Evaluation of the Effect of Road Condition on the Quality of Agricultural Produce

Inception Report

A Bradbury, J Hine, P Njenga, A Otto

TRL Limited, IFRTD

RAF2109A

May 2017
The views in this document are those of the authors and they do not necessarily reflect the views of the Research for Community Access Partnership (ReCAP), TRL Limited or Cardno Emerging Markets (UK) Ltd for whom the document was prepared.

Cover Photo: Grace Muhia – Kenya 2016

<table>
<thead>
<tr>
<th>Quality assurance and review table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>AfCAP Database Details: [Project Title]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reference No:</strong> RAF2109A</td>
</tr>
<tr>
<td><strong>Source of Proposal</strong></td>
</tr>
<tr>
<td><strong>Theme</strong></td>
</tr>
<tr>
<td><strong>Lead Implementation Organisation</strong></td>
</tr>
<tr>
<td><strong>Total Approved Budget</strong></td>
</tr>
<tr>
<td><strong>Start Date</strong></td>
</tr>
<tr>
<td><strong>Report Due Date</strong></td>
</tr>
</tbody>
</table>

Abstract

TRL Limited and the International Forum for Rural Transport and Development (IFRTD) have been commissioned by the DFID funded Research for Community Access Partnership (ReCAP) to deliver a project on the Evaluation of the Effect of Road Condition on the Quality of Agricultural Produce.

The project is concerned with the cost-beneficial improvement of ‘First Mile’ access and the transport services associated with transferring harvest produce on the initial stages of movement from the farm to established road access. The research project will conduct fieldwork in Tanzania and Kenya to explore transport service and engineering solutions for the provision of improved access to markets for small scale farmers with reduced overheads and improved timeliness, and improving contributions to poverty reduction and food security.

This Inception Report sets out the purpose, aims and objectives of the research, and reiterates the approach and methodology for delivering the project, while providing some background to the issue of smallholder farming and agricultural marketing in Kenya and Tanzania. It outlines the key activities undertaken during the Inception Phase, including the identification of key counterparts from government authorities in each country, and development of site selection criteria.
AFRICA COMMUNITY ACCESS PARTNERSHIP (AsCAP)

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
## Acronyms, Units and Currencies

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>United States Dollar (US$ 1.00 = KES 103.26; TZS 2,237.25)</td>
</tr>
<tr>
<td>AFCAP</td>
<td>Africa Community Access Partnership</td>
</tr>
<tr>
<td>APM</td>
<td>Association of Project Management</td>
</tr>
<tr>
<td>CDD</td>
<td>Community Driven Development</td>
</tr>
<tr>
<td>CDF</td>
<td>Constituency Development Fund</td>
</tr>
<tr>
<td>CIA</td>
<td>Central Intelligence Agency</td>
</tr>
<tr>
<td>DADP</td>
<td>District Agricultural Development Plans</td>
</tr>
<tr>
<td>DC</td>
<td>District Council</td>
</tr>
<tr>
<td>DFID</td>
<td>Department for International Development</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agricultural Organisation</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>DADP</td>
<td>District Agricultural Development Plans</td>
</tr>
<tr>
<td>DC</td>
<td>District Councils</td>
</tr>
<tr>
<td>HDI</td>
<td>Human Development Index</td>
</tr>
<tr>
<td>IFRTD</td>
<td>International Forum for Rural Transport and Development</td>
</tr>
<tr>
<td>IMS</td>
<td>Integrated Management System</td>
</tr>
<tr>
<td>KENDAT</td>
<td>Kenya Network for Dissemination of Agricultural Technologies</td>
</tr>
<tr>
<td>KeNHA</td>
<td>Kenya National Highways Authority</td>
</tr>
<tr>
<td>KeRRA</td>
<td>Kenya Rural Roads Authority</td>
</tr>
<tr>
<td>KII</td>
<td>Key Informant Interview</td>
</tr>
<tr>
<td>KRB</td>
<td>Kenya Roads Board</td>
</tr>
<tr>
<td>KURA</td>
<td>Kenya Urban Roads Authority</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Authority</td>
</tr>
<tr>
<td>MDA</td>
<td>Ministries, Departments and Agencies</td>
</tr>
<tr>
<td>MTRD</td>
<td>Materials Testing and Research Department</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
</tr>
<tr>
<td>NSGRP</td>
<td>National Strategy for Economic Growth and Reduction of Poverty</td>
</tr>
<tr>
<td>PO-RALG</td>
<td>President’s Office - Regional Administration and Local Government</td>
</tr>
<tr>
<td>PMO-RALG</td>
<td>Prime Minister’s Office – Regional Administration and Local Government</td>
</tr>
<tr>
<td>PMU</td>
<td>Programme Management Unit</td>
</tr>
<tr>
<td>RECAP</td>
<td>Research for Community Access Partnership</td>
</tr>
<tr>
<td>RMLF</td>
<td>Road Maintenance Levy Fund</td>
</tr>
<tr>
<td>SSA</td>
<td>Sub-Saharan Africa</td>
</tr>
<tr>
<td>SUMATRA</td>
<td>Surface and Marine Transport Regulatory Authority</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom (of Great Britain and Northern Ireland)</td>
</tr>
<tr>
<td>UKAid</td>
<td>United Kingdom Aid (Department for International Development, UK)</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>URT</td>
<td>United Republic of Tanzania</td>
</tr>
<tr>
<td>VTTP</td>
<td>Village Travel and Transport Programme</td>
</tr>
</tbody>
</table>
## Contents

1. Executive Summary ................................................................. 7
2. Introduction .................................................................................. 8
3. Background .................................................................................. 8
4. Research Objectives ................................................................. 9
5. Case Study Countries .................................................................. 10
   5.1 Kenya .................................................................................. 10
      5.1.1 Aligning the Project to the new Devolved Structure of Government  11
      5.1.2 Smallholder Agriculture .................................................. 11
      5.1.3 Rural Road Transport ..................................................... 12
   5.2 Tanzania .............................................................................. 13
      5.2.1 Governance Structure .................................................... 13
      5.2.2 Smallholder Agriculture .................................................. 14
      5.2.3 Rural Road Transport ..................................................... 14
6. Approach and Methodology ........................................................... 15
   6.1 Approach and Scope of Work .................................................. 15
   6.2 Research Methodology ............................................................ 18
   6.3 Identifying Project Locations ................................................... 20
   6.4 First Mile Engineering Approach ............................................. 21
   6.5 Links to ReCAP Logframe ...................................................... 23
   6.6 Summary of Deliverables ....................................................... 24
7. Inception Phase ............................................................................ 24
8. Revised Workplan .......................................................................... 25
9. Management Approach .................................................................. 25
10. Technical Inputs and Budget ........................................................ 26
   10.1 Staffing .............................................................................. 26
   10.2 Budget .............................................................................. 26
11. Communication Plan .................................................................... 26
12. Risks and Assumptions ................................................................. 27
   12.1 Risks ............................................................................... 27
   12.2 Assumptions and Comments on ToR ....................................... 27
13. Concluding Remarks .................................................................... 28
14. References ................................................................................... 29

Annex A: Updated Activity Schedule ................................................. 33
Annex B: Contact List ....................................................................... 34
Annex C: Contribution to ReCAP Log Frame ..................................... 37
Annex D: Letters to Key Counterparts .............................................. 41
Annex E: Risk Matrix ....................................................................... 49
1 Executive Summary
TRL Limited and the International Forum for Rural Transport and Development (IFRTD) have been commissioned by the DFID funded Research for Community Access Partnership (ReCAP) to deliver a project on the Evaluation of the Effect of Road Condition on the Quality of Agricultural Produce.

The project is concerned with the cost-beneficial improvement of ‘First Mile’ access and the transport services associated with transferring harvest produce on the initial stages of movement from the farm to established road access. The research project will conduct fieldwork in Tanzania and Kenya to explore transport service and engineering solutions for the provision of improved access to markets for small scale farmers with reduced overheads and improved timeliness, and improving contributions to poverty reduction and food security.

The key objective of the project is to provide guidance on the cost-beneficial improvement of all-season access at a range of levels from policy makers down to villages and small scale farmers.

The impact of the project is anticipated to improve access to markets for small-scale female and male farmers with reduced overheads and improved timelines, contributing to poverty reduction and food security.

The results of the research will eventually lead to:

- Identification of the specific elements of the transport system that can be improved in order to unlock growth in the smallholder value chain sector
- Better advice to road planners on the best location for access improvements
- Quantification of the economic benefits of better initial access
- A framework to provide advice to farmers and the authorities on the best pattern of transport in different circumstances
- Better understanding of the role of different forms of transport in the small scale agricultural environment, and the gender dimensions therein, and the need to regulate them.

