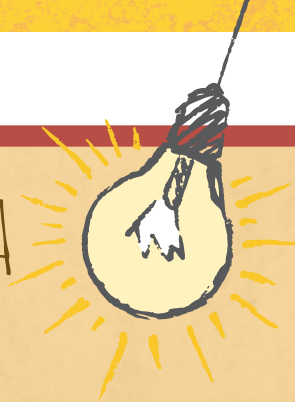


# IMPACT EVALUATION: LAKE VICTORIA TRANSPORT CORRIDOR PROJECT



*What is the impact of the highway construction on travel costs and aggregate economic activity?*

## Lake Victoria Transport Program — SOP1, Rwanda

### IMPLEMENTING AGENCY:

Rwanda Transport Development Agency (RTDA)

### INTERVENTION:

Construction of 119km of new, high-capacity highway in the Eastern and Southern provinces, replacing the existing gravel road and providing new connectivity to the Tanzania port of entry.

### PROJECT DEVELOPMENT OBJECTIVE

To contribute to the efficient and safe movement of goods and people along the regional corridor from the border crossing at Rusumo to the border crossing at Nemba.

### COMPONENTS:

Improving the physical infrastructure; and Improving the institutional infrastructure and implementation assistance.

More information about the Lake Victoria Transport Program – SOP1, Rwanda can be found online at <http://projects.worldbank.org/P160488/?lang=en&tab=overview>

## Context

Despite recent growth, Rwanda remains amongst the poorest countries in the world. As a landlocked country, high transport costs are a critical constraint to growth. According to the Business Environment and Enterprise Performance (BEEP) 2011 report, about 60 percent of firms in Rwanda rely on imports for inputs and/or supplies, which take an average of 15 days to clear customs.

The Government of Rwanda (GoR) has assigned fundamental importance to the development of the economic infrastructure of the country, and particularly to road transportation. The construction of the Ngoma-Nyanza highway is identified as a priority investment for the government under the most recent poverty reduction strategy. As depicted in blue in Figure 1, this new highway consists of two separate segments that will replace the existing gravel road and will provide new connectivity within the National Road System between the Tanzania port of entry in the south east of the country and southern central Rwanda. The first section has a length of



Figure 1: National Highway Network (in Red) and Intervention Sections (in Blue)

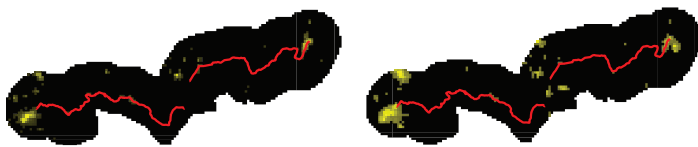
53 km and is being funded by The Japan International Cooperation Agency (JICA). The second section extends over 66 km between Kibugabuga - Shinga - Gasoro and is funded by the World Bank, under the Lake Victoria Transport Program – SOP1, Rwanda.

## Impact Evaluation Research

This Impact Evaluation (IE) aims to leverage rich micro data to estimate the impact of the highway construction on travel times and costs, on firm-level outcomes, and aggregate economic activity. Specifically, the IE seeks to find the impact of the southern corridor construction on transport costs, traffic flows, land values, economic activity, population, consumption, and income of economic agents living near the corridor.

The impact evaluation builds on a data system developed by DIME and the Government of Rwanda (GoR) for the Rural Feeder Roads Development Project impact evaluation and demonstrates how it can be extended to a corridor context. The data system includes administrative data collected by the GoR, publicly available nighttime lights data (Figure 2), and supplemental primary data collection. Administrative data sources include: The Land Administration Information System, Ubudehe Population Registry, Establishment Census, Integrated Household Living Conditions Survey, Seasonal Agricultural Survey, road network monitoring data, and tax record data. Primary data collection will include traffic and trucking surveys, and market surveys to monitor product availability and prices.

Using a difference in difference and triple difference strategies, researchers compare outcomes of interest before-after (1st dimension), between villages in the southern corridor to those outside the corridor (2nd dimension), and between villages along the highway to those further away from the highway (3rd dimension). A comparison between villages along the highway to



**Figure 2: Night light images of the Southern corridor in 2012 and 2018.**  
Source: VIIRS data

those further away from the highway is also added to estimate both local effects along the corridor and spillovers to neighboring areas, using high frequency and spatial data on traffic, firms, markets, traders and land transactions.

## Policy Relevance

This impact evaluation studies the effects of the construction of the Ngoma-Nyanza highway, one of the priority road sections identified by Rwanda's Economic Development and Poverty Reduction Strategy (EDPRS II). Under EDPRS II, the government plans to upgrade about 830 km of national roads to paved highway standards. Therefore, the results will be critical to domestic policy in the future. Evidence from this impact evaluation will contribute to prioritizing road segments and quantifying economic gains. It will potentially help estimate the net contribution of the expected reduction of traffic congestion in Kigali.

Moreover, the empirical evidence on the impacts of large-scale transport infrastructure projects in developing countries remains limited. This research will contribute to the literature in the context of a low-income developing country in Sub-Saharan Africa and inform other road projects in the region as to their expected effects.

The spirit of this study is to leverage the existing micro data, complemented with a small amount of primary data collection, to document the national impact of a large infrastructure program. This methodology can be transferrable to other road infrastructure development in the rest of Africa.

This IE is part of a portfolio of impact evaluations DIME has with the Government of Rwanda. The partnership began with one evaluation in the agriculture sector, but evolved into a large portfolio of IEs, driven by the keen interest of the GoR to systematically learn from robust evidence. The IE portfolio centers around the science of rural transformation: investment in large infrastructure (terracing, irrigation and roads), rural finance, accountability in extension service delivery, as well as understanding mechanisms for operation and maintenance of infrastructure projects.

For more information email [dimettransport@worldbank.org](mailto:dimettransport@worldbank.org) or visit [www.worldbank.org/en/research/dime/brief/transport](http://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.