentially undermining the broader goals of equity and environmental sustainability.

### 5. The Role of International Standards and Cooperation

Scholars such as **He (2020)** emphasizes the importance of aligning China-Africa projects with international environmental standards and frameworks. While China has introduced the concept of **ecological civilization** within its own borders, the translation of these principles into African projects remains inconsistent. The **United Nations Environment Programme (2022)** advocates for stronger integration of international environmental agreements, such as the Paris Climate Accord and the United Nations Sustainable Development Goals (SDGs), within China-Africa initiatives. Furthermore, **OECD (2020)** points to the potential of triangular cooperation between China, international donors, and African nations to ensure that green projects are implemented effectively, with broader multilateral support.

### 6. Sustainability and Local Capacity Building

Local capacity building is central to the long-term success of eco-friendly modernization. **Li and Qian (2022)** argue that, for China-Africa cooperation to be truly transformative, it must focus on

developing African institutions' ability to manage and sustain green projects. They call for the expansion of **knowledge-sharing platforms** and **technical training** programs that help African countries harness both Chinese expertise and local solutions to environmental challenges. Furthermore, **Tan-Mullins et al. (2017)** highlight the need for more inclusive decision-making processes that engage local communities, ensuring that eco-friendly projects benefit those most affected by environmental change.

### Theoretical Framework: World-Systems Theory

The theoretical lens employed in this paper is **World-Systems Theory**, a framework that provides insight into the hierarchical relationships between core, semi-peripheral, and peripheral regions in the global economy. Developed by sociologist **Immanuel Wallerstein** in the 1970s, World-Systems Theory offers a perspective on how global capitalism shapes the interactions between nations, emphasizing the structural inequality that characterizes international trade and development (Wallerstein, 1974).

This framework is particularly useful for analyzing the **China-Africa relationship** because it highlights both the opportunities and challenges inherent in the partnership, especially with regard to eco-friendly modernization efforts. Africa, positioned on the periphery of the global economy, historically faces systemic underdevelopment, economic dependency, and environmental degradation due to exploitative relationships with core nations. By examining China's role as an emerging semi-peripheral power, this theory helps assess how China's investments and development projects in Africa influence both local and global power structures.

### 1. Core, Semi-Peripheral, and Peripheral Relationships

In World-Systems Theory, **core** countries are highly industrialized, economically powerful, and control global capital, technology, and knowledge. **Peripheral** nations, like many African countries, are economically dependent, often providing raw materials or labor-intensive goods while being excluded from decision-making processes. **Semi-peripheral** nations, such as China, occupy an intermediate position in the global hierarchy, often leveraging both core and peripheral strategies to expand their global influence.

The relationship between China and Africa can be understood within this core-periphery framework. While China is no longer considered a peripheral nation, its position as a semi-peripheral power allows it to act as an intermediary in Africa's development, with both positive and negative implications. On one hand, China offers an alternative development model to the West, emphasizing infrastructure and economic growth, which appeals to African nations seeking to modernize quickly without the conditionalities often associated with Western aid. On the other hand, China's influence can reinforce the dependency of African countries, as many projects focus on resource extraction or large-scale infrastructure projects that do not necessarily contribute to sustainable, eco-friendly growth (Wallerstein, 1974).

### 2. China's Role as a Semi-Peripheral Power

China's rise as a global economic power places it in the **semi-periphery** of the world-system, where it combines elements of both core and peripheral strategies. As a semi-peripheral nation, China has the capacity to project both economic influence and political power, particularly through its investments in Africa. The **Belt and Road Initiative (BRI)**, for example, positions China as a key player in global trade routes, promoting infrastructural development across Africa. However,

China's semi-peripheral position also means that its investments are driven by both economic interests and the desire to improve its strategic position within the global order (Wallerstein, 2004). In the context of eco-friendly modernization, China's role is complex. While it brings much-needed investment and technology to Africa, China's development model also often prioritizes rapid industrialization over long-term sustainability. The **Chinese approach** to green development, though beneficial in some respects (e.g., renewable energy infrastructure), frequently operates within a model that still centers on large-scale projects, resource extraction, and profit-driven agendas. This dynamic can perpetuate the same patterns of dependency and environmental degradation seen in the traditional core-periphery relationship (Li and Qian, 2022).