This Inception Report sets out the purpose, aims and objectives of the research, and reiterates the approach and methodology for delivering the project, while providing some background to the issue of smallholder farming and agricultural marketing in Kenya and Tanzania. It outlines the key activities undertaken during the Inception Phase, including the identification of key counterparts from government authorities in each country, and development of site selection criteria.

A revised activity schedule is also included, which sets out a proposed increase in project duration from 42 to 50 weeks, to account for any potential interruptions during data collection and analysis, which are not currently accounted for. Information on the management approach for the project, as well as a communication plan, and revised risks and assumptions are also provided.

While the issue of ‘first mile’ research has previously been explored by IFRTD in a modest capacity, it is arguably a largely under-researched area of work as far as the potential exploitable benefits of smallholder farming productivity is concerned, and the impact that improved access to rural markets can have for local small-scale economies in Kenya, Tanzania and across Sub-Saharan Africa. 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.
2 Introduction

TRL and the International Forum for Rural Transport and Development (IFRTD) were commissioned by the Africa Community Access Partnership (AfCAP) under the Department for International Development (DFID) funded Research for Community Access Partnership (ReCAP) to undertake this project Evaluation of the Effect of Road Condition on the Quality of Agricultural Produce. Previous AfCAP research has demonstrated that the organisation of rural transport is critically important to the whole agricultural supply chain, from farmer to final consumer. The purpose of this research is to investigate the cost-beneficial improvement of ‘First Mile’ access and the transport services associated with moving harvest produce on the initial stages of movement from the farm to established road access.

Partner countries for the project are Kenya and Tanzania. These are well established ReCAP member countries, and they have been host to previous pilot studies on first mile transport challenges, namely in the onion smallholder sector, Nyeri County, Kenya (Njenga et al, 2014); and among tomato farmers in Kilolo District, Tanzania (Njenga et al, 2015). The work also builds on previous work that was funded by AFCAP in 2012/2013 titled “Rural Logistics for Smallholder Farmers to Meet New Agricultural Market Demands” and implemented by Kenya Network for Dissemination of Agricultural Technologies (KENDAT) and IFRTD in Meru, Nyeri and Kinangop Counties (KENDAT et al, 2014). The work looked at the entire transport value chain for smallholders in the milk, potatoes, onions, paw paws and banana value chains, and identified the first mile segment as the most problematic and in need of detailed research.

The current research team aims to work with counterparts in Kenya, including the Kenya Rural Roads Authority (KeRRA), and Materials, Testing and Research Laboratory (MTRD); and in Tanzania, namely the President’s Office – Regional Administration and Local Government (PO-RALG), and the Surface and Marine Transport Regulatory Authority (SUMATRA).

The project began on 24th April 2017, and is expected to be completed after 11 months (March 2018). A revised activity schedule is provided in Annex A. The main contact persons for this project will be the ReCAP Infrastructure Research Manager and the TRL Team Leader.

3 Background

Small-holder agriculture is an important sector for rural development and provides one of the key pathways to poverty reduction and improvement in quality of life for people living in rural areas of Sub-Saharan Africa (SSA). However, inadequate rural infrastructure - particularly roads - and an unreliable system of transport services continues to inhibit farmers’ incomes while dis-incentivising increased farm productivity. Although transport, as a constraining factor to the development of agriculture in Africa, is a generally recognised issue, there is a dearth of good and recent knowledge about the matter. From some of the available studies (Lele, 1989; World Bank, 2008; Njenga et al, 2014, 2015; Banjo et al, 2012) there is agreement that in order to increase the value of agricultural output, there is need for convergence of policy and planning between transport and agricultural on the one hand, and rural development sectors on the other. Achieving this integration requires establishing a common understanding about challenges and opportunities in agriculture, disaggregated by women and men, and their implications for transport activities. Because rural transport demand derives in large part from agricultural activities, planners must evaluate key trends in agriculture and the role that transport can play in unlocking the potential in this sector.

---

1 The ‘First Mile’ is a commonly used term for the primary transport segment between the farm and nearest low volume feeder road or collection point. Although termed the ‘First Mile’ it commonly ranges from <1km to 4km.
In both Kenya and Tanzania, small holder agriculture has become more market oriented and is a key source of employment and family income. This is especially so in the Central, Eastern and Rift Valley Highland areas of Kenya, and the Northern and Southern highlands of Tanzania. Growing urbanisation, increasing incomes and improved access to export markets are fuelling the demand for quick maturing but highly perishable consumer food items such as tomatoes, onions and a wide range of vegetables. Fruit such as mangoes, paw paws, watermelon and bananas are now being grown on small farms of between 0.5-7 acres. The same applies for vegetables – ranging from beans, broccoli, capsicum, baby corn, carrots, etc. Poultry, dairy and pig-farming are also becoming significant sources of rural income and employment.

Transport efficiency from farm to market is a critical element in the emerging small-holder agricultural value chains in Kenya and Tanzania. Poor and unpredictable transport contributes to an erratic, non-competitive and chaotic agricultural produce collection system that is responsible for the “middle-men product brokerage” system that small-scale farmers are largely dependent on for access to markets. While advances in information technology means that farmers are now more than ever aware of the market price for their produce, unpredictability of transport provision makes them vulnerable to accept any price that is offered by the first transporter/trader who comes to the farm or the collection point.

This project will focus on the transport bottlenecks that farmers face in the initial movement of their produce from the farm to the first point of commercial opportunity - which could be a collection/consolidation point along the rural road, a trucking stop or the nearest market hub. This initial distance is referred to as the first mile (Njenga et al, 2015). The first mile infrastructure consists of the local village or farm paths and tracks that are inaccessible to conventional vehicles. This initial transport segment is critical to a farmer’s income, especially where perishable produce such as tomatoes, vegetables, fruit and milk are involved.

While the effect of post-harvest losses undoubtedly has an impact on the income earning potential of small scale farmers, the focus of this project is not necessarily just about the effect of road condition on the quality of the agricultural produce itself, but rather the emphasis will be on the total economic benefits of improving initial access from the farm gate to the market, including both crop deterioration and on transport costs. The research will explore the specific elements of the transport system that can be improved in order to unlock growth in the smallholder value chain sector.

4 Research Objectives

Addressing the first mile transport challenges falls within the mandate of ReCAP whose focus is to enhance accessibility of the rural poor in Africa and Asia to economic opportunities and social facilities, through improvements to infrastructure and transport. The immediate focus is on strengthening the evidence base on more cost effective and reliable low volume road and transport services approaches, thereby influencing policy and practice.

The ultimate outcome of this project is providing improvements in the transport efficiency for small holder farmers, leading to increased farm-gate prices, and reduced post-harvest losses. Transport efficiency would consist of engineering interventions in rural transport infrastructure, improvements in transport services and better organisation of small-holder produce consolidation systems.

The key objective of the project is to provide guidance on the cost-beneficial improvement of all-season access at a range of levels from policy makers down to villages and small scale farmers.
The impact of the project is anticipated to improve access to markets for small-scale female and male farmers with reduced overheads and improved timelines, contributing to poverty reduction and food security.

Specific areas to be explored in more detail include the following:

- An inventory of what agricultural produce is produced in an area;
- The spatial location and spread of farms of where it is being produced;
- Farm sizes for smallholder farmers;
- The production volumes/ha for the commodity under focus;
- Annual production/marketing cycle;
- Estimate of total annual value of the produce by smallholders;
- Location of consolidated points and storage facilities availability;
- Perishability of produce/value of post-harvest losses per crop type per year.
- Availability and reliability of transport services to collect produce;
- The quality of transport infrastructure and key trouble spots;
- Key market destinations;
- Market prices and how they change from time to time;
- Forms of farmers’ organisations

Building on the earlier ‘First Mile’ research, an important part of the project will be to identify and quantify in greater detail, and for a wider range of crops and agricultural produce, the damage that arises from poor rural infrastructure. In order to achieve this, comparisons will be made between locations with poor and good infrastructure and services; and differences in wet and dry season accessibility will be established. Where possible road roughness will be measured and the possible use of instruments for measuring shocks and accelerations explored.

