POLICY BRIEF

CHINA AFRICA RESEARCH INITIATIVE

NO. 52 2021

Railpolitik: Ethiopia's Rail Ambitions and Chinese Development Finance

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POLICY POINTS

Facilitate trust & technology transfer by increasing Chinese contractors' transparency and improving language and translation capabilities.

Host government railway agencies strengthen capacity and technical experience to ensure strategic railway development and management.

Conduct independent economic feasability assessments for new projects to ensure debt sustainability.

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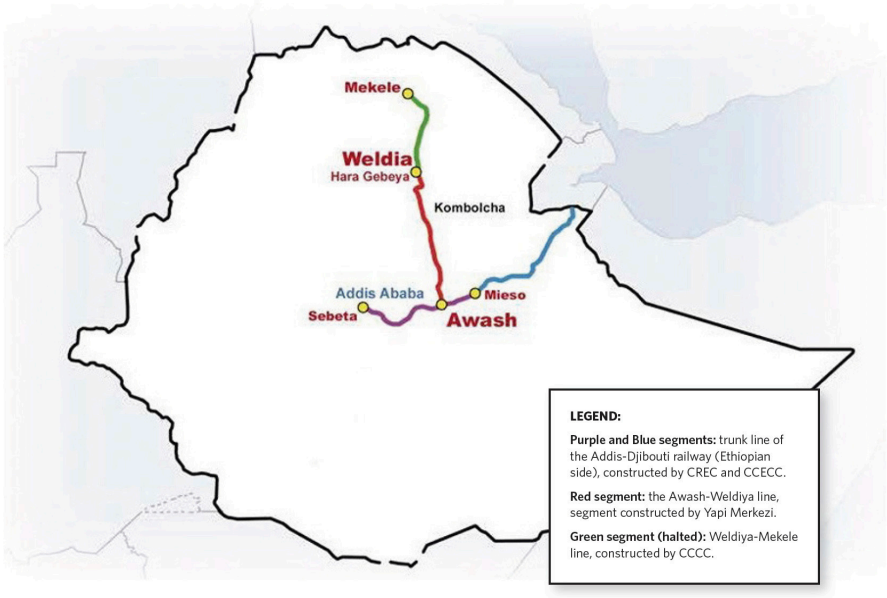
RAILWAYS HAVE BEEN ONE OF THE MOST VISIBLE MANIFESTATIONS of China's economic statecraft in Africa, where Chinese development finance has supported state-owned enterprises in winning overseas construction contracts. Railway projects carry special significance as a domestically strategic sector, and a way to export China's capacity and technology abroad. But the operation and longevity of these infrastructures will depend on how they are integrated into the local economy, and long-term sustainability depends on local capacity building.

The standard gauge railway (SGR) from Addis-Ababa to Djibouti, completed in 2018, is symbolic as China's first cross-border railway built in Africa since the Tanzania-Zambia (TAZARA) line in the 1970s. Along with the Kenyan Mombasa-Nairobi SGR, it has been enfolded into the "Belt and Road Initiative" discourse in East Africa. Ethiopia's fragmented railway construction market offers a singular perspective as a site for contesting emerging powers, via. international contractors. Turkey is a major player and competitor to China in the railway sector, responsible for the construction of a line from Awash to Weldiya, adjoining the Chinese-built Addis-Djibouti line.

ETHIOPIA'S RAILWAY AMBITIONS

IN 2011, ETHIOPIA STARTED BILATERAL TALKS WITH BEIJING, with a commitment to financing a package of new infrastructure investments—including railway, with the solo proviso (as with all Chinese loans) that Chinese contractors and locomotives would be procured. Ethiopia received a US$ 2.49 billion commercial loan from China Eximbank for the construction of the line, which was split into two segments, awarded to China Railway Engineering Company, who also designed and constructed the Addis Ababa Light Rail Transit system; and China Civil Engineering Construction Company (CCECC), who later gained the tender to build the Djibouti portion of track.

Intended to replace the single, poorly-maintained road which channels the bulk of Ethiopia's import and exports, the 756 km railway is double-track between Addis Ababa and Adama, and single-track until its endpoint in Nagad, Djibouti. Like the Kenyan SGR, the railway is built according to the Chinese standard gauge model for Chinese rolling stock, using Chinese train control system (CTCS) for signaling and communications. Notably, it is the first fully electrified railway in Africa, a key demand that Ethiopia's government pushed for in the design of the project. While laudable for the utilization of



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'clean' energy, the dependence on hydroelectric power has also been a major obstacle for the railway, which was completed in 2016, but did not start commercial operation until January 2018.