### 3. The Periphery's Struggle for Eco-Friendly Modernization

For African nations, eco-friendly modernization under China's influence is framed within the broader struggle of peripheral nations to achieve economic independence and sustainable development. While China's investment brings significant development opportunities, African nations must navigate the tension between **sustainability** and **economic growth** within a system that is structurally inclined toward resource extraction. This tension often results in environmental degradation, as Africa's vast natural resources are utilized to fuel global economic demands, with limited attention to the long-term ecological consequences (Tan-Mullins et al., 2017). This framework highlights the dual challenge facing African countries: to modernize their economies and societies while mitigating the environmental risks associated with rapid industrialization and development. The **World-Systems Theory** suggests that while Africa's relationship with China offers a chance for accelerated growth, this growth must be carefully managed to avoid reinforcing patterns of dependency that have historically led to environmental and social degradation.

### 4. Implications for Policy and Sustainable Development

From a World-Systems perspective, the key challenge for Africa lies in balancing the pressures of modernizing with the need for eco-friendly, sustainable development. As a semi-peripheral power, China offers a development model that is more flexible and less tied to the strict conditions imposed by Western powers. However, it is crucial for African countries to retain **agency** over the nature and direction of their development. This can be achieved by prioritizing **local capacity building, environmental governance, and economic diversification**—strategies that ensure eco-friendly modernization and minimize dependency on external powers, whether semi-peripheral or core.

Additionally, this theory emphasizes the importance of **multilateral collaboration** and **regional integration** as African nations move toward sustainable growth. By enhancing cooperation within the African Union (AU) and with other global actors, African countries can leverage their collective power to push for environmentally conscious development models that challenge the extractive nature of traditional core-periphery relations.

World-Systems Theory provides a useful framework for analyzing the dynamics of China-Africa cooperation in eco-friendly modernization. While China's role as a semi-peripheral power offers both opportunities and challenges for Africa's development, the long-term success of this partnership will depend on Africa's ability to manage the balance between economic growth and environmental sustainability. By maintaining control over the direction of their development and ensuring that policies reflect both ecological and socio-economic goals, African nations can work

to break free from historical patterns of dependency and move towards a more equitable and sustainable future.

## Findings and Discussion

### 1. China's Eco-Friendly Modernisation Model

China's path to modernisation over the past four decades has been marked by rapid industrialization and urbanisation, often at the expense of environmental integrity. However, facing growing domestic and international pressure, the Chinese government has in recent years adopted a developmental model that increasingly emphasises ecological sustainability. This shift is encapsulated in the national ideology of "Ecological Civilization" (*shengtai wenming*), a transformative policy framework that integrates environmental concerns into economic planning and social governance (Zhang & Wen, 2021). As Africa looks to industrialize in a more sustainable way, China's evolving model of eco-friendly modernization offers practical lessons in policy innovation, institutional adaptation, and technology deployment. The concept of Ecological Civilization was institutionalised in China's Constitution in 2012 and further operationalised through the 13th and 14th Five-Year Plans (2016–2025), which prioritize green energy, pollution control, carbon neutrality, and resource efficiency (UNEP, 2022). The Chinese state has since rolled out a series of regulatory reforms, including the Environmental Protection Law (revised in 2015), the National Carbon Market (launched in 2021), and comprehensive plans for green finance and circular economy development (Li, 2020). These policies aim to decouple economic growth from environmental degradation by promoting innovation-driven, low-carbon industrialisation.

Institutional mechanisms have also played a key role in China's eco-modernisation. The Ministry of Ecology and Environment (MEE), created in 2018, centralises environmental governance and enforces compliance across local governments. Moreover, China has invested heavily in ecological restoration projects such as reforestation, desertification control, and wetland preservation, which now cover vast tracts of land previously considered unusable (Zhou & Zhang, 2020). These efforts are supported by robust data systems, environmental monitoring technologies, and public awareness campaigns that underscore the role of civil society in sustainable development. Importantly, China has sought to internationalise its ecological modernisation model through South-South cooperation platforms, particularly in Africa. Under the Belt and Road Initiative (BRI), Beijing promotes "Green BRI" principles, encouraging environmentally sound investments in infrastructure, energy, and agriculture (BRI Green Development Coalition, 2021). The Forum on China-Africa Cooperation (FOCAC) has also incorporated environmental themes, particularly through its Action Plans, which emphasise clean energy, climate adaptation, and ecological protection as priorities for joint action (FOCAC, 2021).

For African countries, China's model offers both inspiration and caution. On one hand, it demonstrates how a strong developmental state can steer green industrialisation, especially through state-led innovation and large-scale ecological projects. On the other hand, critics have pointed to inconsistencies in China's overseas investments, where environmental standards may not always align with its domestic rhetoric (Tan-Mullins et al., 2017). Thus, the applicability of China's model in Africa depends not only on institutional emulation but also on adapting lessons to local contexts, governance capacities, and socio-economic realities.

