



EC EXTERNAL SERVICES

EVALUATION UNIT

OUTCOME AND IMPACT LEVEL

INDICATORS

ROAD SECTOR

WORKING PAPER:

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This working paper outlines a set of indicators at the outcome and impact level for the roads sector. It does not focus on implementation (e.g. output level indicators such as kilometres of road), or indicators at the global level (e.g. economic growth and poverty reduction) but aims to improve the development of indicators between these two levels (i.e. the 'missing middle').

It is hoped, by setting out a clear set of indicators, that this work can be used to guide the development and monitoring of programming level tools, such as CSP's. These indicators should also increase our ability to understand the wider impact of development assistance.

This work builds upon existing international best practices.

ROAD SECTOR: OUTCOME AND IMPACT INDICATORS

Introduction

This short paper outlines a key set of effects and indicators covering expected outcomes and impacts of country support to the roads sector. It is designed to assist country teams to develop a set of indicators for the programming level and guide the production of documents such as Country Strategy Papers (CSP). It also aims to fill, as much as possible, the 'missing middle' between implementation indicators (e.g. kilometres of road) and global impact indicators (e.g. poverty reduction).

Methodology

This paper is based on intervention logic that outlines a chain of expected effects (outputs, outcomes and impacts) for a successful intervention. For each outcome and specific impact, a set of indicators has been identified that can measure their achievement. A full set of effects is outlined in the intervention logic diagram on page 3 and the indicators are summarised in Annex A.

For full details on the methodology used for this working paper, please see the 'methodological approach' paper.

Output Clusters

Support for road infrastructure has been arranged into five output cluster areas. Output clusters cover products resulting from development interventions:

- a) **Infrastructure:** "More effective and efficient methods to take forward the development and implementation of road construction and to ensure sustainable road maintenance"
- b) **Institutional Reform:** "Strong government reforms to improve its capacity, accountability and responsiveness to develop and enforce policies and regulation in the management of road construction and maintenance"
- c) **Economic:** "Increased public and private investment in the economy, as a outcome of road construction and maintenance"
- d) **Environment:** "Enhanced considered and mitigation of environmental issues in taking forward road construction and maintenance"
- e) **Social:** "Improved links to education, safety and health activities in road construction and maintenance"

EC Ruvuma & Southern Iringa Road Maintenance Project (Tanzania)

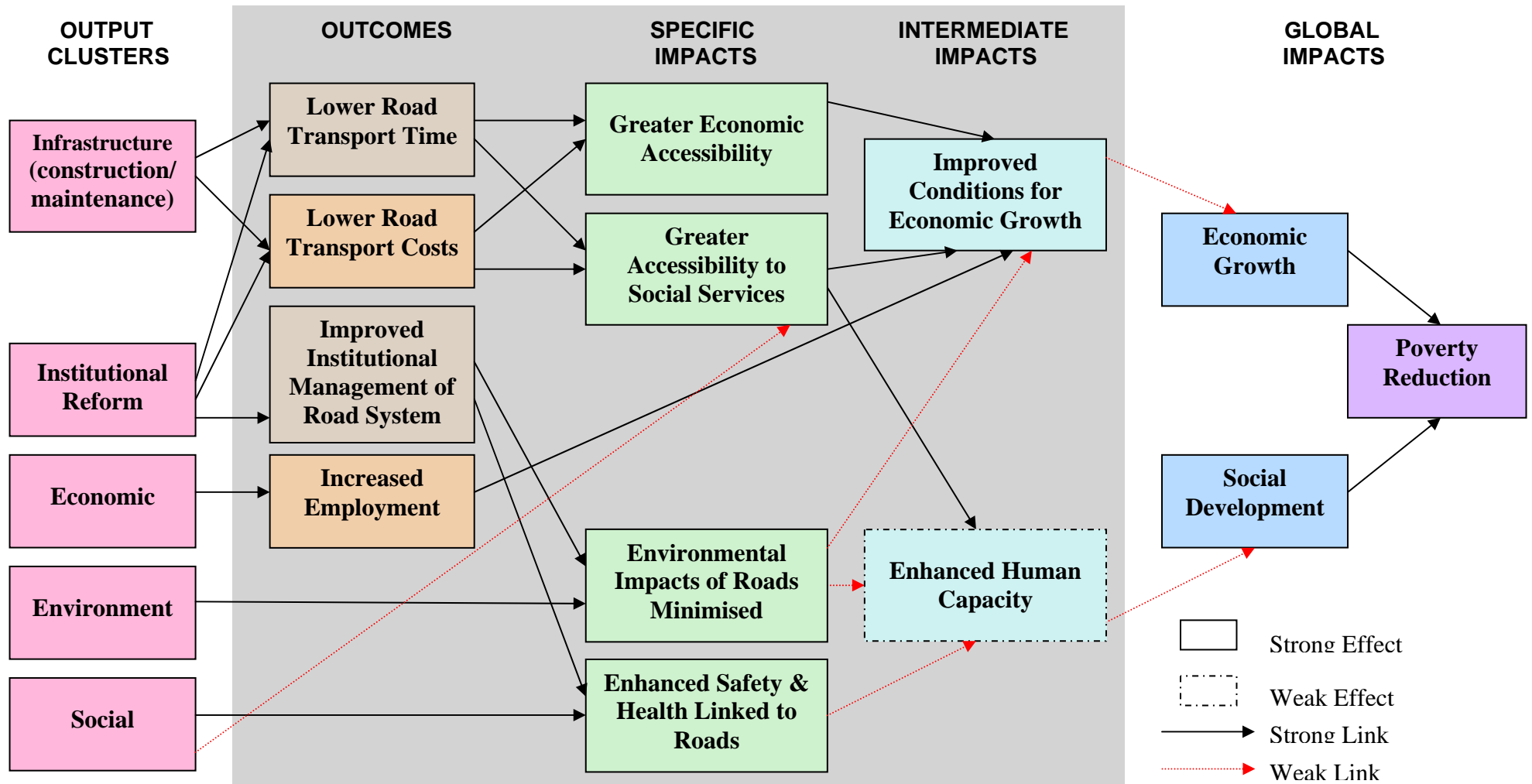


Before



After

ROAD INTERVENTION LOGIC



Inputs: financial, human and material resources etc. Activities: funding, planning, monitoring, technical assistance, construction etc

