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**POLICY BRIEF**

# Sino-African Partnerships for Urban Climate Adaptation

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# 1. Executive Summary

African cities face escalating threats from climate-induced flooding, droughts, and heatwaves, while rapid urbanization magnifies exposure and vulnerability.

With an estimated **60%** of Africa's urban population living in informal settlements, climate adaptation has become a development imperative rather than an optional policy choice (OECD, 2025).

China's domestic experience with the Sponge City Initiative (SCI) offers valuable lessons in integrated water management, flood mitigation, and green infrastructure planning (Chan et al., 2021).

This policy brief examines the opportunities and challenges in emerging Sino-African collaborations, outlining actionable recommendations for African governments, China, and multilateral partners to co-develop resilient and sustainable urban systems.



## 2. Africa's Urbanization and Climate Risks

Cities such as Lagos, Nairobi, Accra, and Dar es Salaam are already experiencing climate shocks that disrupt infrastructure, health, and livelihoods (IPCC, 2022).

Africa currently receives less than 5% of global climate finance (CPI, 2022), and urban adaptation is particularly underfunded (AfDB, 2021; UNEP, 2021).

Informal settlements, where the majority of urban Africans live, face heightened exposure to flooding and heat stress.

Without targeted adaptation policies, urban growth could deepen vulnerability.



**Africa currently receives less than 5% of global climate finance**

# 3. China's Experience with Sponge Cities

China's **Sponge City Initiative (SCI)**, launched in 2015 across 30 pilot cities, represents a paradigm shift in urban flood management. The initiative seeks to ensure that cities can “absorb, store, infiltrate, and purify” at least 70% of annual rainfall through an integrated green-grey infrastructure system (State Council, 2015; Ministry of Housing and Urban-Rural Development [MOHURD], 2014).

The approach prioritizes nature-based solutions such as permeable pavements, vegetated swales, wetlands, and green roofs to mitigate urban flooding and water scarcity (Chan et al., 2018).

Beyond its technical success, SCI has catalyzed an institutional transformation in China's urban planning philosophy — moving from reactive flood defense to proactive water-sensitive urban design (World Bank & MOHURD, 2021). It also demonstrates the benefits of combining engineering expertise with ecosystem restoration, public participation, and long-term financing mechanisms. However, SCI's implementation has revealed challenges, including the high cost of infrastructure retrofits and uneven local government capacity.



**For Africa, the value of SCI lies not in replicating the Chinese model wholesale but in adapting its principles to local contexts.** African cities, with their unique climatic, economic, and governance conditions, can selectively integrate sponge city practices — such as urban wetlands restoration or permeable streets — into broader resilience strategies. Partnerships with Chinese technical agencies and construction firms could accelerate knowledge transfer, capacity-building, and context-sensitive innovation.

# 4. Existing Sino-African Cooperation

*Sino-African collaboration on climate-resilient urbanization is growing, though still in its early stages. Several initiatives demonstrate the potential for scaling up cooperation in green and adaptive infrastructure.*



## 4.1 Nairobi River Green Infrastructure Project

In Kenya, the Nairobi River Green Infrastructure Project integrates ecological restoration with urban development, supported by Chinese technical expertise and co-financing.

The initiative underscores how nature-based solutions can enhance both livability and resilience (Xinhua, 2020).

## 4.2 South-South Cooperation Assistance Fund – Mozambique

Following Cyclone Idai in 2019, China provided critical post-disaster assistance through the South-South Cooperation Assistance Fund (SSCAF).

This included support for rebuilding infrastructure and livelihoods in Beira, one of the hardest-hit cities.

This initiative demonstrates a model of Sino-African cooperation focused on disaster recovery and resilience building (CIDCA, 2021; UNDP, 2019).



## 4.3 Egypt New Capital

In Egypt, Chinese companies have played a major role in developing the New Administrative Capital, integrating green zones, stormwater management systems, and energy-efficient design principles (Xinhua, 2022). Additionally, the China-Africa Environment Cooperation Center, launched in 2020, provides a platform for training, research exchange, and technical collaboration on environmental governance and urban sustainability.

Collectively, these examples illustrate an emerging pattern of hybrid cooperation — combining infrastructure investment with ecological awareness. However, for such efforts to yield long-term resilience, collaboration must evolve beyond project-based engagement toward integrated planning and mutual learning.

# 5. Barriers to Effective Collaboration

## 5.1 Project Focus

Chinese development finance has traditionally prioritized large-scale, grey infrastructure projects that deliver rapid, visible outcomes. While such projects can reduce immediate flood risks, they often neglect smaller-scale, community-driven solutions that address social vulnerability. A shift toward inclusive, nature-based infrastructure would better align with Africa's urban adaptation priorities.

## 5.2 Planning Gaps.

Many urban projects lack comprehensive climate risk assessments during their planning phases. Without integrating climate modeling and local vulnerability data, infrastructure may underperform under future climate conditions. A proof case can be seen in South Sudan's Lumbek Road Project, where, during the construction period, the road was severely damaged by floods in 2020.

This example underscores the importance of embedding robust climate risk analysis and adaptive design standards early in the project cycle to avoid costly setbacks and ensure long-term functionality.



### 5.3 Capacity Limitations.

Municipal governments across Africa frequently face shortages of skilled personnel, technical expertise, and maintenance resources. Even when advanced technologies are introduced, inadequate training can undermine project performance. Building technical capacity through sustained partnerships, rather than short-term consultations, remains critical.