In sum, China's eco-friendly modernization is characterized by a top-down, policy-driven approach that integrates environmental goals into broader development objectives. While not



without limitations, this model provides valuable experience for African nations seeking to leapfrog into green economies without repeating the environmentally harmful phases of development witnessed elsewhere.

### Africa's Development Aspirations

Africa's development trajectory in the 21st century is shaped by a growing determination to achieve structural transformation through sustainable and inclusive modernisation. This aspiration is articulated in the African Union's *Agenda 2063*, a strategic framework that envisions a prosperous, integrated, and peaceful continent driven by its own citizens and based on inclusive growth and sustainable development (African Union, 2015). At the heart of this vision lies a commitment to achieving eco-friendly development that balances economic advancement with environmental stewardship, social equity, and long-term peace. The continent's aspiration for green modernisation is informed by a complex interplay of challenges and opportunities. Rapid urbanisation, population growth, and a dependence on extractive industries have intensified environmental degradation, biodiversity loss, and pollution. According to the African Development Bank (AfDB, 2021), over 600 million Africans lack access to electricity, and nearly 900 million depend on biomass for cooking, which has serious environmental and health implications. These conditions underscore the urgency of transitioning to sustainable energy systems, resource-efficient infrastructure, and resilient agricultural practices.

Africa's environmental vulnerabilities are further compounded by its exposure to climate change impacts, including droughts, floods, and rising temperatures, which disproportionately affect rural communities and fragile states. The Intergovernmental Panel on Climate Change (IPCC, 2022) notes that Africa is one of the most climate-vulnerable regions globally, despite contributing the least to global greenhouse gas emissions. In response, several African nations have adopted national green growth strategies, low-emission development plans, and climate adaptation frameworks. Countries such as Rwanda, Ethiopia, and South Africa have emerged as pioneers in integrating sustainability into national planning through policy instruments like the Green Growth and Climate Resilience Strategy (Rwanda) and the Climate-Resilient Green Economy Strategy (Ethiopia) (UNDP, 2020).

Peace and security remain indispensable components of Africa's development aspirations. The prevalence of violent conflicts, political instability, and terrorism in parts of the continent has repeatedly disrupted development initiatives and weakened institutional capacities. The African Union recognizes the inextricable link between peace and development, as reflected in its flagship initiative, "Silencing the Guns," which aims to end all wars and violent conflict by 2030 (AU, 2020). Without stability, investments in eco-friendly infrastructure, environmental protection, and long-term economic reforms are often unsustainable or unattainable.

Furthermore, Africa's youth demographic presents both a challenge and an opportunity. With nearly 60% of the population under the age of 25, the continent faces immense pressure to create sustainable jobs and livelihoods. Eco-friendly modernization, particularly in sectors like renewable energy, sustainable agriculture, and green construction, presents a viable pathway for addressing youth unemployment while advancing environmental goals (ILO, 2021). Africa's aspirations for eco-friendly development are not isolated from the global context. As the world shifts toward climate-conscious economic models, African countries increasingly seek partnerships that align with their sustainability priorities. China, through platforms like the Forum on China-Africa Cooperation (FOCAC) and the Belt and Road Initiative (BRI), has emerged as a key partner

offering green infrastructure financing, technology transfer, and policy dialogue. However, the success of such collaborations hinges on aligning external engagements with Africa's own long-term goals, governance capacities, and environmental frameworks.

In conclusion, Africa's development aspirations are rooted in a vision of sustainable, inclusive, and peaceful modernization. While the continent faces formidable environmental and security challenges, it also possesses strategic frameworks, natural resources, and human capital that can be leveraged to build a greener future. Strengthening South-South partnerships, particularly with China, offers an important avenue for experience sharing and innovation in the pursuit of eco-friendly modernization.

### Experience Sharing Mechanisms

The robust evolution of China-Africa cooperation has been increasingly supported by formalized mechanisms that facilitate mutual learning, knowledge transfer, and practical collaboration on sustainable development. At the heart of this cooperative framework are platforms such as the **Forum on China-Africa Cooperation (FOCAC)** and the **Belt and Road Initiative (BRI)**, which have been instrumental in institutionalizing experience sharing in eco-friendly modernization. These mechanisms serve not only to promote development finance and infrastructure investment, but also to embed green principles, build capacity, and foster innovation for sustainable futures.

