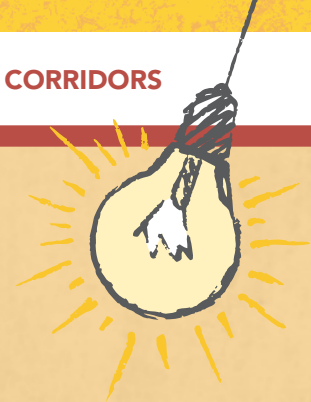


EVALUATING THE IMPACTS OF THE DAR ES SALAAM BRT SYSTEM



What is the impact of the Bus Rapid Transit system on access to affordable housing, employment, and mobility?

Bus Rapid Transit Project

IMPLEMENTING AGENCY:

Dar es Salaam Rapid Transit (DART) Agency

TOTAL LENGTH:

137 kilometers, implemented sequentially from the first to the sixth phase.

OBJECTIVE:

To improve transport mobility, accessibility, and the quality of service delivery in public transport.

For more information about the Tanzania Second Central Transport Corridor Project visit:
<http://projects.worldbank.org/P124114/tanzania-second-central-transport-corridor-project-add-financ?lang=en>



Dar es Salaam Bus Rapid Transit Map, Phases 1–3

Context

Tanzania is urbanizing at a high rate of 5.8% annually, with 50% of the country's population expected to live in major and secondary cities by 2030. However, as urban populations grow, city density is effectively falling: the influx of people mean travel times are very large and the labor and goods markets that city dwellers can access are shrinking to the areas closest to where they live. Given the rapidly urbanizing landscape, transportation infrastructure has

become a top priority for policymakers, international donors, and multinational corporations. Improving the efficiency of cities through transportation is critical to deriving greater agglomeration benefits; good management of urbanization offers opportunities to increase productivity, create sustainable jobs, reduce emissions throughout the growth process, and ensure resilience to shocks.

To address the high level of congestion in Dar es Salaam, the city has begun their large-scale investment in a Bus Rapid Transit (BRT) project, which consists of six phases. Phase 1 consists of 20.9km of bus ways, 5 terminals, 2 depots and 27 bus stations located at the central median.

Phase 1 corridor runs from the high-income central business district (CBD) into middle- and low-income residential areas in the West. Out of six phases planned by the government, Phase 1 was financed by the World Bank and is in operation, Phase 2 has been financed by the African Development Bank and is under construction, and the Phases 3 and 4 are being designed with support from the World Bank. The BRT aims to improve environmental, economic, health, and social outcomes.

Impact Evaluation Research

The Dar BRT IE analyses the impact of Phase 1 of the Dar BRT on travel times, commuter safety, job creation, income, property values, and health, wealth and happiness of Dar residents. It also lays the groundwork to rigorously evaluate complementary interventions in later phases. Identification comes from a spatial triple difference (difference-in-difference-in-differences) method based on the fact that all planned phases of the BRT system extend on arterial rays emanating from the CBD, a novel research method in this context. The research team uses a travel time study that provides baseline travel times between any two locations on various modes of transport. The travel time data allows the team

to compute the treatment intensity of the household to phase 1, phase 2 and later phases of the BRT system (essentially, the treatment and control groups for the spatial triple-difference). A structural model is also used to capture the heterogenous impact of the BRT across the city.

Three rounds of household surveys will inform two separate experiments: a randomized control trial (RCT) of how subsidized fares impacts livelihoods and commute times; and an RCT subsidizing costs of living close to the BRT (i.e. rent) to understand the impact that rising housing prices have on people living near the BRT.

Policy Relevance

Given the Tanzanian government's plans to construct phases 2–6 of the BRT, the results will be critical to domestic policy in the near future. There is high demand for these results and an evaluation strategy to build a strong feedback loop of credible information for future BRT planning, implementation, and management. The Dar Rapid Transit (DART) Agency has indicated its interest in using evidence on travel times, public transport ridership, urban mobility, job search costs, private vehicle usage, and inter-firm trade to spur further investment.

Moreover, the empirical evidence on the impacts of urban transportation infrastructure in developing countries remains limited. There is great pressure in cities to upgrade transport options, but the best approach to this transport problem is, however, unclear. This evaluation will provide policymakers with actionable evidence to decide among alternative or competing infrastructure projects such as widening roads.

For more information email dimetransport@worldbank.org or visit www.worldbank.org/en/research/dime/brief/transport



The ieConnect for Impact program links project teams with researchers to develop rigorous and innovative impact evaluations that both substantially improve the evidence-base for policy making and induce global shifts in transport policy. The ieConnect program is a collaboration between the World Bank's Development Impact Evaluation (DIME) group and the Transport Global Practice. This program is part of the Impact Evaluation to Development Impact (i2i) multi-donor trust fund and is funded with UK aid from the UK government and by the European Union.