5 Case Study Countries

5.1 Kenya

Kenya is bordered by Somalia and the Indian Ocean to the east, Ethiopia to the north, Sudan to the northwest, Uganda to the west and Tanzania to the south. The basic geography of Kenya is simple. Coastal plains give way to an inland plateau that rises gradually to the central highlands, bisected by Great Rift Valley and a fertile plateau in west. Unique physiography supports abundant and varied wildlife of scientific and economic value. Figure 1 shows a map of Kenya, highlighting highland areas where many small holder value chains can be found.
5.1.1 Aligning the Project to the new Devolved Structure of Government

In 2010, Kenya promulgated a new constitution. The relevance of this to the project is in respect of the devolved structure of government in relation to rural development. Kenya is now divided into 47 counties. Many of these counties are significantly rural and are responsible for a wide range of development functions previously managed by national government.

County Governments consist of a County Assembly and a County Executive. The County Governor is the head of the County Executive. The County Assembly is made up of members elected from different wards in the county. Voters in each county elect their Governor and Deputy Governor directly. The Governor then appoints other members of the County Executive Committee, with the approval of the County Assembly.

County Governments are in charge of among other functions, the following; agriculture, health services, public amenities, county trade development and regulations, county planning and development. Some of the provisions of the new constitution are still in the process of being debated and legislated. These include the management of various classes of the road network.

5.1.2 Smallholder Agriculture

Agriculture is the backbone of the Kenyan economy, contributing 25% of Gross Domestic Product (GDP). About 80% of Kenya’s population work at least part-time in the agricultural sector including livestock and pastoral activities. Over 75% of agricultural output is from smallholder, rain-fed farming or livestock production. Over 75% of fruit and vegetables production come from smallholder
farmers. According to CIA World Factbook (2017), the Kenyan Highlands comprise some of the most successful agricultural production regions in Africa. The areas are categorised as Central Highlands around Mt Kenya and the Aberdare Ranges, the Western Highlands areas to the North and West of Lake Victoria, the Rift Valley Highlands, and the Eastern Highlands.

As mentioned above, most of the emerging small-holder value chains are to be found in highland areas whose topographical elevation, soil types and rainfall levels have impacts on the cost of road construction and maintenance. A consequence of this is that these “food basket” areas have poor rural road networks, which at certain times of the year may become impassable or passable with great difficulties.

5.1.3 Rural Road Transport

Kenya has a road network of about 177,800 km of which 9,273 km are paved and 168,527 km are unpaved. Out of the 168,527 km of unpaved roads, approximately 130,000 km are rural and are managed by the Kenya Rural Road Authority (KeRRA). Institutionally, road transport falls within the Ministry of Transport, Infrastructure, Housing and Urban Development. Within the Ministry, the State Department for Infrastructure is among other functions, responsible for rural roads and therefore KeRRA falls under this Department. The role of KeRRA is the development, rehabilitation, maintenance and management of rural roads, ensuring that their quality is in accordance with prescribed standards, overseeing the management of traffic on rural roads, collecting and collating all relevant data to support efficient forward Planning, Monitoring and Evaluation. Use of labour intensive technology in road maintenance (Roads 2000 Programme) is a major cornerstone of Kenya’s rural road network management strategy.

The Kenya Roads Board (KRB) is responsible for the management of Road Maintenance Levy Fund (RMLF) which was instituted in 1993. KeRRA was established under the Kenya Roads Act in 2007 together with the Kenya National Highways Authority (KeNHA) and Kenya Urban Roads Authority (KURA). All road maintenance is now funded through the RMLF, where KES9.0 (US$0.087) is levied on every litre of fuel. Total collections amount to about KES 24 billion (US$23,278,370) annually. Distribution of RMLF is by Kenya Roads Board as follows:

- 40% to national highways through Kenya National Highways Authority;
- 32% to rural roads through Kenya Rural Roads Authority;
- 15% to urban roads through Kenya Urban Roads Authority;
- 1% to roads in game parks through Kenya Wildlife Service;
- 10% is kept as a reserve for use by the agencies to finance under-funded programmes and projects prioritised under Road Sector Investment Programme and also emergency works;
- 2% is for use by Kenya Roads Board for technical and financial audits and to cover administrative costs.

The Finance Act in 2009 empowered the Constituency Development Fund (CDF) to be part of rural roads management through Constituency Road Committees and Constituency Road Tender Committees. Constituencies have been used in the last seven years to transparently and successfully plan and oversee implementation of rural road maintenance programmes under the KeRRA Regional Managers.

As mentioned, with the passage of a new constitution in 2010, there was an ongoing redefinition of institutional responsibilities for management of various development functions between national and country governments. The country is still in a transition period and a determination of where management responsibilities of various classes of the network fall – between county and national government – is yet to be settled.
5.2 Tanzania

Tanzania is bordered on the South by Mozambique, Malawi, and Zambia; on the West by Zaire, Burundi, and Rwanda; to the North by Uganda and Kenya; and to the East by the Indian Ocean. Tanzania has a varied geography, including deep and large freshwater and salt lakes, many national parks, and Africa's highest point, Mt Kilimanjaro.

Tanzania is ranked as one of the poorest countries in the world, ranking 159 out of 187 on the Human Development Index (HDI) with a value of 0.521 (UNDP, 2014a). Although the GDP growth rate has been increasing from 4.1% in 1998 (FAO, 2014) to 7.0% in 2015 (World Bank, 2016), still 28.2% of the population continues to fall below the basic needs poverty line and 9.7% below the food poverty line (URT, 2016). A map of Tanzania is provided in Figure 2 where smallholders are typically found in areas of intensive agriculture.

![Figure 2: Map of Tanzania](image)

5.2.1 Governance Structure

Tanzania is a unitary republic based on parliamentary democracy. Administratively, Tanzania is divided into 30 regions, with twenty-five on the mainland, three in Zanzibar Island and two on Pemba Island. There 99 District Councils, which are now referred to as Local Government Authorities (LGA) and 114 councils operating within these 99 LGAs. Of these, 92 are rural while 22 are urban. All Local Government Authorities are mandated to play two main functions of administration, law and order; and economic and development planning in their respective areas of
jurisdiction. They exist for the purpose of giving more power to the people to competently participate in the planning and implementation of development programmes within their respective areas.

Districts are sub-divided into divisions (Tarafa in Swahili) and further into local wards (Kata in Swahili). Wards are further subdivided into streets in case of urban areas (mitaa in Swahili) and for rural wards into villages (kijiji in Swahili). The villages may be further subdivided into hamlets (vitongoji in Swahili).

5.2.2  Smallholder Agriculture

Approximately 43.7% of Tanzania is arable land. Agriculture accounts for more than one-quarter of GDP, provides 85% of exports, and employs about 80% of the work force; it accounts for 7% of government expenditures. Key crops at national level include coffee, sisal, tea, cotton, pyrethrum cashew nuts, tobacco, cloves, corn, wheat, cassava bananas and wide variety of fruits and vegetables.

The importance of smallholder farming has consistently been articulated in various national policy documents ranging from the Vision 2025 to the National Strategy for Growth and Reduction of Poverty (NSGRP) or in Kiswahili, MKUKUTA. Policy statements for the sector are framed in terms of ensuring food security, transformation from subsistence to commercial agriculture, improved infrastructure, enhanced conduct and performance of agricultural marketing systems, farmers’ empowerment and improved market linkages, value chain development and improvement of rural infrastructure development.

The Local Government priorities mirror the priorities of the national policy documents. The District Agricultural Development Plans (DADPs) for many District Councils (DC) focus on improving the livelihood of the smallholder farmers through for example increased agricultural mechanization and irrigation, improvement of market infrastructure and cooperatives, and diversification of products to meet changing needs of the markets. The National Agricultural Policy (2013) places an emphasis on the need for Prime Minister’s Office-Regional Administration and Local Government (PMO-RALG) to work closely with the ministry responsible for infrastructure in ensuring rural transport systems are improved in order to reduce transaction costs that affect agricultural growth and competitiveness.

Smallholder farmers are widely dispersed throughout Tanzania, but for the purposes of this study, emphasis is laid on that segment of smallholders that is involved in intensive production of high value perishables that are sensitive to the timeliness of transport. Typically, products would include tomatoes, onions, a wide variety of vegetables and fruits, poultry and dairy products. Mostly, farmers of these types of products would be found in the belt of Southern Highlands stretching from Morogoro to Iringa and Mbeya, as well as the Northern highlands around the twin peaks of Mt. Meru and Mount Kilimanjaro.