#### **Forum on China-Africa Cooperation (FOCAC)**

Established in 2000, FOCAC has emerged as a cornerstone of China-Africa multilateral engagement. It operates through triennial summits, action plans, and ministerial conferences, where both sides articulate joint priorities. In recent years, environmental protection and green development have become increasingly prominent in FOCAC declarations. The **FOCAC Beijing Action Plan (2022–2024)**, for example, emphasizes cooperation on climate change, biodiversity, and green energy, and commits to enhancing Africa's environmental governance through capacity-building and technology sharing (FOCAC, 2021).

Under FOCAC, China has supported a wide range of initiatives, including the China-Africa Environmental Cooperation Centre, the South-South Cooperation Climate Fund, and training programs for African professionals in environmental planning, pollution control, and ecological monitoring. These exchanges provide a platform for African states to draw from China's experience in ecological governance while tailoring solutions to their own unique contexts (Li & Qian, 2022).

#### **Belt and Road Initiative (BRI) and Green BRI**

Although initially framed around infrastructure connectivity, the BRI has evolved to include a strong sustainability dimension. The launch of the **BRI Green Development Coalition** in 2019 marked a strategic pivot toward integrating ecological standards in BRI projects, with an emphasis on green finance, low-carbon technologies, and environmental impact assessments (CCICED, 2021). African countries that are part of the BRI—such as Kenya, Ethiopia, Nigeria, and Egypt—have engaged in green infrastructure projects involving solar power, wind farms, eco-industrial parks, and environmental protection zones. Through the Green BRI framework, China has introduced **Guidance on Green Investment and Construction**, aiming to align overseas investments with host countries' environmental standards and the United Nations Sustainable



Development Goals (UN SDGs). In practice, this includes supporting renewable energy installations, eco-friendly transport networks, and sustainable agricultural value chains across Africa (Zhang & Wen, 2021).

### **Technical Cooperation and Capacity Building**

Beyond infrastructure and finance, China-Africa cooperation has expanded into technical collaboration and human capital development. Thousands of African officials, engineers, and researchers have received training in China on topics ranging from green urban planning to climate risk assessment. Chinese universities and research institutes have also partnered with African counterparts to co-develop programs on renewable energy, sustainable agriculture, and ecological management (He, 2020). An illustrative example is the **China-Africa Joint Research Centre (CAJRC)** at Jomo Kenyatta University of Agriculture and Technology in Kenya, which facilitates joint research on biodiversity conservation, sustainable land use, and climate change adaptation. Similar initiatives have proliferated in sectors such as agro-ecology, ICT-enabled environmental monitoring, and waste management.

### **Policy Dialogue and Multilateral Engagement**

China and African nations also collaborate in global environmental governance platforms such as the UN Framework Convention on Climate Change (UNFCCC) and the UN Environment Assembly. These interactions help amplify African voices in climate negotiations and align South-South partnerships with global climate and biodiversity frameworks. China has often supported African positions in climate diplomacy, advocating for climate finance, technology transfer, and capacity-building tailored to the continent's developmental realities (UNEP, 2022). Moreover, the shared commitment to principles of non-interference and mutual respect has created a conducive environment for experience sharing that prioritizes sovereignty while encouraging innovation and experimentation in green policy implementation. In summary, experience sharing between China and Africa on eco-friendly modernization is anchored in a growing ecosystem of institutions, partnerships, and knowledge exchanges. While the effectiveness of these mechanisms varies across contexts, they offer a structured pathway for aligning environmental sustainability with peace, development, and mutual prosperity.

### **Peace, Security, and Common Prosperity**

Peace and security are not merely prerequisites for development; they are integral to the architecture of eco-friendly modernization. Without peace, the implementation of green infrastructure, environmental regulation, and socio-economic transformation becomes untenable. China and Africa increasingly recognize this interdependence, incorporating principles of peace, stability, and shared prosperity into their bilateral cooperation frameworks. This convergence is especially salient in the context of fragile states and conflict-prone regions of Africa, where sustainable development initiatives must contend with political instability, insecurity, and underdevelopment.

#### **1. The Peace-Development Nexus**

The African Union (AU) has consistently emphasized the “peace-development-security nexus” in its Agenda 2063 and in initiatives such as **Silencing the Guns by 2030** (AU, 2020). The logic is clear: sustainable development, including eco-friendly modernization, cannot flourish in a context

of violence, displacement, or state fragility. Armed conflict often accelerates environmental degradation, undermines governance, and diverts resources away from critical environmental programs. Conversely, the promotion of green development—such as renewable energy access, sustainable livelihoods, and climate-resilient infrastructure—can serve as a stabilizing force in post-conflict reconstruction and poverty alleviation (UNDP, 2020).

