CENTER for LARGE LANDSCAPE CONSERVATION

Transportation Infrastructure Investments and Consequences for Wildlife

- A Review of Sub-Saharan Africa -

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Background

Investments in transportation infrastructure (primarily roads and railways) is a primary driver of threats and impacts to wildlife habitat and connectivity across the globe. In sub-Saharan Africa (SSA), transportation infrastructure has been a major focus of international development donors and funders for the past ten years. Although many types of financial support contribute to transportation infrastructure development projects, the large amount of capital necessary for these projects means that loans are the primary source of funding. Several global multilateral development banks are active in SSA, as well as several African regional development banks. In addition, Chinese investment in the continent in general, and in infrastructure in particular, has been highlighted as a huge driver of change in both the built and the natural environment[1,2].

With this background in mind, this paper presents two analyses: 1) a comprehensive accounting of the global and regional multilateral development banks (MDBs) active in sub-Saharan Africa, their absolute investments in, and relative emphasis on, transportation infrastructure on the continent; and 2) a systematic review of the environmental and social safeguards and standards policies of MDBs that relate to wildlife, habitat, connectivity and biodiversity conservation.

Methodology

First, we developed a list of MDBs active in SSA, based on a literature review and our own expertise. This list was reviewed by colleagues working in both international development finance and conservation in SSA. The final list of banks and their acronyms, as well as their categorization as global, continental or sub-continental in terms of their investment geography is presented in Table 1.

Table 1. List of MDBs and their acronyms

Name	Acronym	Bank type
The World Bank	WB	Global
International Finance Corporation	IFC	Global
New Development Bank	NDB	Global
European Investment Bank	EIB	Global
Islamic Development Bank	IsDB	Global
OPEC Fund for International Development	OFID	Global
African Development Bank	AfDB	Continental
West African Development Bank	BOAD	Sub-continental
East African Development Bank	EADB	Sub-continental
Eastern and Southern Africa Trade & Development Bank	TDB	Sub-continental
Central African States Development Bank	CASDB	Sub-continental
Development Bank of Southern Africa	DBSA	Sub-continental
ECOWAS Bank for Investment and Development	EBID	Sub-continental

[1] Infrastructure Consortium for Africa (2018). Infrastructure financing trends in Africa 2017. Available at: https://www.icafrica.org/fileadmin/documents/Annual_Reports/IFT2017.pdf.

[2] For a summary of how Chinese investment finance flows from the China Export Import Bank to both private Chinese companies and foreign governments, see Sun, I.Y, Jayaram, K., and Kassiri, O. (2017). *Dance of the lions and dragons: How are Africa and China engaging, and how will the partnership evolve?* Report for McKinsey & Company.

Once we finalized the list of MDBs, we drew on two main sources of information to generate an accounting of their committed investments in both SSA and total infrastructure over the time period 2010 to 2017. The first source of information was the annual report of the Infrastructure Consortium for Africa (ICA), of which most MDBs are members and thus voluntarily provide information about their loan commitments (approved but not yet disbursed) for infrastructure projects in SSA. For each MDB we then drew on each bank's annual reports to round out all other information about total global annual loan commitments, total loan commitments to SSA, total global infrastructure loan commitments, and any missing data about infrastructure loan commitments in SSA. All financial information is presented in US dollars for the year of reporting (thus not accounting for inflation).

Approximately 25% of all African investment comes from China[3]. Information about Chinese investments globally and in SSA was gathered primarily from the China Global Investment Tracker[4], with supplementary information on Chinese investment in transportation infrastructure in SSA gathered from the ICA annual reports. These sources track both bilateral loans made by China to African national governments and loans made by the China Export Import Bank to Chinese private firms that in turn hold contracts in SSA.

In addition to gathering information on annual loan commitments, we also reviewed the environmental and social safeguard policies of each individual bank. We characterized the policies based on whether, and how, they include specific conservation requirements for wildlife movement or ecological corridors, as well as whether the banks also had an infrastructure, green infrastructure or wildlife-specific policy. The results of this policy review are presented in Table 2. The review also evaluated the strength of these policies, characterizing them as either binding contract requirements or non-binding guidelines for proposed projects.

Results

Who is funding transportation infrastructure development in sub-Saharan Africa?

