



**AfCAP**  
Africa Community Access Partnership



# Evaluation of the cost-beneficial improvement of first mile access on small-scale farming and agricultural marketing

Progress Statement No. 1



Robin Workman  
Andrew Otto  
Peter Njenga  
Grace Muthia  
Shedrack Willilo  
John Hine

TRL Ltd and IFRTD

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**TRL** THE FUTURE  
OF TRANSPORT



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Cover Photo: Motorcyclist transporting farm produce, with great difficulty, through muddy access road.

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ReCAP Project Management Unit  
Cardno Emerging Market (UK) Ltd  
Oxford House, Oxford Road  
Thame  
OX9 2AH  
United Kingdom



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Rural, Roads, Transport, Agriculture, Markets, Poverty, Food security, First Mile, Small-scale farming

## AFRICA COMMUNITY ACCESS PARTNERSHIP (AfCAP)

### *Safe and sustainable transport for rural communities*

AfCAP is a research programme, funded by UK Aid, with the aim of promoting safe and sustainable transport for rural communities in Africa. The AfCAP partnership supports knowledge sharing between participating countries in order to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources. The programme follows on from the AFCAP1 programme that ran from 2008 to 2014. AfCAP is brought together with the Asia Community Access Partnership (AsCAP) under the Research for Community Access Partnership (ReCAP), managed by Cardno Emerging Markets (UK) Ltd.

See [www.research4cap.org](http://www.research4cap.org)

## Acronyms, Units and Currencies

AEZ	Agro Ecological Zone
AFCAP	Africa Community Access Partnership
AFD	Agençe Francaise de Développement
AfDB	African Development Bank
APM	Association of Project Management
AVC	Agricultural Value Chain
CDD	Community Driven Development
CDF	Constituency Development Fund
CIA	Central Intelligence Agency
CIAT	International Centre for Tropical Agriculture
DADP	District Agricultural Development Plans
DC	District Council
DFID	Department for International Development
EDS	Enterprise Development Services
FAO	Food and Agricultural Organisation
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
HDI	Human Development Index
IFRTD	International Forum for Rural Transport and Development
IMS	Integrated Management System
KAVES	Kenya Agricultural value Chain Enterprises
KENDAT	Kenya Network for Dissemination of Agricultural Technologies
KeNHA	Kenya National Highways Authority
KeRRA	Kenya Rural Roads Authority
KII	Key Informant Interview
KRB	Kenya Roads Board
KURA	Kenya Urban Roads Authority
LGA	Local Government Authority
MDA	Ministries, Departments and Agencies
MTRD	Materials Testing and Research Department
MUVI	Small and Medium Enterprise Support Programme
NGO	Non-Governmental Organisation
NSGRP	National Strategy for Economic Growth and Reduction of Poverty
PMU	Programme Management Unit
PO-RALG	President's Office - Regional Administration and Local Government
RECAP	Research for Community Access Partnership
RMLF	Road Maintenance Levy Fund
RTI	Rural Transport Infrastructure
SSA	Sub-Saharan Africa
SUMATRA	Surface and Marine Transport Regulatory Authority
TAPP	Tanzania Agricultural Productivity Programme
TASU	Tanzania Agricultural Scale-Up
TPSF/CCP	Tanzania Private Sector Foundation Cluster Competiveness Programme
TRL	Transport Research Laboratory
UK	United Kingdom (of Great Britain and Northern Ireland)
UKAid	United Kingdom Aid (Department for International Development, UK)
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organisation
URT	United Republic of Tanzania
VC	Value Chain
VTTTP	Village Travel and Transport Programme

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## 1 Introduction

The issue of 'First Mile' research has previously been explored by IFRTD in two pilot studies in Kenya and Tanzania. This research intends to extend the evidence base for the benefits associated with access improvements to small-scale farmers, and the potential impact that those benefits have on food security and poverty reduction on a much wider scale.

To date the research has undertaken a review of previous work on First Mile access and wider literature, defined the research questions and scope of work, held stakeholder workshops in Kenya and Tanzania, identified research sites in both countries, and commenced initial data collection.

The research is currently in Phase 3, which is the data collection phase. This report presents progress made up to the 17<sup>th</sup> January 2018. A summary of the Phase 2 stakeholder workshops and the methodological approach for fieldwork and data collection for Phase 3 can be found in the Phase 2 Report.