China, drawing from its own historical experience of development following prolonged internal conflict, aligns with this integrated approach. Through its Africa policies and contributions to UN peacekeeping missions, China has increasingly framed peace and development as mutually reinforcing (Sun, 2021). For example, in South Sudan and Mali—countries where China maintains both peacekeeping personnel and development projects—efforts are made to complement stability with investments in agriculture, health, and infrastructure, laying a foundation for long-term green recovery.

## 2. China's Security Engagement in Africa

Although historically cautious about security involvement, China's role in Africa's peace and security landscape has expanded over the past decade. Beijing now engages through a variety of instruments: non-interventionist diplomacy, peacekeeping, military training, and mediation. China's 2015 **Africa Policy Paper** and subsequent FOCAC Action Plans emphasize support for the AU's peacekeeping and conflict prevention initiatives, particularly in volatile areas such as the Sahel, Horn of Africa, and Great Lakes Region (FOCAC, 2018). China has provided funding for the AU Peace Fund, supported the African Standby Force, and established the **China-Africa Peace and Security Forum** to deepen military-to-military exchanges and dialogue on security governance (Shinn & Eisenman, 2023). While these engagements are primarily designed to promote stability, they also create a foundation upon which eco-friendly development can be pursued, especially in contexts where fragile institutions hinder environmental policy implementation.

## 3. Common Prosperity as Strategic Principle

The concept of “**common prosperity**”, central to China's domestic development philosophy, has been increasingly externalized in its South-South cooperation with Africa. Rather than framing aid and investment in strictly utilitarian or commercial terms, China promotes a discourse of mutual benefit and win-win outcomes. This normative framework supports infrastructure projects that aim to generate public goods, such as transportation corridors, energy access, and agricultural modernization—all of which are essential to building inclusive green economies (Tan-Mullins et al., 2017).

In practical terms, China has extended concessional loans, debt relief, and grants to African states for projects that combine economic growth with environmental sustainability. For instance, the **Djibouti International Free Trade Zone**, developed with Chinese support, integrates ecological design principles in an arid and conflict-prone region. Similarly, **hydroelectric and solar projects** in Zambia, Ethiopia, and Kenya seek to improve energy security while mitigating climate risks and fostering inclusive growth (World Bank, 2022).

## 4. Challenges and Ethical Considerations

Despite the synergies, there are tensions between development, security, and sustainability. Some Chinese-funded projects have been criticized for lacking rigorous environmental assessments or

for operating in ways that benefit political elites more than local communities (Bosshard, 2008). Moreover, the overlap of commercial interests and security objectives can blur the lines between development cooperation and strategic influence, raising concerns about neocolonialism or debt diplomacy. Nevertheless, both China and African nations are gradually adopting more transparent and sustainable frameworks for cooperation. The shift toward “Green BRI” standards, increased civil society scrutiny, and stronger African agency in negotiation processes reflect a maturing partnership that values long-term stability and prosperity over short-term gains (CCICED, 2021).

In conclusion, peace and security are foundational pillars of eco-friendly modernization, particularly in regions marked by fragility. China and Africa’s efforts to link green development with stability and common prosperity mark a strategic shift toward a more holistic, mutually reinforcing model of South-South cooperation. While challenges remain, these joint efforts have the potential to redefine development norms and drive transformative change across the continent.

### Case Studies of Implementation

While policy frameworks and cooperation platforms set the stage for eco-friendly modernization, case studies of implementation reveal how China-Africa experience sharing manifests in practice. These projects—ranging from renewable energy and infrastructure to ecological conservation—demonstrate the potential and complexity of aligning green development goals with peace, security, and shared prosperity. This section presents three illustrative case studies: Ethiopia’s Adama Wind Power Project, Kenya’s Standard Gauge Railway (SGR), and the China-Africa Joint Research Centre (CAJRC) in Kenya.

#### 1. Ethiopia: Adama Wind Power Project

Ethiopia, a country with significant hydropower capacity, has increasingly diversified its renewable energy sources. The **Adama Wind Power Projects I and II**, financed and constructed by Chinese firms (CGCOC and HydroChina), represent landmark efforts in this diversification. Together, the two wind farms produce over 150 MW of clean energy and supply electricity to tens of thousands of households (Zhang & Wen, 2021).

These projects illustrate effective China-Africa cooperation in several ways. First, they promote sustainable energy development while reducing reliance on fossil fuels. Second, they involve technology transfer and local capacity-building, with Ethiopian engineers trained in wind farm operation and maintenance. Third, they support regional peace and stability by contributing to electrification in underserved areas—an important factor in reducing conflict risk and supporting economic inclusion (World Bank, 2022).

Despite some concerns about cost-effectiveness and environmental impact assessments, the Adama projects are widely regarded as models for future renewable partnerships on the continent.