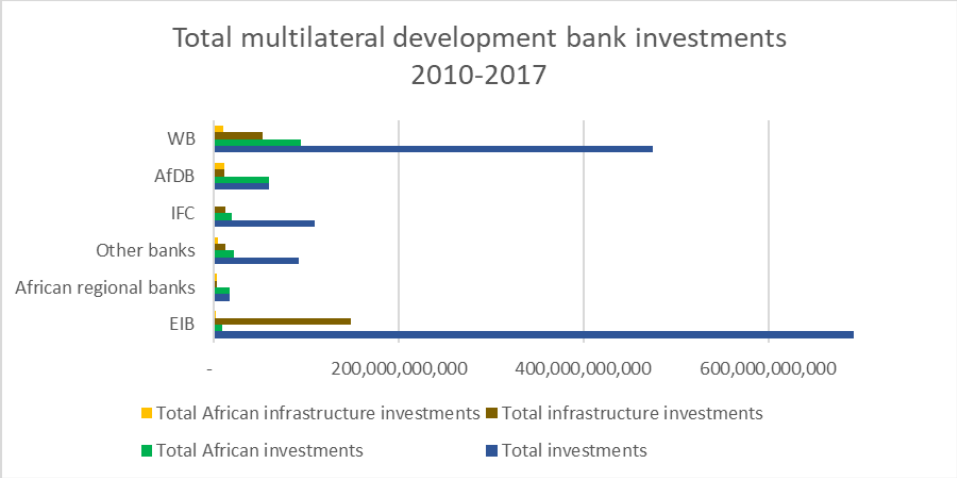

Figure 1. Total MDB investments by location and type, 2010-2017

[3] Infrastructure for Africa Consortium (2018).
[4] Maintained by the American Enterprise Institute. The tracker can be found at: http://www.aei.org/china-global-investment-tracker/.

Figure 1 presents a summary of MDBs actively investing in transportation infrastructure in SSA from 2010-2017. The six sub-continental MDBs are combined into a single category of 'African regional banks' and the three small global banks – NDB, IsDB and OFID – are combined into 'Other banks.' WB and AfDB lead investment in infrastructure in SSA, with $11 billion and $12 billion respectively. As a proportion of investment in SSA overall, transportation appears to be much more of a priority for the AfDB than for the WB – transportation infrastructure represents 18% of AfDB's total investment compared to only 12% of WB's total investment in SSA.

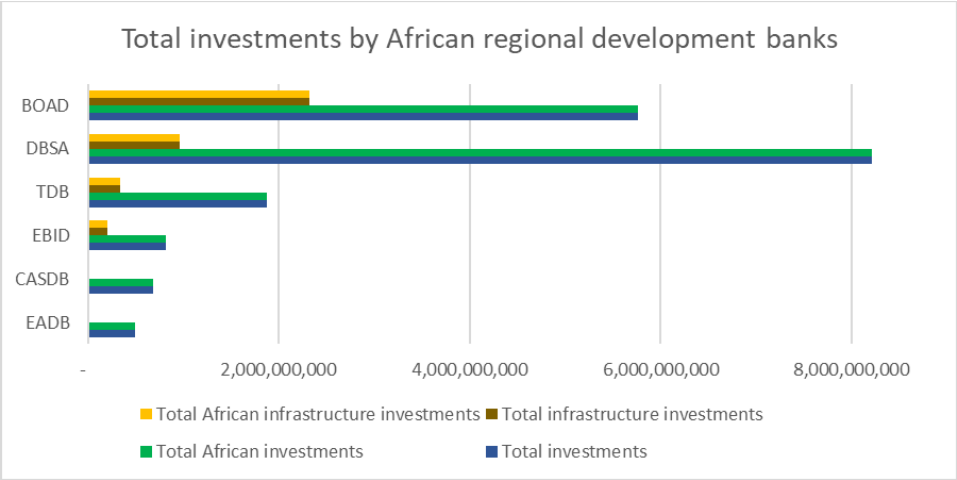

Figure 2. Total investment by African regional development banks, 2010-2017

Investment in transportation infrastructure by African regional development banks is overall much lower than investment by the global MDBs, and in general transportation infrastructure is not a much larger proportion of the African regional banks' portfolios as compared to the global MDBs. Exceptions to this observation are BOAD, which invested $2.3 billion in transportation infrastructure in the 2010 to 2017 period, representing 40% of their overall investment, and EBID, which invested just over $200 million, representing 26% of their overall investment.