THE TURKISH RAILWAY

ETHIOPIA'S SECOND RAILWAY NETWORK tendered was the Awash-Kombolcha-Hara Gebeya/Weldiya line (AKH), the first of two sections that would connect the Addis-Djibouti railway at Awash, to Mekele in the northern region of Amhara. This was contracted to Turkish construction giant Yapi Merkezi in 2013 through an EPC (engineering, procurement and construction) contract. A major edge for Yapi Merkezi was its ability to broker financing for the railway: a US$ 300 million loan from the Turkish Eximbank and Credit Suisse, along with other European export credit agencies, for a total US$ 1.1 billion loan. The Turkish-built segment began construction in 2014 and completed in 2019, however the second segment up to Mekele has stalled due to lack of financing.

The AKH railway follows European technical and social standards, and financiers exercised much more stringent requirements for social impact management e.g., compensation and sanitation services for displaced and relocated communities along the routes. However, some railway design aspects (e.g. tunnels, curvature of line) have had to accommodate to the standards set by the Chinese ADR and larger Chinese locomotives.

The signaling system is a key technological divergence between the two railways: the AKH line uses European technology (ERMTS Level 1), more advanced than the Chinese CTCS, which was subcontracted to a Canadian-Italian locomotive division of Bombardier. Signaling systems will be a logistical challenge for the AKH's integration with the main ADR trunk line, firstly in the hardware to integrate the sections of rail track and of onboard equipment for the locomotives; second, in technical and management training for staff to operate between the two lines. Ensuring cross-compatibility between the two systems will require additional funding, a perennial challenge to the cash-strapped Ethiopia Railway Corporation (ERC). Another major challenge is the financing and construction of transmission lines to power the AKH line. One interviewee noted that, "even if we install everything, we cannot test it because there is no power supply".

THE DOUBLE EDGE OF CHINESE FINANCE

A MAJOR STRENGTH OF CHINESE development finance for infrastructure investment is apparent in the post-construction phase, where compared to private commercial finance, Chinese loans have offered greater flexibility in repayment. One ERC respondent noted the Chinese were more "flexible" and "willing to support you". In 2018, when foreign exchange shortages meant the government struggled to repay external debts, Ethiopia was allowed to delay repayment on its railway loan for one year, even as it continued to repay its private European lenders, which would incur greater penalties. Later in 2018, China and Ethiopia bilaterally agreed to restructure the loan, extending the repayment period of the SGR loan from 10 to 30 years.

The Addis-Djibouti railway's finance offered less flexibility in choosing the contractor and employer's representative, compared to the Turkish built project. The former mandated the use of a Chinese employer's representative, CIECC, rather than the government's preferred firm, Sweroad, which had supervised the urban light rail project. Compared to the Turkish-built railway, which used a French supervisory firm, the Ethiopian Railway Agency trusted the Chinese contractors less and perceived collusion between the Chinese firms, while the Turkish and

European contractors were regarded as more transparent and responsive, with a commercial, transactional relationship.

TECHNOLOGY AND KNOWLEDGE TRANSFER

WHAT IS DISTINCT ABOUT THE Chinese overseas railway model, which the Addis-Djibouti railway exemplifies, is the coordinated package of finance, construction, and training: on top of construction, Chinese aid, companies, and universities have all been involved in training programs for local staff. Ethiopian engineering students and ERC staff have attended university exchanges in Tianjin and Chengdu for various training courses. CCECC also offered scholarships for its railway staff in Ethiopia and Nigeria for specialized courses in China. A new Railway Technology Transfer Academy was announced in 2018, to offer vocational training on campus to local staff on the entire network. Design, feasibility studies, and clearing of the site are still underway.

Despite the strong emphasis on training initiatives, however, ERC staff perceived failures in capacity building in the Chinese project. In the actual construction of the railway itself, ERC staff lamented the absence of capacity building from Chinese contractors, prior to the railway's commission. While stipulated in the construction contract, training ultimately "fell short of expectations", as contractors and local staff focused on speed rather than capacity building. In contrast, with Yapi Merkezi, the ERC agreed on a training schedule as part of the construction contract which involved "aggressively training" around 40 of ERC's own engineers on site, under the supervision of the Turkish firm. After six months of formal training, the trainees were hired, and some have been promoted in Phase II of construction. This push for early, systematic training and technology transfer during construction in the Turkish line was partly driven by the learning of the ERC from their experience in the Chinese line.

As part of the ERC's pressure to localize training in Ethiopia, the Chinese CREC/CCECC consortium has established a capacity building center based at Labu station in Addis and at the Indode locomotive depot, as well as in Dire Dawa and Djibouti. Here, local staff are trained in five main technical areas, including locomotives, maintenance, driving, signaling, and electrical engineering. Much of this training, such as for train drivers, is being conducted by CCECC staff themselves, with visiting lecturers from Tianjin Railway University. The managerial role that CCECC and CREC have taken on for the railway now entails a long-term stake in building local capacity for the railway.