5.2.3  Rural Road Transport

Tanzania had a total road network of 86,472 km of which 12,786 km is classified as trunk roads and 21,105 km as regional roads. There are about 20,000 km of district roads that are predominantly of earth or gravel standard, and about 28,000 km of feeder roads, that link village centres to district/regional/trunk roads. These are largely earth roads and are important for transport of crops from farm gates to markets. Major travelling modes along feeder roads are walking, motorcycles, and non-motorised modes for people and goods. In addition, there are local paths and tracks of unknown length in various villages. These are maintained by villagers and are informal means of transport predominate (walking and non-motorised).
The Local Government Authorities under the Ministry of Regional Administration and Local Government (PO-RALG) are responsible for the district, urban and feeder roads with a prime goal of opening up existing and potential rural productive areas for agriculture, small-scale mining and rural tourism.

6 Approach and Methodology

6.1 Approach and Scope of Work

The Scope of work covers 5 key areas:

1. Community Driven Development (CDD)

The World Bank and others are currently promoting community driven development (CDD) as a means for supporting rural development by promoting poor people and their institutions as assets and partners in the development process. CDD has been defined as:

*CDD gives control of decisions and resources to community groups. These groups often work in partnership with demand responsive support organisations and service providers including elected local governments, the private sector, NGOs and central government agencies. CDD is a way to provide social and infrastructure services, to organise economic activity and resource management, to empower poor people, improve governance, and enhance security of the poorest.*

As can be seen the goal of the research project may be met through a CDD approach. The Village Travel and Transport Programme (VTTP) in Tanzania effectively adopts the same approach. In fact in some districts in Tanzania, working under the District Engineer, a technician is specifically tasked with the role of supporting village level engineering interventions in support of the programme.

To provide an effective focus for advice in engineering, transport services and marketing systems stemming from the research, guidance material produced should be prepared in a language and manner, together with suitable diagrams that are most accessible to local communities. In order to maximise the take up of the work by Local Authorities, Central Government and donors and gain access to social and agricultural funds the advice may be marketed and main-streamed as a ‘CDD approach’ that has a strong agricultural objective. This approach should also build upon AfCAP’s existing connections in rural transport within PO-RALG in Tanzania or KeRRA in Kenya and should establish new connections within the respective Ministries of Agriculture and donors wishing to promote agricultural development.

2. Value Chain Process and Marketing Support Systems

A value chain links the steps a product takes from the production to the consumer. Value chain analysis facilitates an understanding of the relationships between the various components of a production-marketing chain, how they function and areas of inefficiencies either as individual components or in their interfaces. Developing value chains is often about improving access to markets and ensuring a more efficient product flow for the benefit of all actors in that chain.

Small-holder farmers are becoming important players in emerging local, national and international food value chains. Transport is a critical enabler of farm to market linkages both for agricultural products and farm inputs. A logistics value chain approach can be used to understand how transport affects small-holder agriculture and to pinpoint specific policy and planning interventions that can be put in place.

Using this approach, some studies (e.g. Sieber, 2009; Njenga et al, 2014; 2015) have identified three transport and marketing segments - each with its own characteristics and costs- around which small-holder agriculture is organised. They can be described as follows:
• **A primary transport segment** from the farm to a collection/consolidation point typically found at the key junctions of a motorable (low volume) road. *Key actors* in this transport segment are the farmers who use their own (household) means of transport such as headloading/backloading, animal carts, bicycles and sometimes motorcycles.

• **An intermediate transport segment**, that is, from the primary collection points to an intermediate trader’s market. *Key actors* in this segment are the better-off farmers (also doubling up as traders) and transporters.

• **Transport to major markets:** Transport to big urban markets through main arterial road networks. *Key actors* here are transporters and traders

Unlike large-scale farming where large volumes are produced and therefore can be collected in one farm, the nexus between small-holder farming and transport is complicated by the fact the production takes place on many individual small farms spread over a wide spatial territory. For it to join the value chain, the produce needs to be consolidated into viable volumes for effective transportation. Initial collection can take place directly at the field or farm store but more usually consolidation will happen along a motorable track or at roadside collection points. Farmers often have to find a way of transporting their produce to the collection points, sometimes with great difficulties.

Our specific focus is the primary transport segment and on how first mile transport is organised in the small-holder agricultural sector and the challenges that are experienced by farmers and transporters. We believe this is an area of transport knowledge that is lagging behind, despite its potential to bring more cross-sectoral learning between many policy domains in the rural development sector (transport, agriculture, regional planning etc).

3. **Poverty Reduction and Small-Scale Farming**

There is a substantial body of evidence to show that agriculture is an important sector for enhancement of rural incomes, employment and poverty reduction in Sub-Saharan Africa (SSA) where the rural economies remain strongly based on agriculture relative to other regions. Excluding South Africa, agriculture in SSA employs 62% of the population and generates 27% of the GDP of these countries (Livingston et al, 2011). According to FAO (2012), agricultural growth involving smallholders, especially women, is most effective in generating employment for the poor and reducing extreme poverty and hunger. The World Development Report 2008 was dedicated to agriculture. The report underscored the fact that in SSA, agriculture contributes significantly to economic growth, and, because the poor are concentrated in rural areas, it is an important tool in poverty reduction.

The global demand for food is expected to increase by 60 percent by 2050 (FAO, ibid). Growth in demand for food in SSA is among the highest in the world (Banjo et al, 2012). Factors such as urbanisation, a growing middle class, a youth bulge, rising incomes, liberalised trade, and use of ICTs are key drivers of this trend. While substantial benefits of these trends may accrue to large and medium scale farming enterprises, there are many cases where smallholder farmers are increasingly becoming part of feeding this demand.

Small-holder farms, when defined as being two hectares or less, represent 80% of all farms in SSA, and contribute up to 90% of the production in some SSA countries (Wiggins, 2009). In Kenya, 75% of fruit and vegetables production come from smallholder farmers (Sieber, 2009). Similarly, in Ethiopia, Uganda and Tanzania smallholder farming accounts for about 75 percent of national agricultural production and over 70 percent of employment (Salami et al, 2010). Agriculture is predominantly on a smallholder basis in Ghana as well, with 90% of farm holdings less than 2 hectares in size (Chamberlin, 2007). Whereas in Malawi, adequate cultivable land has been a constraining factor for smallholder farmers, with USAID noting that only 55% of smallholder farmers had access to
sufficiently cultivable land (Whande et al, 2011). A large percentage of smallholders in Sub-Saharan Africa are women, and youths who are becoming an important part of the agri-enterprises value chains, either as farmers, marketers, processors or input suppliers.

Apart from poverty reduction, improving transport efficiency in the agricultural sector can contribute to a wide range of international, national and local development policy objectives. Many of these objectives underpin AfCAP/ReCAP’s work in the rural transport sector. Among the objectives include gender and youth empowerment, equitable growth, and food security.

4. Post-Harvest Losses

There are a range of transport related factors that will cause post-harvest losses.

- Harvesting and packing;
- Loading and unloading;
- Storage deterioration due to time, temperature, crops getting wet and pests and diseases;
- Deterioration due to shocks in transit (for both vehicles, IMTs and human porterage);
- Deterioration in transit due to time, temperature and getting wet.

All of these factors are influenced by the nature of the transport and distribution system and will need to be taken into account within the research framework and in designing the surveys. Obviously, the quicker produce gets from farm to market and to the final customer, with the minimum of handling with a smoother ride in dry and cool conditions the less likely it is to suffer value loss.

Where the road network is poor and transport coordination inadequate, mitigating measures can be undertaken to minimise crop deterioration. The use of better cooling systems, packaging, storage and specialised vehicles are examples. The amount of crop deterioration that takes place is therefore very dependent on the local circumstances of the total distribution system. There is clearly a three-way trade off between the costs of improving the transport network, the reduction in crop value loss, and the costs of taking extra mitigating measures. The optimal solution will obviously vary from location to location depending on a wide range of factors.

Produce such as tomatoes, cucumbers, avocados, mangoes, pineapples, bananas and onions are very susceptible to bruising and will suffer a value loss from loading, unloading, and shocks in transit. The previous ‘First Mile’ research found that onions were particularly susceptible to bruising from being man-handled and being manually carried. In the area surveyed in Kenya the onions could only be marketed as ‘Class 2’ and therefore the farmers received lower prices than farmers that were better located and had more sophisticated distribution systems.

Packing fruit with packing material in crates can minimise bruising when travelling over rough roads. However packing material is expensive and, if re-used, can transmit diseases. As a result, packing material is mostly used for export crops or for particular niche domestic markets. To stop export bananas deteriorating from shocks in transit, the bunches can be hung so they can swing freely to help minimise the fruit rubbing together. However inevitably such transport arrangements mean that the truck will only carry a small fraction of gross weight of bananas (and hence transport costs per ton-km are much higher) compared with if the truck was fully loaded with stacked bunches. Many crops are particularly time and temperature sensitive. Salad items, tea, pyrethrum and particularly milk deteriorate quickly over time. Tea, pyrethrum and milk need to get to the processing factory within a matter of hours. It can be a disaster, in terms of lost income, if a milk truck becomes ‘stuck in mud’ for several hours.