Outcomes

Outcomes relate to the likely or achieved short-term and medium-term effects of an intervention's outputs:

Lower Road Transport Time

1. Travel times

Examples: Public transportation travel time
Commercial travel time

Falls in public transportation times from Songea to primary schools due to improved roads:

- Kitanda down from 8 to 2 hours
- Magagura down from 5 to 2 hours
- Mpitimbi down from 1.30 hours to 45 minutes

EC Tanzania evaluation 2006

Lower Road Transport Costs

2. Transportation costs

Examples: Cost of public transportation fares
Commercial transportation operating costs

Improved Institutional Management of Road System

3. Implementation and enforcement of laws related to roads

Example: Number and type of prosecutions related to road offences
Number and type of approved laws related to roads

Increased Employment

4. Employment resulting from road construction and maintenance

Example: Number of people directly and indirectly employed in road construction and maintenance projects

Specific Impacts

Specific impacts cover positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended:

Greater Economic Accessibility

5. Access to roads

Example: Population living within x kilometres of a road network

6. Use of public transportation

Example: Number of people using public transportation

7. Business productivity

Examples: Market return for traded goods
Transfer to higher-value goods

Population living close to an all weather road:

An all weather road is defined as a road that suffers closure for less than 2 weeks each year. Currently 11% of the rural population is within 2km of such a road, with this target rising by 1% each year for the period up to 2011 (i.e. to 16%)

EC Mozambique evaluation 2007

Greater Accessibility to Social Services

8. Access to social services

Examples: Number of people who live within x time of a:

- school
- health centre
- local government office

Number of visits by government officials to towns/villages

Visits by government officials to towns and villages:

Government officials are now able to make more frequent visits to rural areas. For example, the Regional Commissioner recently visited a remote village to talk to the villagers, something which would have been difficult to accomplish in the past due to poor roads.

EC Tanzania evaluation 2006

Environmental Impacts of Roads Minimized

9. Environmental effects of road system

Examples: Soil erosion directly related to roads
Lead and carbon monoxide pollution
Market share for unleaded petrol
Number of vehicles meeting x environmental quality standard

Enhanced Safety & Health Linked to Roads

10. Road deaths and injuries

Examples: Number of road deaths
Number of road injuries

11. Disease transmissions influenced by improved mobility

Example: HIV/AIDS and TB infection rate

Intermediate Impacts

Intermediate impacts are similar to specific impact but are longer-term in nature and are the last cause and effect chain level that can be monitored effectively and at the same time demonstrative sufficient attribution to the output clusters:

Improved Conditions for Economic Growth

12. Employment

Examples: Employment opportunities within x travel time
Increase in employment within x area

13. Trade

Examples: Volume of trade between y and z regions
Value of trade between y and z regions

Increases in the volume of trade:

Exports through Takoradi doubled in the period 1990-2001, as did dry bulk exports over the same period (i.e. annual growth of about 7%). In the same period containerized cargo (most of which is carried by road) increased by some 460%.

EC Ghana evaluation 2005

Enhanced Human Capital

14. School attendance

Example: School enrolment and completion rates

15. Health attendance

Examples: Number of visits to health centres
Number of supervised births
Child immunisation rates

Global Impacts

Finally, the effects of support to the road sector should contribute to the longer term global impacts of social development, economic growth and poverty reduction. However, due to the complexity of their achievement and the numerous factors influencing them, it is not possible to draw a direct cause and effect link to the road sector. As a outcome, no road sector related indicators have been identified for this level.

Annex A: List of Key Indicators for Road Sector

Outcomes

1. Travel times
 - Public/commercial transportation time
2. Transportation costs
 - Cost of public transport fares; commercial operating costs
3. Implementation and enforcement of laws related to roads
 - Number/type of approved laws related to roads; number/type of prosecutions related to road offences
4. Employment resulting from road construction and maintenance
 - Number of people directly and indirectly employed in road construction and maintenance projects

Specific Impacts

5. Access to roads
 - Population living within x kilometres of a road network
6. Use of public transportation
 - Number of people using public transportation
7. Business productivity
 - Market return for traded goods; transfer to higher-value goods
8. Access to social services
 - Number of people who live within x time of a school, health centres, or local government offices;
Number of visits by government officials to towns/villages
9. Environmental effects of road system
 - Soil erosion directly related to roads; lead and carbon monoxide pollution; market share for unleaded petrol; number of vehicles meeting x environmental quality standard
10. Road deaths and injuries
 - Number of road deaths; number of road injures
11. Mitigation of disease transmissions influenced by improved mobility
 - HIV/AIDS infection rate; TB infection rate

Intermediate Impacts

12. Employment
 - Employment opportunities within x travel time; increase in employment within x area
13. Trade
 - Volume of trade between y and z regions; value of trade between y and z regions
14. School attendance
 - School enrolment; school completion rates
15. Health attendance
 - Number of visits to health centres; number of supervised births; child immunisation rates