

Tanzania - Transport Sector

Report generated on: October 28, 2020

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Overview

Identification

COUNTRY

Tanzania

EVALUATION TITLE

Transport Sector

EVALUATION TYPE

Independent Evaluation

ID NUMBER

DDI-MCC-TZA-IE-TRANS-2020-v04

Version

VERSION DESCRIPTION

Licensed datasets, accessible under conditions,

Overview

ABSTRACT

Evaluation questions: This final performance and impact evaluation was designed to answer the following questions: (1) Were transportation costs reduced? How is the road being used, and how has this changed since before the investment?; (2) What is the likelihood that vehicle operating costs (VOC) savings will be passed on to consumers of transportation services? Did runway improvements reduce aircraft operating costs and increase traffic?; (3) What is the likelihood that the roads will be maintained?; and (4) What was the impact of the road improvements on incomes in mainland Tanzania and on Pemba Island?

The exposure period was 33 - 80 months after construction. Key findings include the following:

- (1) Paving roads led to large increases in travel speeds, and reductions in fuel and vehicle repair costs across all roads, leading to increased traffic volume.
- (2) Investing in the national trunk road network greatly facilitated the movement of people and goods across regions and national borders.
- (3) Reductions in vehicle operating costs led freight and passenger service providers to reduce prices for consumers and increase service provision along the project roads
- (4) Paving the runway at the Mafia Island Airport reduced aircraft operating costs, but without any reduction in fares or measurable increase in traffic.
- (5) All project roads remain in good condition, but chronic funding shortfalls could undermine needed maintenance over the long-term.
- (6) Mainland road improvements facilitated market access and increased economic activity in urban areas connected by the roads. Upgrades may lead to higher economic activity in communities near the Pemba Island roads, though these results are not statistically significant.

EVALUATION METHODOLOGY

Independent Ex-Post ERR and HDM-4

UNITS OF ANALYSIS

Community, households, administrative units; OTHER: road, trip

KIND OF DATA

Other

TOPICS

Topic	Vocabulary	URI
Transport		

KEYWORDS

Tanzania, Tanzania compact, Roads, Infrastructure, Transportation, HDM-4

Coverage

GEOGRAPHIC COVERAGE

The project improved trunk and regional roads in the Tanga region (Tanga-Horohoro), the Songwe Region (Tunduma-Sumbawanga), the Mtwara region (Mtwara Corridor), the Mafia Island Airport. The project also improved roads on Pemba Island, in the Tanga region (Tanga-Horohoro), the Songwe Region (Tunduma-Sumbawanga), and the Mtwara region (Mtwara Corridor).

UNIVERSE

Road users

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Mathematica Policy Research	

FUNDING

Name	Abbreviation	Role
Millennium Challenge Corporation	MCC	

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Mathematica Policy Research	Mathematica		Independent Evaluator

DATE OF METADATA PRODUCTION

2020-10-08

DDI DOCUMENT VERSION

Version 04

DDI DOCUMENT ID

DDI-MCC-TZA-IE-TRANS-2020-v04

MCC Compact and Program

COMPACT OR THRESHOLD

Tanzania Compact (2008 - 2013)

PROGRAM

The Tanzania Transport Sector Project aimed to increase cash crop revenue and aggregate tourism spending through four activities: (1) upgrading three mainland trunk roads, for a total of 473 kilometers in improved roadways; (2) upgrading 35 kilometers of rural roads on Pemba Island; (3) building the capacity of national and Zanzibar regional roads maintenance

entities; and (4) upgrading the Mafia Island Airport runway and taxiway.

MCC SECTOR

Transport (Trans)

PROGRAM LOGIC

The program logic expected that roads improvements would reduce travel time on the roads and reduce the cost of operating and maintaining vehicles used along improved segments. Over the longer term, the savings from the reduced VOCs and travel time would be passed on to farmers and consumers through competitive transport and agriculture markets, and farmers would increase their cash crop revenue. In addition, the program logic assumed that improved roads would increase access to social services such as schooling and health care for those living close to the roads, which would in turn increase human capital and, eventually, wages. The expected beneficiaries were road users (including transport operators and vehicle passengers) as well as farmers, who would receive increased cash crop revenue, and households living near the roads. The initial program logic did not distinguish between beneficiaries of trunk roads-who include inhabitants living at the ends of improved road segments and beyond, largely in urban areas-and those living in rural areas along the roads. These trunk roads can also reduce barriers to interregional trade and facilitate cross-border trade, whereas beneficiaries of rural roads are more likely to be households living in the vicinity of the upgraded roads who now have better access to the transportation network.

PROGRAM PARTICIPANTS

Roads users

Sampling

Study Population

Road users

Sampling Procedure

We conducted vehicle intercept and passenger surveys on all mainland trunk roads, and purposively sampled four of the five most heavily-trafficked Pemba rural roads. The vehicle intercept survey lasted three days per road. We sampled at least 20 percent of all vehicles traveling along the road during the survey periods. Actual sample sizes were 2,241 vehicles on the mainland trunk roads, or 28 percent of average annual daily traffic (AADT), and 1840 vehicles on Pemba rural roads, or 17 percent of AADT. Sampling rates are within the targeted range when accounting for surveys not being conducted in the evening or at night out of concern for the safety of enumerators. For vehicles carrying at least one paying passenger, one passenger from each vehicle was randomly selected for the passenger survey.

Response Rate

The response rate for the vehicle intercept survey was 98 percent of vehicles stopped. The response rate for passengers on the passenger survey was 99 percent of sampled passengers. There was no nonresponse on the axle load survey.

Weighting

Sample weights for the vehicle intercept survey were computed as the inverse of the probability of selection of the vehicle based on vehicle type and the frequency of that vehicle type in the traffic counts during the same time period. The weight variable is called "weight" and is used with the questions from vehicle intercept survey.

Sample weights for the passenger survey were similarly computed as the inverse of the probability of selection of the passenger based on vehicle type, the frequency of that type of vehicle in the traffic counts, the percent of that vehicle type that were eligible (those to be carrying at least one paid passenger during the vehicle intercept survey), and the number of passengers in that vehicle. The weight variable "weight" and is used with the passenger data.

Sample weights for the manual road condition survey were computed as the inverse of the percent of road segments of a condition (good, fair or poor, according to the network-level road condition survey) that were sampled. The weights are provided in the Segment_selection file provided in the data package.

Questionnaires

Overview

Community (traffic and vehicle operating cost survey), Administrative (transportation agency key informant interviews), Household (vehicle intercept survey and focus groups)

Data Collection

Data Collection Dates

Start	End	Cycle
2019-05-31	2019-10-04	n/a

Questionnaires

Community (traffic and vehicle operating cost survey), Administrative (transportation agency key informant interviews), Household (vehicle intercept survey and focus groups)

Data Collectors

Name	Abbreviation	Affiliation
Apex Engineering		
EDI, Ltd.		

Data Processing

Data Editing

Mathematica worked closely with local data collection partners to train interviewers and closely monitor the data collection effort to identify challenges and address them while data collection was ongoing.

Upon receipt of the complete datasets, Mathematica conducted additional cleaning to code "other" responses, correct out of range responses, address item nonresponse and inconsistent skip patterns, and conducted merges between different datasets if necessary.

Other Processing

Data entry was conducted in the field during surveys by trained enumerators using SurveyBe software on tablets.

Data Appraisal

No content available