## 2 Activity Progress

Progress is reported generally for the development of survey instruments and preparation activities for the fieldwork. Progress of testing and data collection is reported separately for each country.

### 2.1 Activities undertaken

The following activities have been undertaken since the start of Phase 3 in September 2017.

#### 2.1.1 Development of Survey Instruments

The Team Leader visited both Kenya and Tanzania to meet with the local team members and assist with the development of the survey instruments in October 2018. Programmes for testing and implementation of the questionnaires were agreed and can be found in Annex A. Due to delays in Kenya for elections, and in both countries due to heavy rainfall, the testing and data collection may need to be extended. A proposed revised work plan is provided in Annex B.

The survey instruments developed for Phase 3 data collection include:

- General Market Data Questionnaire
- Farmer or Seller Market Data Questionnaire
- Transport Operator's Questionnaire
- Farmer's Questionnaire
- Key Informant Checklist – Agriculture Expert
- Key Informant Checklist – Infrastructure Expert

In addition, a data entry spreadsheet has been developed to facilitate the data entry and analysis.

#### 2.1.2 Testing of Questionnaires

Before research tools are administered to participants, testing should be carried out to ensure that the questions are relevant, clearly understandable and sensible. The testing aims to determine the reliability and appropriateness of the research tools, including the wording, structure and sequence of the questions. This helps to improve the content validity and reliability of the data that is to be collected.

Project staff were able to pilot the questionnaires and other survey instruments in both Kenya and Tanzania, using the agreed methodology set out in the Phase 2 report. The main feedback was that

the Farmer's questionnaire took a long time to complete, which made the respondents impatient and could possibly affect the responses they were giving. It took more than one hour to fully complete a Farmer's questionnaire in both countries, which is a significant amount of time for a busy farmer. The other survey instruments were found to be appropriate during testing.

A team meeting was held at the IRIM conference in Uganda between Robin Workman, John Hine, Peter Njenga and Grace Muhia. At this meeting it was decided that the second and third crop questions could be omitted since a primary crop of focus had been identified in each research area. This should cut the time taken to complete the questionnaire significantly and allow the team to meet the agreed target of 400 questionnaires, as well as ensuring the quality of responses.

In addition, the onset of the rainy season and the uncertainty created by the repeat presidential election in Kenya made it very difficult to fully test the survey instruments. However, it was agreed that sufficient testing had taken place to confirm the accuracy of the questionnaires for the main data collection.

## 2.2 Present Status

The present status of activities in each country is shown below.

### 2.2.1 Kenya

#### Identifying Project Locations

In preparation for the fieldwork, a process to select suitable project locations was undertaken from the outset and cognisance was given to the knowledge and contact base created from previous pilot studies on first mile transport challenges. This work was carried out in diverse locations in Nyahururu, Murang'a, Meru, Nyeri, Machakos and Kinangop Counties. It examined the entire transport value chain for smallholder farmers in French Beans, milk, potatoes, onions, vegetable and bananas, and identified the first mile segment as the most problematic and in need of detailed research. The final selection of projects was undertaken with the participation of key stakeholders, following recommendations made in the first stakeholder workshops. Some initial selection criteria were identified to engage the stakeholders in determining the geographical locations where fieldwork was to be undertaken as well as commodity types, and eventually the stakeholders agreed on two sites; Miathene in Meru (Figures 1 and 2) and Kithimani in Machakos (Figures 3 and 4).



**Figure 1: Meru: Mbarua valley**



**Figure 2: Irrigated French Beans**

The first site was chosen in Miathene, Meru County. Miathene is located on very rugged terrain 23 km west of Meru town. The dominant crops are French beans and onions grown through rain fed

and irrigation systems in a fertile valley. Poor first mile access is a major hindrance to transport during the rainy seasons. The main modes of transport for the first mile are animal carts, back loading and motorcycles (boda-boda). The average distance from farms to the nearest collection point is about 4 km.

The second site was selected in Kauthilili village, Kithimani location, Yatta Sub-County in Machakos County. The study area was selected because most of the inhabitants are small-scale farmers who are agribusiness oriented, producing French beans. Kauthilili is 52.3 km from Machakos Town and 7.5 km to Kithiamani Trading Centre. People of this area practice agriculture, particularly horticulture farming. Farmers plant a variety of crops including French beans, vegetables, maize, beans, red pepper, avocado, mango and white supporter trees, which generate big profits. A major outlet for these French beans is the European Union market.