### 5.4 Institutional Misalignment.

Differences in regulatory standards, procurement systems, and governance structures often delay project execution. Language barriers and inconsistent environmental safeguards can further complicate collaboration. Establishing standardized cooperation frameworks, transparent accountability mechanisms, and shared design guidelines could bridge these divides.

Ultimately, overcoming these barriers requires mutual understanding and long-term engagement that prioritize co-design, co-financing, and shared responsibility over one-directional project delivery.

# 6. Policy Recommendations

## 6.1 For African Governments

**1)** African policymakers should integrate climate risk assessments directly into urban planning, zoning, and land-use regulation. National urban development frameworks must recognize adaptation as a core development priority, not an environmental add-on.

Cities should prioritize low-cost, nature-based interventions — such as urban wetlands restoration, green corridors, and flood-resilient housing — tailored to local ecosystems and community needs (UNEP, 2021).

**2)** Governments must also strengthen procurement and monitoring mechanisms to ensure climate-smart design and transparent use of funds.

Importantly, African governments should take greater initiative in engaging with large-scale international projects to ensure that community-based solutions are embedded from the start, rather than relying solely on the terms of externally negotiated contracts.

## 6.1 For African Governments

3) Education forms the foundation of a nation's resilience and innovation capacity. Therefore, beyond immediate adaptation measures, governments must invest in sustained talent development and retention.

This involves not only training future engineers, urban planners, and environmental specialists but also ensuring that these professionals receive long-term recognition and institutional support within both state and society.

Encouraging talent exchanges — sending local experts to learn from first-hand experiences abroad — can enhance knowledge transfer and practical skills.

Strengthening cooperation between African and Chinese cities through sister city or friendship city initiatives can also promote open dialogue, shared research, and mutual learning.

## 6.2 For China

1) China's experience with the Sponge City Initiative positions it uniquely to support Africa's urban resilience goals. Chinese agencies and development banks could earmark a portion of their international climate finance commitments specifically for adaptation, focusing on water-sensitive urban design and green infrastructure. Adapting sponge city principles to African contexts requires flexible implementation that respects local governance systems and social realities.

2) Furthermore, China's Sponge City Initiative has also evolved through partnerships with pioneering countries in sustainable urban design, notably Denmark. In 2012, Beijing and Copenhagen established a sister-city relationship, creating a platform for continuous collaboration on urban climate adaptation.

This partnership was further strengthened in 2018 through the launch of the Strategic Sector Cooperation (SSC) on sustainable urban development, which fosters knowledge exchange between the City of Copenhagen and the Beijing Municipal Institute of City Planning and Design.

In recent years, this collaboration has continued to grow, with Chinese municipal delegations frequently visiting Copenhagen to exchange practical experience and co-develop solutions for flood resilience and sustainable water management.

Expanding this model into a triangular cooperation framework—linking African, Chinese, and Nordic cities—could accelerate innovation and enable a more inclusive exchange of best practices.

The China–Africa Environment Cooperation Center could play a pivotal role as a regional hub for such collaboration, advancing technical training, applied research, and joint initiatives in sustainable urban design.



## 6.3 For Multilateral Actors (UN-Habitat, AfDB, UNEP)



1) International partners such as UN-Habitat, the AfDB, and UNEP should promote triangular cooperation models that bring together African governments, Chinese institutions, and other global actors, including those from Nordic countries.

These organizations can play a catalytic role in documenting lessons from pilot projects, establishing co-financing mechanisms, and supporting knowledge-sharing networks.

2) Cross-country learning — for instance, between African coastal cities adapting to sea-level rise and European cities managing stormwater through green infrastructure — can yield valuable insights.

Multilateral partners should facilitate such exchanges, helping replicate successful models and align investments with long-term sustainability objectives.

# 7. Conclusion

Climate-resilient urbanization is essential for Africa's sustainable development. As climate shocks intensify, adaptation must move beyond isolated, project-based interventions toward integrated, system-level strategies that strengthen governance, planning, and community resilience. Sino-African cooperation provides a strategic platform to advance this shift, combining China's technical expertise and financing capacity with Africa's urgent urban adaptation needs.

China's Sponge City Initiative demonstrates how green-grey infrastructure and nature-based solutions can transform flood and water management. Yet the key to success lies not in replicating models, but in co-developing locally grounded solutions suited to African ecological and social realities. Partnerships should therefore prioritize inclusivity, local ownership, and long-term capacity-building over short-term delivery.

China's international experience — including its collaboration with cities such as Copenhagen — highlights the value of continuous knowledge exchange and adaptive learning. Extending this spirit of cooperation into triangular partnerships among African, Chinese, and Nordic cities could foster innovation and shared best practices. The China-Africa Environment Cooperation Center can serve as a platform to facilitate such multilateral collaboration through training, research, and co-development of sustainable urban systems.

Ultimately, the next phase of Sino-African engagement must evolve from building cities for Africa to co-creating cities with Africa — cities that can anticipate, adapt to, and thrive amid the realities of a changing climate.

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Yiling has held key managerial roles across South Sudan, Zambia, Pakistan, and China. From 2020 to 2024, she served as property management manager in Juba, South Sudan, overseeing major operations and organizing national-level events, including highway inauguration ceremonies attended by state leaders. Her work under the China Belt and Road Initiative has involved high-stakes coordination with governments, embassies, and multinational stakeholders.

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