#### 2. Kenya: Standard Gauge Railway (SGR) and Green Infrastructure

Kenya’s **Standard Gauge Railway (SGR)**, funded by China Exim Bank and built by China Road and Bridge Corporation (CRBC), is one of the most visible symbols of China-Africa infrastructure cooperation. While the project’s primary goal is to improve logistics and trade, it incorporates green elements such as reduced greenhouse gas emissions from rail transport compared to road freight (Li & Qian, 2022).

An environmental management plan was embedded into its development, with mitigation measures to protect wildlife corridors, especially near the Nairobi National Park and Tsavo ecosystems. Additionally, the railway has been equipped with energy-efficient systems and monitoring tools to reduce environmental harm (UNEP, 2022).

The SGR demonstrates that large-scale infrastructure can contribute to eco-friendly modernization if guided by sustainability principles. However, criticisms regarding debt sustainability and transparency highlight the need for balanced, participatory planning and long-term impact evaluation.

### 3. Kenya: China-Africa Joint Research Centre (CAJRC)

Located at **Jomo Kenyatta University of Agriculture and Technology**, the **China-Africa Joint Research Centre (CAJRC)** serves as a hub for scientific collaboration on biodiversity conservation, ecological monitoring, and sustainable agriculture. Funded by the Chinese Academy of Sciences, the centre has supported more than 40 joint research projects and trained hundreds of African scientists in fields such as botany, remote sensing, and climate change adaptation (He, 2020).

This initiative exemplifies experience sharing beyond physical infrastructure. It prioritizes human capital development, knowledge co-production, and regional environmental research capacity. CAJRC has also facilitated data exchange and joint publications that inform policy in both Africa and China, bridging the science-policy interface in environmental governance.

These case studies underscore several key lessons:

- **Mutual benefit** is achievable when development projects integrate environmental, economic, and social dimensions.
- **Local ownership and capacity-building** are critical to sustainability and long-term impact.
- **Environmental safeguards** must be continuously strengthened to mitigate unintended consequences.
- **Peace and stability** are essential for project implementation, especially in fragile or politically sensitive regions.

### Challenges and Criticisms

While China-Africa cooperation in eco-friendly modernization has yielded tangible results, it also faces substantial challenges and criticisms that must be addressed to enhance its legitimacy, inclusiveness, and sustainability. These concerns span environmental governance, socio-political dynamics, financial risks, and power asymmetries. A critical examination of these dimensions is essential for refining South-South cooperation and avoiding the replication of historical patterns of dependency or ecological degradation.

#### 1. Environmental and Social Safeguards

One of the most persistent criticisms of Chinese-funded projects in Africa is the **inconsistent application of environmental and social impact assessments (ESIAs)**. Although China has adopted green standards through the Green BRI and FOCAC action plans, implementation varies

across countries and contractors. In some instances, environmental risks are downplayed or assessments are rushed due to political or financial pressures (Bosshard, 2008; WWF, 2020).

Projects such as dam construction in the Democratic Republic of Congo or mining operations in Zambia have faced allegations of habitat destruction, displacement of communities, and poor stakeholder consultation. These shortcomings undermine the credibility of eco-friendly modernization and erode trust between communities and development actors (Tan-Mullins et al., 2017).

## 2. Debt Sustainability and Financial Dependence

Another major concern relates to **debt sustainability**. Although Chinese loans have financed transformative infrastructure projects, critics argue that the terms are often opaque and may expose African countries to long-term financial risk. The case of Kenya's Standard Gauge Railway, which faced repayment difficulties during the COVID-19 pandemic, has become emblematic of such fears (CARI, 2021).

While Beijing has taken steps to restructure or forgive certain loans, including during FOCAC 2021, concerns remain about the potential for debt-driven dependence, which could compromise sovereignty and policy autonomy. African governments must ensure rigorous debt management and negotiate terms that align with long-term development and environmental goals.

## 3. Power Asymmetries and Elite Capture

Despite the rhetoric of mutual benefit and win-win cooperation, **power asymmetries persist** in China-Africa relations. China's economic and political leverage often overshadows African bargaining power, especially in bilateral negotiations. Moreover, decision-making processes are frequently dominated by elites, with limited involvement of civil society, local communities, or environmental advocacy groups (Brautigam, 2020).

This dynamic risks reinforcing existing inequalities and fostering "green authoritarianism"—top-down environmental governance that neglects social justice and participatory principles. Without broader accountability mechanisms, the experience-sharing framework may fall short of its inclusive, peace-oriented ambitions.