**Figure 3: Machakos farm**



**Figure 4: French Beans**

### **Testing**

Testing of the questionnaires was carried out at Kithimani and Miathene in Kenya between 8<sup>th</sup> and 10<sup>th</sup> November 2017. The testing involved 10 respondents, comprising 6 farmers and 4 transport operators (boda-boda and animal drawn cart) from the target population. The respondents were selected from the research areas. The purpose was to refine the research tools so that respondents in the major study would have no problem in answering the questions. Due to the onset of the wet season, more intensive testing was not possible.

A key agricultural informant was contacted to validate and elaborate information provided by the respondents. The quality of key informant interviews rests largely on choosing the right informants. The most important consideration is that informants possess an intimate knowledge of the subject on which they were interviewed. Such knowledge may be based on their special social positions, experience, participation in the project or programme, or professional expertise.

### **Adjustments to the farmers' Questionnaire**

The questionnaire took about 40-50 minutes to administer. The following changes were recommended by the local researcher.

- Widen the range of educational levels

- Simplify the options for recording quantity using the most commonly used units, i.e. use acres, kgs, etc.
- Widen the range of defects recorded on the road
- Increase the different options for types of labour used on the farms
- Increase the options for how and where the produce is sold locally
- Other minor changes in numbering and presentation

**Note:** 1. Similar changes were made on CROP 2  
2. Conversion units for hectares provided as a footnote in the form

### Comments on the Transport Operator Questions

- The questionnaire took about 45-50 minutes to administer
- It is sometimes hard to get such data on other modes from an operator, e.g. An ox cart operator was not able to know how many boda-bodas operate in the area, or the number of owners and those operating outside associations. This was also the same for other modes.

### 2.2.2 Tanzania

#### Identifying Project Locations

The process to select suitable project locations was undertaken using a similar methodology to Kenya, and was agreed following approval of the Phase 2 Report. The two sites agreed upon are Madeke and Matola. Both are near the regional centre of Njombe. The Madeke site has its main crop as pineapples (Figures 5 and 6) and the Matola site has round potatoes as its main crop (Figures 7, 8 and 9 show the range of different transport options available).



Figure 5: Pineapple farm



Figure 6: Pineapple collection



Figure 7: Transport by donkey



Figure 8: Transport by animal cart



Figure 9: Transport by truck

### Testing

Testing of the questionnaires was carried out at Medeke and Matola in Tanzania in November 2017.

It is worth noting that the two sites have no clear market. Farmers sell at their local collection point along the accessible road. Also, there is no particular market day; each farmer brings produce to a place where vehicles can come to collect along the road. The details of these local dynamics will be captured in the questionnaires and during discussions, as this is an important aspect of the research.

A total of 10 farmers' questionnaires and 3 transport operator questionnaires were used in testing.

### Data collection

Piloting of the questionnaires took place in Tanzania in November and December 2017. The number of revised questionnaires completed so far for the main data collection at each site is as follows:

#### Madeke site (pineapples):

- Number of Farmers questionnaires - 53
- Number of Transporters questionnaires - 8

- Number of general data questionnaires - 3
- Number of collection point questionnaires - 4

**Matola site (potatoes):**

- Number of Farmers questionnaires - 55
- Number of Transporters questionnaires - 49
- Number of general data questionnaires - 1
- Number of collection point questionnaires - 2
- Key Informant guide (Infrastructure Expert) – 1

### 2.2.3 Field Trip

A field trip by the Team Leader and Engineer is planned for January and February 2018 to assess the initial data collection and to map/assess the road access to the identified farms. All roads will be visited, including tracks and trails from the farm, access and feeder roads that lead to collection points and local markets, as well as the main road access to the final market.

The field trip participants will also endeavour to meet as many stakeholders as possible, and where possible attend meetings, discussions and experience data collection.

### 2.3 Engineering assessment / data collection

At present there has been no progress on the engineering assessment, apart from procurement of an accelerometer which will be used to assess the roughness of the roads that are used to transport crops over the 'first mile'. An initial assessment and mapping will take place during the field visit scheduled for January/February 2018.