A major difference between the Turkish and Chinese projects that impacts knowledge transfer is language. Yapi Merkezi has a built-in training advantage given their working language is English. Documents and technical blueprints are also translated to English for ERC staff. The language barrier was a tougher situation for Chinese contractors. Technical training sessions sometimes required a translator for the instructor, an expensive and awkward format which lost much information in translation. Training sessions for aspiring train drivers relied on CCECC staff to first teach themselves English, and then go on to train the Ethiopian students. ERC staff also struggled to communicate with Chinese contractors during meetings, and noted that language was a major barrier in accessing and reading technical documents and blueprints, which were often untranslated, or required headquarter authorization to access.

CAPACITY AND AGENCY

AT EACH DESIGN AND CONSTRUCTION STAGE, Ethiopian decision-makers—under Meles Zanawi's driven premiership—made conscious financing and implementation trade-offs. These decisions were governed by political and cost considerations and show the capability and agency of African governments in negotiating with external partners, but also the agency's limits without sufficient capacity or technical experience.

The absence of fencing for large sections of the Addis to Djibouti route is an example that highlights the Ethiopian government's agency in the design and implementation of the project, and its' costs. The decision was motivated by cost-saving and the desire to not cut off local communities, despite fencing being standard in Chinese railway design. This has generated major problems during operation, due to frequent collisions with livestock, and has forced limits on train speed in addition to causing grievances of local communities against the railway and the federal government.

Railway electrification was another successful exercise of agency that came with pitfalls. The added complication, however, of transmission lines construction and lack of power delayed the commissioning of the railway by several years, even when project construction was complete. Since commercial operations began, power problems persisted, interrupting service, and impacting the attractiveness of the railway for passengers and cargo. Worryingly, uptake of the railway by industrial zone exporters—the original intended beneficiaries—has been extremely lackluster. As of early 2019, an estimated 95 percent of railway cargo volume comprised imported goods from port, with little heading in the

other direction. As an instrument of an industrialization strategy, the railway has yet to meet expectations

CONCLUSION

COMPARING THE TWO MAJOR RAILWAY PROJECTS shows the substantial influence financiers exert in project implementation, and the relative benefits and trade-offs of choosing China's model of infrastructure finance. The case also highlights the importance of agency and bargaining power on the part of recipient African governments, and implications for long-term project sustainability and capacity building. In contrast to the Turkish-built line, which was financed by European and private creditors, Chinese railway finance has been premised on a political and strategic relationship. This has its advantages: the politically driven nature of Chinese financing gave financial leniency in loan repayment, and in offering a holistic array of training and knowledge transfer alongside project construction. However, it has afforded less bargaining power to the Ethiopian government in its relationship with contractors, which has a trade-off for project implementation and technology transfer, and in turn, the long-term sustainability of such projects.

Overseas Chinese railway projects have been distinct for their knowledge-transfer and capacity building, training local staff to operate the railway. However, in contrast to the Turkish contractor technology-transfer during the construction phase was negligible. This matters: the ability of host governments to extract knowledge from foreign partners is crucial for project sustainability, ownership, and developmental state capacity.

This research took place long before the outbreak of COVID-19, however, in the wake of its economic and health impacts, the challenge of making railway and other infrastructure investment pay off, in the midst of global economic recession, has become even more fraught. More acutely, the fiscal constraints for African governments that COVID-19 have brought also raises further questions over the sustainability of African debt. This case of China's approach and flexibility to its railway loans highlights the flexibility that Chinese bilateral lending offers, vital in the critical juncture after COVID-19. For future railway development, however, the light at the end of the tunnel remains dim.

POLICY RECOMMENDATIONS

1. Greater transparency from Chinese contractors, as well as adequate language and translation capabilities, to facilitate trust and technology transfer.
2. Host government's railway agencies should strengthen capacity and technical experience to ensure strategic railway development and management.
3. To ensure debt sustainability, there should be an independent assessment of economic feasability for new projects. ★

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THE SAIS CHINA-AFRICA RESEARCH INITIATIVE at the Johns Hopkins University School of Advanced International Studies (SAIS) in Washington, D.C. was launched in 2014. Our mission is to promote research, conduct evidence- based analysis, foster collaboration, and train future leaders to better understand the economic and political dimensions of China-Africa relations and their implications for human security and global development.

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This research was funded by research grant ES/M004074/1 from the UK's Department for International Development and the Economic and Social Research Council (DFID/ESRC), which supports research to provide evidence-based analysis of technology transfer, linkages, learning, and spillovers associated with Chinese investment in African manufacturing, agribusiness, and construction industries.

Research jointly supported by the ESRC and DFID