The exact nature of the transport arrangements can make a lot of difference to crop deterioration. Good integrated coordination is key. The previous ‘First Mile’ research found that many farmers
complained about trucks not turning up when requested, hence extra costs may be involved and crops can also spoil, as a result. The spoiling may be because of both time of time delays (e.g. for milk) but it can also be that, if stored in the open, crops can get wet (and hence can lose quality and be more subject to mould) and they can also suffer from extra temperature deterioration, while waiting for a truck to arrive. Extra man-handling and possible high cost transport back to secure storage may also be required if trucks do not turn up.

5. First Mile Engineering Interventions
There are two main components to rural infrastructure improvements that need to be considered as support systems to the small-holder farming enterprises. These are as follows:

i. Ensuring all weather motor vehicle access for rural roads going into strategic small holder farming areas. Rural road network management approaches need to ensure identification of problem spots and appropriate technologies and capacities for routine maintenance or improvement of such problem spots. With respect to the quality and condition of the produce harvested, it will be important to investigate the impact that road roughness has on perishable goods in particular, and to what extent their rate of deterioration is affected by the road infrastructure performance.

ii. Since it is often uneconomic for transporters/traders to collect produce from each individual farm and it is unlikely that there will be motorable roads to each individual small-holding, there is need to explore the scope for low cost roadside sheds where farmers can assemble and consolidate their produce for collection. Through mobile phone technology, it now possible for transporters to know the exact volumes available along the collection points on a particular rural road.

Following from the above point, the distance between the farms and collection points may still be considerable. This study will explore what transport options may be suitable to connect remote farms to consolidation points with all-weather access.

6.2 Research Methodology
The project comprises 4 phases as follows:

Phase 1 – Inception Phase
- Prepare detailed programme of work
- Identify key issues and risks
- Prepare Inception Report

Phase 2 – Site Selection and Reconnaissance
- Undertake review of literature and previous work
- Define the research questions and scope of work
- Identify research sites in Kenya and Tanzania
- Prepare Phase 2 Report
- Organise stakeholder workshops in Kenya and Tanzania

Phase 3 – Data Collection
- Plan logistics for data collection activities
- Prepare survey instruments and train enumerators
• Conduct field surveys and data collection in Kenya and Tanzania
• Undertake data analysis
• Prepare Phase 3 Report
• Organise stakeholder workshops in Kenya and Tanzania

The fieldwork data collection will involve the following:

i. Focus Group Discussions (FGD) - The Chief or village leader at each research site will help to mobilise a group of 12-14 key stakeholders from the community, comprising a mixture of farmers, transport operators, traders, agricultural co-operatives and extension workers etc. A ratio of 40% women and youth will be requested.

*Estimated sample size: one FGD with farmers and agricultural practitioners and one FGD with transport operators, owners, providers and traders in each country*

ii. Key Informant Interviews (KII) – Involving Regional, Constituency and District level engineers and technicians, planning officers and agricultural extension and statistics officers, representatives from processing factories, and major distribution facilities, using a checklist of semi-structured questions covering the following topics:

- Infrastructure condition along different transport segments
- Road maintenance arrangements
- Motorised and non-motorised transport provision for freight movement, including frequency, distance, and costs per tonne/km for different modes
- Agricultural storage and packaging arrangements for different crops
- The location of key agricultural markets, processing factories and warehouses
- Farm gate prices and agricultural marketing and transport arrangements
- Post-harvest losses and crop wastage
- Arrangements to support and undertake Village Travel and Transport (VTTP) and Community Driven Development (CDD) initiatives

*Estimated sample size: 20 KII’s in each country*

iii. Household questionnaire surveys – Administered to farmers in targeted areas of small holdings, at least 25% of whom will be directed at female farmers

*Estimated sample size: 400 questionnaires in each country*

iv. Rural transport service provider questionnaire surveys – Administered to boda boda operators and traders who market produce using trucks, tractors and other motorised and non-motorised means of transport

*Estimated sample size: 100 questionnaires in each country*

Depending on the number of shortlisted sites, and the logistics of those site locations, it may be appropriate to investigate two research sites in each country. This would give us a smaller sample size in each location, but would enable us to assess comparisons between sites that are well connected versus remote rural, and also representing a variety of agricultural crop varieties with varying degrees of perishability. All sites will be restricted to smallholder farming and not large-scale cash crops or plantations.

In each location we shall also obtain detailed information on commodity/farm produce prices, cost of passenger transport and goods transport, and traffic counts along feeder roads serving farmers in the first mile.
The fieldwork and data collection will take approximately 10 weeks to complete, involving the local researcher and 3 additional enumerators in each country, with intermittent contributions from the key specialists. Given the available timeframe, we anticipate that any unforeseen delays or interruptions in the field will heavily affect, and may even postpone data analysis activities. We would therefore seek to extend the field surveys and data collection period by 6 weeks and to extend the data analysis by 2 weeks. This would increase the project duration from 42 weeks to 50 weeks (including the 4 week PMU review break). The activity schedule in Annex A indicates these proposed changes.

**Phase 4 – Reporting and Dissemination**

- Prepare Final Report and Scientific Paper
- Organise a regional workshop on the way forward
- Undertake capacity building, knowledge exchange and uptake

The scope of work for this project is very wide covering, amongst other topics: crop deterioration, agricultural marketing practices, agricultural and transport economics, rural transport planning, rural transport services, rural road, track and structure construction and maintenance, labour based work, community and local government organisation, and Community Driven Development. An initial reference list has been prepared and a significant number of references were found on post-harvest crop deterioration and these will assist with assessing issues associated with different types of crops. The other references will also help inform the assessment of the severity of particular accessibility problems, the selection of survey sites and possible solutions. The references provided in Section 14 will be reviewed as part of the Literature Review in Phase 2.

6.3 **Identifying Project Locations**

In preparation for the fieldwork, a process to carefully select suitable project locations will be undertaken from the outset. Cognisance will be given to the knowledge and contact base created from previous pilot studies on first mile transport challenges in the onion smallholder sector, Nyeri County, Kenya; and among tomato farmers in Kilolo District, Tanzania.

For the purposes of transparency, the final selection of projects will be undertaken with the participation of key counterparts in country and other stakeholders, many of whom have already been identified, as evidenced by the contact list provided in Annex B.

Some initial selection criteria have been identified that will be used to engage the stakeholders in determining the geographical locations where fieldwork will be undertaken and the commodity types that will be examined in Kenya and Tanzania.

**Table 1: Criteria for Selection of Research Sites**

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region with a predominance of commercially oriented smallholder farms</td>
<td>A critical mass of smallholders who are participating in markets will enable efficient collection of data in one area.</td>
</tr>
<tr>
<td>Poor first mile infrastructure but connected good road networks linking farming areas to major markets</td>
<td>This will enable the study to focus on the first mile sections as the weakest link of the transport value chain. Areas that are too remote from linking networks are unlikely to have commercial agriculture.</td>
</tr>
<tr>
<td>Discernible marketing system</td>
<td>There should be a describable marketing system - that is a clear value chain structure that shows a products’ source, the transport system and the various market destinations.</td>
</tr>
</tbody>
</table>
Farmers organisation

Where farmers are organised into groups (production and marketing groups or co-operatives) will help in scoping out the problems quickly and in ensuring structured engagements with the farmers both during and post-project.

Good institutional/support framework for smallholders

Possibility of creating linkages and buy-in with local policy makers and other institutional systems (NGOs and private sector) that support smallholders.

<table>
<thead>
<tr>
<th>Determining Product Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly perishable commodities</td>
</tr>
<tr>
<td>High value, continuous or frequent marketing cycle</td>
</tr>
</tbody>
</table>

The team will work principally with KeRRA in Kenya and PO-RALG in Tanzania to identify appropriate research sites where:

- All season access is a significant challenge in strategic small holder farming areas
- There is unexploited potential for increased productivity and growth in agricultural income
- Crop wastage and post-harvest losses are unacceptably high
- There is a high density of rural population and farms.