## 4. Lack of Transparency and Data Sharing

A recurring criticism is the **lack of transparency** surrounding project details, financing arrangements, and impact monitoring. Unlike many OECD donors, Chinese development banks and contractors often do not publicly disclose full project data, making independent scrutiny difficult (Transparency International, 2022). This opacity impedes efforts to track progress, evaluate environmental outcomes, and hold stakeholders accountable.

Furthermore, many African institutions lack the technical capacity to negotiate, monitor, or enforce environmental standards in complex projects. This capacity gap limits the potential for genuine experience exchange and increases reliance on Chinese expertise, undermining the ideal of mutual learning.

## 5. Geopolitical Narratives and Ideological Tensions

Finally, China-Africa green cooperation is sometimes framed within **broader geopolitical rivalries**, particularly by Western actors who view it as strategic competition rather than genuine

development partnership. These narratives, while occasionally exaggerated, can influence donor coordination, project perception, and the political space for African governments to pursue multi-aligned strategies (Tull, 2019).

Moreover, ideological differences regarding governance, human rights, and civil liberties occasionally complicate cooperation, especially when environmental goals intersect with contentious political issues such as land rights, protest suppression, or media freedom.

In summary, while China-Africa experience sharing in eco-friendly modernization has advanced substantially, it is not immune to criticism. Addressing these challenges requires a deliberate shift toward more participatory, transparent, and accountable practices on both sides. African governments and institutions must assert greater agency, while Chinese partners must prioritize inclusive governance and environmental due diligence as core components of their cooperation model.

## Conclusion

China-Africa cooperation in eco-friendly modernization presents a unique opportunity to advance sustainable development, peace, security, and common prosperity. By combining China's rapid technological and infrastructural advancements with Africa's need for sustainable growth, this partnership holds the potential to address the continent's urgent challenges—climate change, resource depletion, poverty, and instability. As explored in this article, the shared principles of green development, peace, and security form the foundation for a cooperative model that, if executed responsibly, can drive transformative change across Africa.

The case studies presented in this article—from Ethiopia's wind power projects to Kenya's Standard Gauge Railway—demonstrate the tangible benefits of China-Africa collaboration in promoting renewable energy, sustainable infrastructure, and environmental conservation. These projects show that eco-friendly modernization is not only possible but also essential for long-term development, offering both environmental and socio-economic benefits.

However, as this article has discussed, there are notable challenges to overcome. Concerns about environmental safeguards, debt sustainability, power asymmetries, and transparency persist, and they must be addressed to ensure the long-term success of the partnership. Moving forward, it is critical for both Chinese and African stakeholders to embrace a more transparent, inclusive, and accountable approach to cooperation. Strengthening environmental governance, promoting local capacity building, and ensuring debt sustainability are key to realizing the full potential of green development in Africa.

Ultimately, China-Africa experience sharing in eco-friendly modernization holds the promise of a new era of South-South cooperation—one where sustainable development is rooted in peace, security, and shared prosperity. By adopting the recommendations outlined in this article, the partnership can evolve into a model for inclusive, sustainable, and peace-driven development that benefits not only Africa and China but the world as a whole.

## Policy Recommendations

To consolidate gains and address emerging challenges, China-Africa cooperation in eco-friendly modernization must evolve into a more inclusive, transparent, and environmentally resilient partnership. The following policy recommendations are proposed to deepen experience sharing while upholding the principles of peace, security, and common prosperity.



### 1. Strengthen Environmental Governance and Safeguards

African and Chinese stakeholders should adopt **joint environmental standards** that are both ambitious and adaptable to local contexts. These standards must go beyond project-level assessments and be embedded within national development strategies and bilateral frameworks.

- Establish **independent environmental oversight bodies** with representation from African governments, Chinese partners, and civil society.
- Encourage use of **Strategic Environmental Assessments (SEAs)**, which evaluate cumulative ecological impacts beyond isolated projects (UNEP, 2022).
- Promote **green procurement** and prioritize projects that align with Africa's climate adaptation and biodiversity goals under the African Green Stimulus Programme and Agenda 2063.

### 2. Promote Transparency and Data Sharing

Transparency is foundational for accountability and mutual learning.

- Develop a **China–Africa Public Data Portal** for tracking project implementation, financing, and environmental impacts.
- Standardize reporting on climate resilience, gender equity, and local employment outcomes for all bilateral projects (Transparency International, 2022).
- Encourage third-party evaluations and peer-reviewed studies to assess long-term development and ecological outcomes.

### 3. Support Local Capacity Building and Technology Transfer

True experience sharing requires **African ownership and institutional strengthening**.