### 2.4 Challenges

The main challenge so far has been the onset of the wet season, which has made it difficult to collect information on site. Many sites are open with little shelter, so respondents are reluctant to spend a long time answering questions in exposed areas.

The length of the Farmer's questionnaires has also been an issue. They take almost an hour to fill, and the respondents tend to get impatient, so the quality of the answers is at risk.

After testing of the survey instruments there was a need to restructure the farmers' questionnaire, i.e. eliminations and addition of some questions. The fully revised questionnaires will be made available when they have been finalised, and will be included in the next progress statement. The other survey instruments were also tested, but no major changes were necessary.

## 3. Next Steps

The immediate next step is to complete the data collection for all four sites in both countries. Site 1 in each country has been initiated and is expected to be completed by early February 2018. The targets shown for completion of data collection in the proposed revised work schedule in Annex B should be achievable. Preparation of the coding and the data entry spreadsheet is almost complete and will be tested during the forthcoming field trip of the Team Leader and Engineer. Data will then be entered as it becomes available from all sites.

Full analysis is not expected to start before the next progress statement is produced. The next progress statement will include the results of the forthcoming field trip, a review of the data collected in terms of the number of interviews, questionnaires and discussions completed, plus an estimate of the timing for analysis and presentation of results. The forthcoming workshops dates and locations will also be proposed in this report.

### Annex A: Data collection programmes for Kenya and Tanzania

So far the main data collection has started on the first site in both countries. The programmes below were agreed in October, but will be updated during the forthcoming field visit, due to the delays mentioned above. At present the data collection is approximately 70% complete on site 1 in Tanzania, and is approximately 30% complete on site 1 in Kenya.



Kenya Programme



Tanzania Programme



## Annex C: Results Achieved in Reporting Period

Progress against workplan.

Activity	Expected Progress for Reporting Period	Actual Progress for Reporting Period	Deviation	Challenges	Corrective Action / Comment <sup>1</sup>	
					Action	By Whom?
- Phase 1, Inception Phase	Completion by June 2017	Completed on time	None	None		
- Phase 2, Site selection and Reconnaissance	Completion by end July 2017	Completed on time	None	None		
- Interim Progress statement 1	Completion by 31 <sup>st</sup> December 2017	Completion by 17 <sup>th</sup> January 2018	2 weeks late	Delay in approval of phase 3, testing of questionnaires delayed by weather	Submit report	RW
- Interim Progress statement 2	Completion by 30 <sup>th</sup> March 2018					
- Phase 3 report	Completion by 31 <sup>st</sup> May 2018					
- Final report and peer-reviewed Scientific paper	Completion by 15 <sup>th</sup> July 2018					

<sup>1</sup> If appropriate (i.e. if planned activities were not implemented) then signal what actions will be taken by whom to address deviations from the work plan.

## Annex D: Steps for Next Reporting Period to 30<sup>th</sup> March 2018

Workplan for next reporting period.

<b>Activity</b>	<b>Expected Progress for Reporting Period</b>	<b>Planned sub-activities<sup>2</sup></b>
Finalise survey instruments	Completion	Complete revision of questionnaires and interview guides
Develop data entry spreadsheet	Completion	Finalise and start to use data entry spreadsheet
Collect data from all four sites	Complete all data collection from both countries	
Enter collected data into spreadsheet	Complete data entry into spreadsheet	
Start analysis of data	Carry out initial analysis of data	

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<sup>2</sup> If planned activities were not implemented in the period covered by this report, then the actions proposed in Annex 1 to address this should also appear in this column.

## Annex E: Budget and Inputs

<b>Deliverable (Reports)</b>	<b>Payment schedule</b>	<b>Deadline</b>	<b>Status</b>
Inception Report	30%	22 <sup>nd</sup> May 2017	Invoice submitted
Phase 2 report	15%	31 <sup>st</sup> July 2017	Invoice submitted
Interim progress statement 1	10%	31 <sup>st</sup> December 2017	Invoice submitted
Interim progress statement 2	10%	30 <sup>th</sup> March 2018	Pending
Phase 3 report	15%	31 <sup>st</sup> May 2018	Pending
Final Report and peer reviewed scientific paper	20%	15 <sup>th</sup> July 2018	Pending
Total	100%		