6.4 First Mile Engineering Approach

The LVRR engineer will visit the survey sites and assess the main physical constraints, affecting both transport costs and crop deterioration, as well as the key infrastructure issues, relating to the movement of agricultural inputs and outputs between the farm and the first collection and marketing point on the road network. The engineer will work with the rest of the team in identifying the main costs (or net reductions in income) to the farmer incurred during first mile transport. These costs are expected to be a combination of transport, packaging, loading and unloading costs and the loss in value of produce. The physical constraints preventing, or hindering, movement of different vehicle types will be identified and categorised in cost and income terms to establish their severity. Examples are expected to be water crossings, steep and slippery gradients, weak soils that become boggy when wet, dense vegetation and excessive road roughness. If appropriate, accelerometers and road roughness measuring instruments will be used to collect data.

In certain cases, the roughness of a road may affect the quality of the produce being transported. This is the case when the produce is placed directly in contact with the body of the vehicle. The value of such roughness that has the potential to cause significant damage to produce is at the point where the road has deep potholes, bumps and large corrugations. From scale developed by Sayers et al, the roughness would be greater than 9 m/km. At these levels of roughness, response-type measurement devices are not reliable because they cannot achieve a desired minimum and constant speed. The MERLIN would have to be used to measure search values of roughness but this is a very slow and cumbersome process. Therefore, the World Bank mobile phone App (RoadLab Pro) becomes more suitable as long as a speed of more than 15 km/h can be attained and maintained. The App gives a good indication of the true value of roughness of the road. This App has been used in the AfCAP regional project “The Use of Appropriate High-tech Solutions for Road Network and Condition Analysis, with a Focus on Satellite Imagery”, so for motorable roads, the App is recommended for use in this study.
Most agricultural produce that is damaged in transportation gets damaged from bumps whether on roads or due to rough handling. This is mostly dependent on the type of produce (e.g. eggs, tomatoes) and how it is packaged rather than on the road roughness alone. In this type of situation, accelerometers are more appropriate for measuring sudden changes in road roughness that can cause damage to produce, and will be sourced for use by the project as required.

However, the main objective will not be to establish precise relationships between shocks and accelerations and crop deterioration. Rather the objective of the work will be to holistically assess the critical issues that farmers have in moving inputs and produce and thus provide a basis for the later provision of practical relevant engineering advice. In order to provide a proper institutional context for the advice the engineer will talk to representatives of the communities and local government to assess the local capacity, including labour based work, and possible sources of finance to undertake infrastructure improvement, using mechanisms such as Community Driven Development (CDD) or the Village Travel and Transport Programme (VTTP).

TRL was commissioned by the World Bank to prepare Guidelines for the Planning and Design of Rural Access Infrastructure to support Community Driven Development Initiatives in 2008 (the report was not published due to a staffing reorganisation at the World Bank at the time of writing). This work, together with other guidelines prepared earlier by TRL and more recently under AfCAP, suitably modified to meet local circumstances, could provide an excellent basis for engineering advice for this project. Figures 3 to 8 illustrate examples of access issues and low cost engineering measures that can improve first mile accessibility.

Figure 3: A Drainage Hump

Figure 4: A Mitre Drain

Figure 5: A Geo–Cell Surface

Figure 6: A Wooden Side Access
In recent years, the Government of Japan has been funding a labour intensive method that is reported as being cheaper compared to other technologies used to repair rural roads. The ‘Do-nou’ technology (illustrated in Figure 9), adopted for example in Kenya, uses locally available materials wrapped in a gunny bag to patch up damaged sections of a road by applying soil compacting techniques. The technique is ideal for short areas of poor drainage that are often boggy and lead to vehicles getting stuck, and with regular maintenance the Do-nou is durable. This approach will be discussed with the district engineers to explore the potential for using this low-cost labour-based technique for improving first mile access.

### 6.5 Links to ReCAP Logframe

The logframe for the project can be found in Annex C, and will be updated during every reporting phase of the project.

---


6.6 Summary of Deliverables

The project deliverables are outlined in the activity schedule provided in Annex A and are summarised as follows:

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>• Inception Report containing detailed programme and activity schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 2</td>
<td>• Phase 2 Report containing a literature review</td>
</tr>
<tr>
<td></td>
<td>• Two national level workshops (Kenya and Tanzania)</td>
</tr>
<tr>
<td>Phase 3</td>
<td>• Brief Interim progress statements and/or presentations on fieldwork and data analysis</td>
</tr>
<tr>
<td></td>
<td>• Phase 3 Report containing write up of fieldwork and data analysis</td>
</tr>
<tr>
<td></td>
<td>• Two national level workshops (Kenya and Tanzania)</td>
</tr>
<tr>
<td>Phase 4</td>
<td>• Final Report</td>
</tr>
<tr>
<td></td>
<td>• Regional Workshop with international participation</td>
</tr>
<tr>
<td></td>
<td>• Scientific paper to be subsequently published in a peer-reviewed journal</td>
</tr>
</tbody>
</table>

7 Inception Phase

A number of key activities have been undertaken in the Inception Phase as a platform on which to build the activities of Phase 2, namely:

a) Compiling a contact list of practitioners and stakeholders

A provisional list of contacts from both the transport and agricultural sectors has been compiled in Annex B in Kenya and Tanzania. The research team shall build on this list of contacts and engage them at the start of Phase 2 to identify research sites, and to invite them to the country workshops.

b) Identifying potential steering group members

Potential steering group members have also been identified in Annex B, and these are country specific, with the exception of Transaid who have offered to provide inputs to the steering groups and where possible attend project workshops, given their experience of agricultural marketing in Ethiopia, Ghana and Zambia. In particular, they are interested in the use of agricultural co-operatives in the evacuation of produce to market, and how bulking further up the supply chain can have an impact. The steering group will be a virtual group of members who will provide voluntary contributions to the project on a periodic basis, including a review of project progress, and will be invited to attend the regional workshop at the end of the project. With the exception of workshop attendance, we do not envisage that the steering group will incur additional costs to the project.

c) Inviting MDAs in country to be key counterparts for the project

The team has identified the following transport authorities to be key counterparts in the delivery of this project:

- PO-RALG – President’s Office – Regional and Local Government (Tanzania)
- SUMATRA – Surface and Marine Transport Regulatory Authority (Tanzania)
- KeRRA – Kenya Rural Roads Authority
- MTRD – Materials Testing and Research Department (Kenya)
Senior personnel have been contacted (see Annex D for copies of the letters), and we are pleased to report that they have all responded positively to requests for assistance, especially with regard to identifying appropriate research sites in each country. We shall seek to acquire similar contacts in the agricultural government authorities during Phase 2.

d) Producing a set of criteria for shortlisting research sites

Section 6.3 of this report sets out a preliminary list of criteria for selecting research sites that best represent the first mile challenges for smallholder farmers in Kenya and Tanzania.

e) Collecting references from the transport and agricultural sectors to assist with the Phase 2 literature review

There is a significant body of literature on crop deterioration and post-harvest losses related to poor transport and delayed access to market, the references for which have been captured in Section 14. The literature review will draw from a blend of references obtained from the agriculture and transport sectors in Phase 2.

f) Firming up workshop dates for Phase 2

In order to keep to the activity schedule, and to avoid the forthcoming elections in Kenya, taking place in August 2017, we plan to hold the Phase 2 country workshops in mid-July as follows:

Thursday 13th July – Tanzania workshop (venue TBC, Dar es Salaam or Dodoma)
Wednesday 19th July – Kenya workshop (venue TBC, Nairobi)

It is anticipated that a representative of each key counterpart will attend the respective workshop in their country, and we shall confirm availability for these dates early in Phase 2.

The first workshops will be rather more strategic in their purpose, since no fieldwork will have been undertaken at this time. We therefore expect to hold modest sized workshops, in order that we can finalise and confirm the research sites with participants, following a period of reconnaissance by the field team.

8 Revised Workplan

As mentioned in the Comments on the Terms of Reference in our Technical Proposal, and given the logistics required to identify research sites, undertake extensive data collection in two countries, and conduct 5 workshops, plus produce 3 technical papers, we have concerns that the length of the project (42 weeks) is too short to deliver all the requirements of the ToR, particularly as this also includes a 4 week assessment period between Phase 2 and 3.

The fieldwork and data collection will take approximately 10 weeks to complete, with any unforeseen delays or interruptions in the field adversely affecting data analysis activities. We therefore propose that the field surveys and data collection period be extended by 6 weeks, and the period of data analysis be extended by 2 weeks. This would increase the project duration from 42 weeks to 50 weeks (including the 4 week PMU review break). The activity schedule in Annex A indicates these proposed changes.

The risks associated with a compressed data collection period are addressed in Section 12 of this report, and in the Risk Register (Annex E).