- Expand scholarships, technical exchanges, and training programs focused on green engineering, climate policy, and environmental science.
- Establish **regional centers of excellence** modeled after the China-Africa Joint Research Centre (CAJRC) in more African countries.
- Facilitate joint R&D initiatives between Chinese and African universities and think tanks to co-produce context-sensitive innovations.

### 4. Foster Peace-Responsive Green Development

Sustainable modernization in fragile or post-conflict states demands integration with peacebuilding efforts.

- Prioritize **peace-sensitive environmental projects** that provide inclusive employment, reduce resource-based tensions, and restore degraded ecosystems in conflict-affected areas.
- Strengthen collaboration between China, the African Union, and UN peace operations to align environmental investments with stability objectives (AU, 2020).

- Encourage **community participation and consultation**, particularly in regions where development projects intersect with identity, land, or livelihood disputes.

## 5. Ensure Financial Sustainability and Debt Resilience

To avoid debt stress and ensure lasting benefit from green investments:

- Improve **risk assessments** before project approval, including debt sustainability analyses consistent with IMF/World Bank guidelines.
- Favor **grant-based or blended finance** models for high-impact green projects with limited commercial returns, especially in least developed countries (CARI, 2021).
- Institutionalize **contingency clauses** in loan agreements that allow for restructuring in the event of climate shocks or pandemics.

## 6. Deepen Multilateral and Triangular Cooperation

China-Africa green cooperation can benefit from greater synergy with international actors.

- Align bilateral initiatives with global frameworks such as the Paris Agreement, the Kunming-Montreal Global Biodiversity Framework, and SDG 13 (Climate Action).
- Explore **triangular cooperation** involving international donors, regional bodies, and the private sector to pool resources and best practices (OECD, 2020).
- Promote South-South learning forums where African countries also exchange successful models among themselves and with China.

These recommendations aim to transform the China-Africa eco-modernization partnership from a transactional model into a **transformative alliance**—one that not only meets developmental needs, but also supports social equity, ecological balance, and geopolitical autonomy.

## References

- African Union (2020). *Silencing the Guns: Roadmap and Progress Report*. Addis Ababa: AU Peace and Security Department.
- Bosshard, P. (2008). China's environmental footprint in Africa. *China in Africa Policy Briefing*, 3, 1–4.
- Brautigam, D. (2020). A critical look at Chinese “debt-trap diplomacy” in Africa. *The Atlantic Council*.
- CCICED (2021). *Green Development Guidance for BRI Projects*.
- CARI (China Africa Research Initiative). (2021). *Debt Relief with Chinese Characteristics*. Johns Hopkins University.
- FOCAC (2018). *Forum on China-Africa Cooperation Beijing Action Plan (2019–2021)*.

- He, W. (2020). Environmental cooperation under the Belt and Road Initiative: A case study of China-Africa joint research centres. *Global Environmental Politics*, 20(2), 114–133.
- Li, X., & Qian, Y. (2022). Building a green Belt and Road: Environmental governance in China's South-South cooperation with Africa. *Third World Quarterly*, 43(6), 1231–1250.
- Shinn, D. H., & Eisenman, J. (2023). *China's Strategic Engagement in Africa: Security, Diplomacy, and Development*. Brookings Institution Press.
- Sun, Y. (2021). China and Africa's Evolving Security Partnership. *Journal of Contemporary China*, 30(131), 153–171.
- Tan-Mullins, M., Urban, F., & Mang, G. (2017). Evaluating the behavior of Chinese stakeholders in large hydropower projects in Asia and Africa. *The China Quarterly*, 230, 464–488.
- Tull, D. M. (2019). China's Engagement in Africa: Scope, Significance and Consequences. *Journal of Current Chinese Affairs*, 48(3), 3–28.
- Transparency International. (2022). *Global Corruption Report: Infrastructure and Transparency in Development Finance*. Berlin.
- UNEP. (2022). *Green Development: China's Ecological Civilization Experience*. Nairobi: United Nations Environment Programme.
- Wallerstein, I. (1974). *The Modern World-System*. Academic Press.
- Wallerstein, I. (2004). *World-Systems Analysis: An Introduction*. Duke University Press.
- WWF. (2020). *Green Infrastructure in Africa: Lessons from Chinese-Funded Projects*. Gland, Switzerland.
- World Bank. (2022). *Harnessing Renewable Energy for Africa's Green Transition*. Washington, DC: World Bank Publications.
- Zhang, K., & Wen, Z. (2021). Toward eco-friendly development: Lessons from China's ecological civilization. *Ecological Indicators*, 124, 107382.