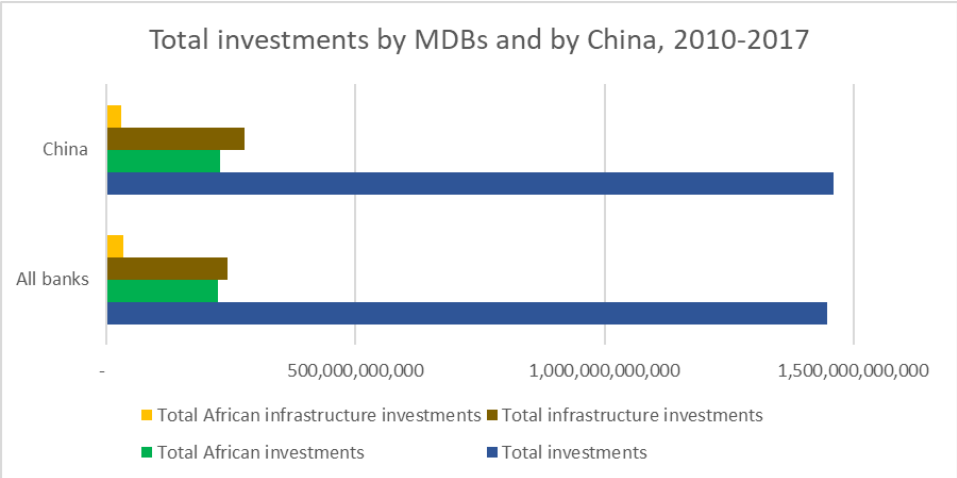

Figure 3. Total investment by all MDBs combined and by China, 2010-2017

Figure 3 compares investment by all MDBs combined to investment by China (both government and firms) from 2010-2017. Levels of investment across all categories are almost identical, with around $220 billion in total investments in SSA by each and around $30 billion in transportation infrastructure investment by each.

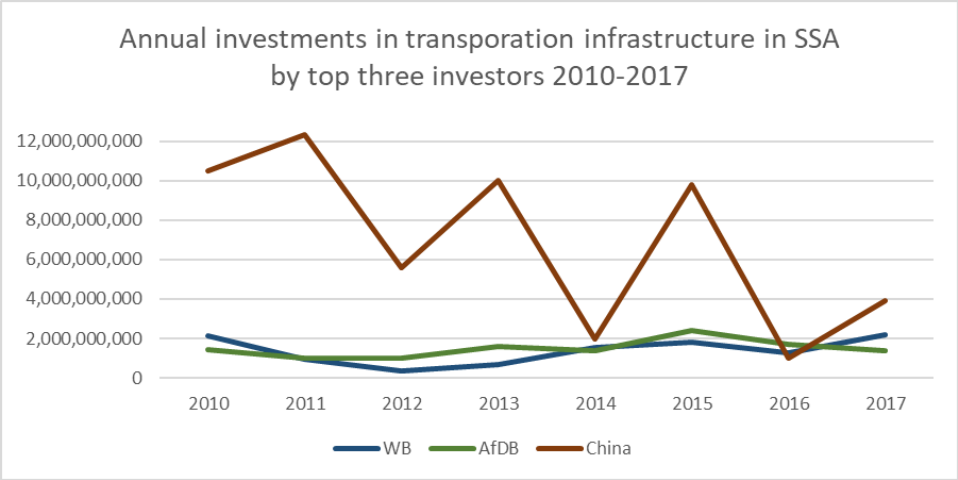

Figure 4. Trends in investments in transportation infrastructure in SSA, 2010-2017

Figure 4 presents trends in annual investments (new loan commitments) in transportation infrastructure in SSA by the top three investors from 2010-2017. Chinese investment clearly dominates over the entire time period, and is also highly variable. In both 2014 and 2016, Chinese investment was nearly equal to investments made by each of the other two top investors (WB and AfDB), while in 2011, 2013, and 2015, Chinese investments were five to six times more than those committed to by either of the other two top investors.

What type of environmental policies to investors in transportation infrastructure in SSA have?
Table 2 summarizes the systematic analysis of environmental and social standards and safeguards policies across all of the MDBs actively investing in transportation infrastructure in SSA. Banks with environmental and social standards and safeguards policies generally require adherence to those policies as part of a loan agreement – that is, the policies are binding within the loan contract. However, a few banks are not clear about how their environmental and social policies are incorporated into contract structures, and none of the banks set a floor for how much avoidance, mitigation or compensation is required to continue with a binding contract. Thus the force of any of these environmental and social policies is not clear from a review of the policies themselves.

All but one bank has a general environmental impact assessment policy that includes standards for a variety of possible environmental impacts from development, and these in general include mention of biodiversity or wildlife. Of those MDBs with general environmental standards, all but two banks also have a wildlife or biodiversity-specific policies. These biodiversity-specific policies almost uniformly focus on fragmentation as the main environmental outcome to avoid, and a few of them include mention of maintaining or creating corridors or connectivity as a way to mitigate this impact. None of the banks have explicit infrastructure policies, although the New Development Bank (which has not as of 2017 funded any transportation infrastructure in Africa) does include language in its Environmental and Social Framework about siting infrastructure on already disturbed land, as well as about climate-proofing infrastructure investments.