9 Management Approach

TRL is leading this project in partnership with our sub-contractor, the International Forum for Rural Transport and Development (IFRTD).
TRL and IFRTD shall comply with the requirements of TRL’s Integrated Management System (IMS) which is independently certified by UKAS-accredited NQA to international quality standards:

- ISO 9001:2008 (Quality Management Systems),
- ISO 14001 (Environmental Management Systems),
- OHSAS 18001 (Occupational Health and Safety Management systems),
- ISO 27001 (Information Security), and

The Team Leader will also project manage this assignment, and will be responsible for delivering the project to time, to budget and to the expected level of quality. In addition to providing technical leadership of the project, the Team leader will be responsible for:

- Minimising cost overruns;
- Ensuring value for money, reflecting market value;
- Ensuring that there is sufficient funding to sustain quality and complete the project;
- Enabling risks to be successfully managed; and
- Enabling unexpected issues and change requirements to be addressed effectively.

10 Technical Inputs and Budget

10.1 Staffing
We do not envisage any changes in staff at this time. The overall time inputs for all staff will remain the same, as outlined in the Activity Schedule in Annex A.

10.2 Budget
The budget remains at £389,975, and we do not foresee any changes to the budget.

11 Communication Plan
Knowledge sharing and dissemination is a core pillar of the AFCAP Programme. Both TRL and IFRTD also share this as central to their method of working. This study is will be useful in generating new knowledge on the economic impacts that the first mile infrastructure and transport services have on smallholder farmers, transporters and consumers of agricultural produce. This knowledge will need to be shared with as many stakeholders as possible. These include; (a) Local groups (farmers, local leaders, local development organisations and local agri-business enterprises); (b) Local Government stakeholders (Tanzania) County Government stakeholders, (Kenya); (c) National level stakeholders drawn from relevant government arms (Roads, Transport, agriculture, rural development etc), bilateral programmes academia, agri-business companies etc.

Multi-layered knowledge sharing activities are embedded at every phase of the project, and are structured around four areas of activity. The first is in establishment of a core list of stakeholders that will serve as the initial sounding board for ideas right from the beginning of the project. As a starting point, we have generated an initial list of multi-sectoral stakeholders in both countries (see Annex B) from whom a steering committee will be established to advise the project on a regular basis. From this initial contact list, we will seek advice on other stakeholders that need to be involved in the project.
The first set of workshops will be held in Kenya and Tanzania in Phase 2 of the project. The dates for the workshops have already been agreed as 13th of July (Tanzania) and 19th of July (Kenya). The first set of country workshops are meant to introduce the project and its objectives to key stakeholders, and to seek their inputs on pertinent issues to be addressed by the study in each country, selection of project sites, dissemination pathways and policy engagement mechanisms.

The second set of communication activities involve a total of 5 workshops that will be used to publicise the work while also providing a platform for stakeholders to learn, contribute and create ownership to the project outputs at various stages. These country workshops will be organised during Phase 3 of the project and will be used to discuss the initial findings from the research and to get feedback that will be used to finalise the research report.

Further to this, an international dissemination workshop will be undertaken in Phase 4 of the project. The workshop will focus on a consolidation and wider dissemination of knowledge generated from the project in all the phases.

The third set of communication activities will be the production and submission of a scientific paper to an internationally recognised peer review journal. The paper will also be presented at strategic regional and international conferences.

Fourthly, in the course of the project, the consulting team will be proactive in providing short project updates and insights through their respective website, social media. News items for newsletters and websites will also be agreed with the client.

12 Risks and Assumptions
The risks and assumptions for delivering the project largely remain the same as those outlined in our technical proposal, with a few minor additions provided in Annex E (highlighted in red).

12.1 Risks
The following risks have been identified. A complete table of risks, effects and mitigation strategies is provided in Annex E:

1. No agreement is reached on a way forward for the project at the end of Phase 2
2. Difficulty identifying external stakeholders and arranging discussions
3. Project not delivered on time or to budget
4. Project not delivered to the quality expected by the client
5. Problems identifying suitable sites for fieldwork
6. Delays in conducting fieldwork for data collection and capturing a large enough sample size
7. Difficulty in organising five workshops in the timeframe provided
8. Constraints related to production of technical papers for a peer reviewed journal and international conferences

12.2 Assumptions and Comments on ToR
The scope of work as set out in the ToR is generally acceptable, except for the time increase shown in the revised activity schedule (Annex A). The following assumptions about the research project have been made, based on the contents of the Terms of Reference:

• While we have begun to engage with relevant partner-country stakeholders and have asked KeERRA, MTRD, PO-RALG and SUMATRA to identify counterparts in their organisations to
liaise with, we cannot guarantee that they will meaningfully support the project. Nevertheless, initial indications suggest that in the most part these road and transport Ministries, Departments, Agencies and Authorities (MDA) are supportive and will help us to identify research sites in country.

- As outlined in the Terms of Reference, regarding the 5 national and regional workshops, costs associated with transport/accommodation for all delegates other than the Consulting Team will be covered separately by ReCAP. This will also include the daily subsistence allowance of all national/international participants represented at the workshops.

- As outlined in the Terms of Reference, costs associated with all travel and subsistence, and attendance fees at external workshops and conferences attended as part of the project will be covered separately by ReCAP.

13 Concluding Remarks

While the issue of ‘first mile’ research has previously been explored by IFRTD in a modest capacity, it is arguably a largely under-researched area of work as far as the potential exploitable benefits of smallholder farming productivity is concerned, and the impact that improved access to rural markets can have for local small-scale economies in Kenya, Tanzania and across Sub-Saharan Africa. 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.

The next Phase of research (Phase 2) will provide a short list of sites from our counterparts within the MDAs, and with knowledge of our own investigations from previous projects conducted in Kenya and Tanzania; and will conduct reconnaissance visits to research sites based on the selection criteria. Phase 2 will culminate in country level stakeholder workshops and finalised research sites for conducting fieldwork in Phase 3.
14 References


Çakmak, B. et.al. (2010) Assessment of the Quality Losses of Fresh Fig Fruits During Transportation Journal of Agricultural Sciences 16 (2010) 180 -193


Donnges, C. (2003), Improving Access in Rural Areas: Guidelines for Rural Accessibility Planning, ILO.


Hine J, Abedin M, Stevens RJ, Airey T, Anderson T (2016) Does the extension of the rural road network have a positive impact on poverty reduction and resilience for the rural areas served? If so how, and if not why


Klief, U. et.al. (2003) Improved Food Crop Marketing through Appropriate Transport for poor Farmers in Uganda. DFID crop-Post Harvest Research Programme- Project R8114


Pelka, M. and J Kreyenschmidt (2013) Determination of spoilage levels of fruit and vegetables according to the type of packaging. Evaluation Report Stiftung Intiative Mehrweg (Foundation for Reuseable Systems)


Sieber, N. (2011) Leapfrogging from Rural Hubs to New Markets, Rural Transport in Developing Countries; The International Bank for Reconstruction and Development / The World Bank


Somsak Kramchote, et.al. (2013) Quantifying Postharvest Loss in the Supply Chain in Thailand. Faculty of Engineering, King Mongukut’s University of Technology, Thonburi, Bangkok.


Stifel, D. and Minten, B. (2008), Isolation and agricultural productivity. Agricultural Economics, 39: 1


Techane Bosona (2014). Logistics Risks in the Food Supply Chains Forum for Agricultural Risk Management in Development http://www.agriskmanagementforum.org/content/logistics-risks-food-supply-chains


## Annex A: Updated Activity Schedule

<table>
<thead>
<tr>
<th>Activity Schedule</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activities</strong></td>
<td>May</td>
<td>June</td>
</tr>
<tr>
<td><strong>Phase 1 - Inception Phase</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Prepare detailed programme of work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Identify key issues and risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Prepare Inception Report</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phase 2 - Site Selection and Reconnaissance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Undertake review of literature and previous work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Define the research questions and scope of work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Identify research site in Kenya</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Identify research site in Tanzania</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Prepare Phase 2 Report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Organise stakeholder workshop in Kenya</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Organise stakeholder workshop in Tanzania</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Review Break - PMU Assessment Period</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phase 3 - Data Collection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Plan logistics for data collection activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Prepare survey instruments and train enumerators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Conduct field surveys &amp; data collection in Kenya</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Conduct field surveys &amp; data collection in Tanzania</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Undertake data analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Prepare Phase 3 Report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Organise stakeholder workshop in Kenya</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Organise stakeholder workshop in Tanzania</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Phase 4 - Reporting and Dissemination</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Prepare Final Report and Scientific Paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Organise a regional workshop on the way forward</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Capacity building, knowledge exchange, uptake</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Deliverable deadlines**

