



MILLENNIUM
CHALLENGE CORPORATION
UNITED STATES OF AMERICA



EVALUATION BRIEF | DECEMBER 2021

UNLOCKING MARKET ACCESS VIA ROADS IN SENEGAL





Reduced travel times have not yet led to reduced transport costs for users

Program Overview

MCC's \$540 million [Senegal Compact](#) (2010–2015) funded the \$324 million Roads Rehabilitation Project. The Roads Rehabilitation Project improved 372 kilometers of strategic highways and river crossings in the north and south of the country. The project was based on the [theory](#) that improvements in road infrastructure would reduce travel times and vehicle operating costs for road users, improving access to markets and services, which would in turn support economic growth and improve outcomes for local people.

MCC commissioned CH2M HILL, Inc. to conduct an independent final performance evaluation of the Roads Rehabilitation Project. Full report results and learning: <https://data.mcc.gov/evaluations/index.php/catalog/253>.

Key Findings

-  Economic Rate of Return
 - › The original economic rates of return (ERRs) were significantly higher than those of the evaluator, due to optimistic assumptions on traffic growth and baseline road roughness conditions.
 - › Ongoing improvements to the RN2, a main highway, and the new Senegambia bridge serving the RN6 may increase ERRs in the long term.
-  Road Usage Patterns
 - › Over 88% of drivers and two-thirds of passengers are males.
 - › Most trips are made locally for business purposes, with agricultural products transported the most frequently.
-  Transportation Market
 - › Larger firms are less likely than smaller operators to reduce fares, but may improve the quality and frequency of services.
 - › While travel times have improved, prices charged for transport have not reduced significantly.
-  Maintenance
 - › AGEROUTE, the government's maintenance agency, is perceived as following proper maintenance procedures.
 - › External maintenance challenges may include funding uncertainty, vehicle overloading and security.

Evaluation Questions

This final performance evaluation was designed to answer the following questions with regard to the rehabilitation of the RN2 and RN6:

1. What is the economic return in terms of vehicle operating cost-savings and travel time-savings?
2. What are the road usage patterns on the RN2 and RN6?
3. How likely are transport cost-savings to be passed on to transport service customers?
4. What is the likelihood that MCC’s investment remains adequately maintained?

Detailed Findings

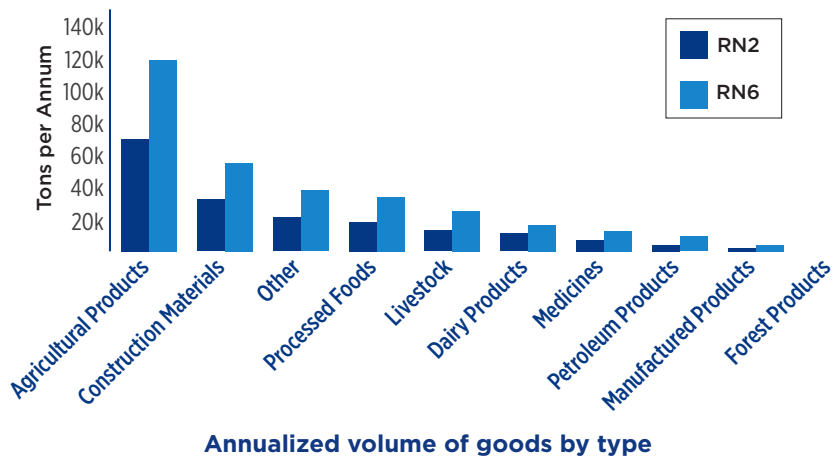
Economic Rate of Return

On the RN2, the original ERR was greater than the evaluator’s estimate by a margin of 5.6 percentage points (10.9 percent vs. 5.3 percent). On the RN6, MCC’s ex-ante, the original estimated rate was nearly six times greater than the evaluator’s estimate. More recently, a number of transport infrastructure projects have taken place on or around the RN2 and RN6, which may lead to increased traffic growth and user benefits, hence an increase in their longer-term ERRs. Projects include African Development Bank-funded improvements to the RN2 (Ndioum–Bakel section) and the recently constructed Senegambia bridge serving the RN6.