Table 2. Type and strength of MDB environmental policies

Bank	Environmental policy	Infrastructure policy	Wildlife/ biodiversity policy	Strength of policies
WB	*biodiversity, habitat*		*fragmentation, no net loss*	
IFC	*biodiversity*		*fragmentation, corridors*	
NDB	*biodiversity*	*infrastructure on converted land*	*fragmentation*	
AfDB	*biodiversity*		*no net loss*	
EIB	*wildlife*		*fragmentation*	
BOAD	*wildlife*		*migration*	
EADB				
TDB	*biodiversity*		*fragmentation, corridors*	
CASDB	*wildlife*			
DBSA	*biodiversity*	*corridors, connectivity, fragmentation*	*corridors, connectivity, fragmentation*	
EBID	*sustainability*			
IsDB				
OFID	*sound environmental practices*			

Table key

No	Sort of	Yes	Binding	Guidelines

Examples of wildlife and biodiversity-specific policies that include explicit engagement with fragmentation as a potential negative impact, and corridors and connectivity as a mitigation option, include the following (bold emphasis added to highlight most relevant language):

The environmental and social impact assessment will "*consider **direct, indirect and cumulative project-related impacts on habitat**s and the biodiversity they support. This assessment will consider threats to biodiversity, **for example habitat loss, degradation and fragmentation***." (WB, Environmental and Social Framework, p. 68)

Risk assessment for biodiversity should include special attention to "*Habitat loss, degradation and **fragmentation (including risk of collision with traffic) and creation of an edge effect***." (EIB Environmental and Social Standards, p.30)

"*When a project is located in an expanse of relatively intact wilderness, the promoter should seek to define **mitigation measures to limit fragmentation such as the design of wildlife corridors or other measures to help preserve connectivity between habitats or meta-populations***." (EIB Environmental and Social Standards, p.33)

Critical habitat definition includes "***Connectivity between habitats (e.g. biological corridors) with importance for species migration and gene flow****, which is especially important in fragmented habitats and for the* ***conservation of metapopulations****. This also includes* ***biological corridors across altitudinal and climatic gradients and from "crest to coast****'*." (EIB Biodiversity Guidance, p. 14)

Project area of influence includes "***migratory routes of humans, wildlife, or fish****, particularly where they relate to public health, economic activities, or environmental conservation*." (BOAD Environmental and Social Policies and Procedures, p. 21)

Map for biodiversity risk assessment must include "***corridors or ecological 'stepping stones'***." (DBSA Environmental and Social Safeguard Standards, p. 81).

"***When feasible, locate infrastructure projects, particularly those involving land clearing, on land that is already converted or highly degraded***." (NDB Environmental and Social Framework, p. 17).

Recommendations

Based on the review presented here, we identify the following recommendations for MDBs and governments like China that are investing in transportation infrastructure development in SSA:

1) All MDBs should have clearly defined environmental standards that include specific definitions of risks to biodiversity and possible mitigation strategies.
2) All environmental standards should include fragmentation as a biodiversity-specific risk
3) All biodiversity-specific policies should offer guidelines for avoidance strategies, including prioritizing infrastructure development on already disturbed or marginal lands.
4) All biodiversity-specific policies should include maintaining habitat corridors and connectivity as an explicit mitigation strategy.
5) Banks should develop infrastructure-specific policies that incorporate biodiversity-specific mitigation strategies that can address risks posed by transportation infrastructure.

Conclusions

This systematic review of policies and practices of MDBs investing in transportation infrastructure in SSA identifies several current trends in both financing and mitigation approaches. On the financing side, almost equal amounts of investment have been made by all of the active multilateral development banks combined and China (investing through a variety of mechanisms). Levels of investment by China have widely varied over the past eight years, while investments from WB and AfDB, the two largest MDBs in terms of spending on transportation infrastructure in SSA, have remained largely stable. On the policy side, we found that most multilateral development banks include habitat fragmentation as a potential environmental externality from any development project, and most include the maintenance of core habitat and corridors in their mitigation recommendations. Avoidance is mentioned less frequently in these policies. There no transparency in Chinese environmental impact policies. Moving beyond policy, the next questions to be addressed are how project impacts are monitored once implementation begins, and how the results of that monitoring feeds into future project management and decision-making.

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