Road Usage Patterns

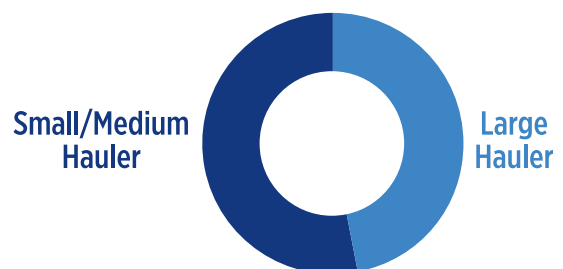
On both roads, the evaluation showed that most road users are males (88 percent) and of working age (80 percent between 25 and 54) who are traveling locally or within the region for business purposes. Almost half of all goods (47%) are moved by articulated trucks with agricultural products, the most frequently transported type of good on both routes.

The average price per passenger journey is around \$0.20/kilometer. Average freight charges varied with load, with petrol being the most expensive at \$140/ton and with agricultural products being the least expensive at \$34/ton.



Transportation Market

The fuel market is centrally regulated, with price ceilings set nationally on a monthly basis. The public transport sector is split into structured, larger and organized firms as well as smaller, unstructured operators. The haulage sector is simi-



larly split between large, unionized firms and small- to medium-sized haulers. Larger firms are less likely to pass on savings, though they may offer increased investment in the fleet and improved frequency and quality of services. Smaller firms are more likely to reduce prices due to freer competition.

Maintenance

In all eight areas assessed, AGEROUTE is perceived as following established policies and procedures within budget limitations. Roads are currently in good condition, with international roughness indexes indicating higher road quality than expected. However, subsequent maintenance financing can face challenges. On average since 2015, AGEROUTE has received just 54 percent of annual requested funds. Stakeholders are concerned about further reductions due to COVID-19 needs.



RN2 on a typical day in a market

Economic Rate of Return

MCC considers a 10% economic rate of return (ERR) as the threshold to proceed with investment.

RN2: 10.9%
RN6: 11.3%
 Original ERR (2009)

RN2: 5.3%
RN6: 2%
 Evaluator ERR (2020)

The deviation from the original ERR is due to revisions in baseline data on road condition, traffic volume and traffic growth forecasts. Indeed, for RN2, the major deviation drivers include the following: 1) the evaluator's assumption of the road being in better condition prior to investment, resulting in more modest improvements in travel times and vehicle operating cost-savings; 2) lower evaluator assumptions for baseline traffic on some sections of the route; and 3) lower evaluator assumptions for traffic growth. For RN6, the key deviation drivers include the following: 1) the evaluator's finding of higher outturn costs and assumptions for higher operating costs, 2) lower evaluator assumptions for baseline traffic on some sections of the route, and 3) lower evaluator assumptions for traffic growth. The higher cost and length of the RN6 compared to the RN2 amplify these affects.

MCC Learning

Having more reliable data sources on road conditions, traffic counts and traffic growth could have improved the design during compact development.

Standardizing the content and quality of road data collection sources across the project could help improve data quality controls and the credibility of findings.

Building road maintenance into the compact through capacity building and the reform of existing policies/procedures could strengthen the maintenance agency’s ability to weather eventual management and funding challenges.

Evaluation Methods

This performance evaluation used pre-post and ex-post methodologies of Highway Development and Management (HDM-4) modeling, supported by quantitative and qualitative data collection. The exposure period was 55–60 months (about 5 years).

Quantitative data collection included automatic traffic counts (7 locations), an origin-destination intercept survey (3,406 drivers and passengers), a vehicle operating costs survey (36 businesses), a road roughness study, and high-definition video (372 kilometers). Qualitative data collection included 20 key informant interviews conducted remotely. Secondary data on fuel, maintenance budgets and transport unions was also used.