1. Inception Report
2. Technical Paper/Presentation
3. Phase 2 Report
4. Interim Progress Statement 1
5. Technical Paper/Presentation
6. Interim Progress Statement 2
7. Phase 3 Report
8. Final Report
9. Scientific Paper

**Staffing Schedule**

<table>
<thead>
<tr>
<th>Staffing</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staffing</strong></td>
<td>May</td>
<td>June</td>
</tr>
<tr>
<td>Team Leader - Annabel Bradbury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LVRR Engineering Specialist - A Otto</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Transport Economist - J Hine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Access Planning Specialist - P Njenga</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender Specialist - F Mugo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Researcher (Kenya) - G Muhia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Researcher (Tanzania) - S Willilo</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Page 33
## Annex B: Contact List

### Tanzania

<table>
<thead>
<tr>
<th>Name of Stakeholder</th>
<th>Type</th>
<th>Position</th>
<th>Organisation</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amleset Tewodros</td>
<td>NGO</td>
<td>Country Director</td>
<td>HelpAge International</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Godfrey Mulongo</td>
<td>NGO</td>
<td>Team Leader</td>
<td>HelpAge International</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Eng. Elina Kayanda</td>
<td>Govt</td>
<td>Director of Rural Roads</td>
<td>PO-RALG</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Eng. Steven Lyimo</td>
<td>Govt</td>
<td>Principal Engineer - Roads</td>
<td>PO-RALG</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Eng. G. Mwoga</td>
<td>Govt</td>
<td>Road Engineer</td>
<td>PO-RALG</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Justin Lyatuu</td>
<td>Govt</td>
<td>Economist</td>
<td>PO-RALG</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Leo J Ngowi</td>
<td>Govt</td>
<td>Acting Director of Road Transport</td>
<td>SUMATRA</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Joseph Haule</td>
<td>Govt</td>
<td>CEO</td>
<td>Roads Fund Board</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Eng. Ronard Rwakatare</td>
<td>Govt</td>
<td>Principal Engineer</td>
<td>Roads Fund Board</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Abdul Awadh</td>
<td>NGO</td>
<td>Principal Engineer</td>
<td>Transport Forum Group</td>
<td>Tanzania</td>
</tr>
<tr>
<td>George Malekela</td>
<td>NGO</td>
<td>Senior Programme Assistant</td>
<td>Amend</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Peter Amos Mwelelo</td>
<td>NGO</td>
<td>Senior Programme Assistant</td>
<td>Amend</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Hans Mwaipopo</td>
<td>Govt</td>
<td>Consultant</td>
<td>National Institute of Transport</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Eng. Joseph Nyamhanga</td>
<td>Govt</td>
<td>Deputy Permanent Secretary</td>
<td>Ministry of Works</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Eng. Ven Ndyamkama</td>
<td>Govt</td>
<td>Act. Director of Roads</td>
<td>Ministry of Works</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Arad Kisaka</td>
<td>Govt</td>
<td>Assistant Director - Roads</td>
<td>Ministry of Transport</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Paulo S. Laiser</td>
<td>Govt</td>
<td>Senior Statistician</td>
<td>Ministry of Transport</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Josephine Mwankusye</td>
<td>Private</td>
<td>Consultant</td>
<td></td>
<td>Tanzania</td>
</tr>
<tr>
<td>Simon Lushakuzi</td>
<td>Academic</td>
<td>Lecturer</td>
<td>National Institute of Transport</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Ally Mkunza</td>
<td>Academic</td>
<td>Head of Research and Consultancy</td>
<td>National Institute of Transport</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Zacharia Mganilwa</td>
<td>Academic</td>
<td>Rector</td>
<td>National Institute of Transport</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Professor Dazydelian Banda</td>
<td>Academic</td>
<td>Transport Economist</td>
<td>Eastern and Southern African Management Institute</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Mrs E Kinasha</td>
<td>Govt</td>
<td>Project Engineer</td>
<td>Tanzania Social Action Fund</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Gabriel Migire</td>
<td>Govt</td>
<td>Director of Policy and Planning</td>
<td>Ministry of Transport</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Hassan Mshinda</td>
<td>Academic</td>
<td>Director General</td>
<td>Tanzania Commission for Science and Technology</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Nurdin Mushule</td>
<td>Academic</td>
<td>Transportation Engineer</td>
<td>University of Dar es Salaam</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Festo Mwanyika</td>
<td>Govt</td>
<td>Assistant Director, Surface Transport</td>
<td>Ministry of Transport</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Prof. Gabagambi</td>
<td>Academic</td>
<td>Lecturer</td>
<td>Sokoine University of Agriculture (SUA)</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Elikana Kagoma</td>
<td>Govt</td>
<td>District Cooperative Officer (DCO)</td>
<td>Mbogwe District Council, Geita</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Hans Mhalila</td>
<td>Private</td>
<td>Consultant</td>
<td></td>
<td>Tanzania</td>
</tr>
<tr>
<td>Hija Malamla</td>
<td>Govt</td>
<td>Director for Business Support</td>
<td>Tanzania National Roads Agency (TANROADS)</td>
<td>Tanzania</td>
</tr>
</tbody>
</table>
## PROPOSED STEERING GROUP MEMBERS

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Position</th>
<th>Institution/Agency</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moses Kabobo</td>
<td>NGO</td>
<td>Programme Manager</td>
<td>Lutheran World Relief (LWR)</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Dr. Elibarik Msuya</td>
<td>Academic</td>
<td>Lecturer</td>
<td>Sokoine University of Agriculture (SUA)</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Dr. Gilliard Ngewe</td>
<td>Govt</td>
<td>CEO</td>
<td>SUMATRA</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Ajuaye Sigalla</td>
<td>Int</td>
<td>Programme Officer - Value Chain Dev</td>
<td>FAO</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Tom Bishop</td>
<td>NGO</td>
<td>Africa Director</td>
<td>Amend</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Dr. Fikiri Magafu</td>
<td>Govt</td>
<td>Assistant Director</td>
<td>PO RALG</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Caroline Barber</td>
<td>Consultant</td>
<td>Head of Programmes</td>
<td>Transaid</td>
<td>UK</td>
</tr>
</tbody>
</table>
### PROPOSED STEERING GROUP MEMBERS

<table>
<thead>
<tr>
<th>Name of Stakeholder</th>
<th>Type</th>
<th>Position</th>
<th>Organisation</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Dennis ONKUNDI</td>
<td>Govt</td>
<td>Assistant Director</td>
<td>Ministry of Agriculture, Livestock and Fisheries</td>
<td>Kenya</td>
</tr>
<tr>
<td>Alex Goshen</td>
<td>Private</td>
<td>Director</td>
<td>Goshen Farms</td>
<td>Kenya</td>
</tr>
<tr>
<td>James Arim</td>
<td>Govt</td>
<td>GM-Technical &amp; Advisory Services</td>
<td>HCDA</td>
<td>Kenya</td>
</tr>
<tr>
<td>Okisegeere Ojepat</td>
<td>Consultant</td>
<td>Director</td>
<td>FPEAK</td>
<td>Kenya</td>
</tr>
<tr>
<td>Peter Nduati</td>
<td>Consultant</td>
<td>Chief Executive Officer</td>
<td>Twalisha</td>
<td>Kenya</td>
</tr>
<tr>
<td>Andrew Adewa</td>
<td>Consultant</td>
<td>Food safety standards expert</td>
<td>Standards and Market Access Programme</td>
<td>Kenya</td>
</tr>
<tr>
<td>Eng. Mbugua</td>
<td>Govt</td>
<td>Regional Engineer - Murang’a</td>
<td>Kenya Rural Roads Authority</td>
<td>Kenya</td>
</tr>
<tr>
<td>Eng. J Wanjohi</td>
<td>Govt</td>
<td>Regional Engineer - Nyandarua</td>
<td>Kenya Rural Roads Authority</td>
<td>Kenya</td>
</tr>
<tr>
<td>Rosemary Muthomi</td>
<td>Private</td>
<td>Director</td>
<td>Mt. Kenya Gardens Ltd</td>
<td>Kenya</td>
</tr>
<tr>
<td>Peter Kaberere</td>
<td>University</td>
<td>Consultant</td>
<td>University of Nairobi</td>
<td>Kenya</td>
</tr>
<tr>
<td>Kevin Ritho</td>
<td>University</td>
<td>Consultant</td>
<td>University of Nairobi</td>
<td>Kenya</td>
</tr>
<tr>
<td>Eng S.Kogi</td>
<td>Government</td>
<td>Chief Head of materials</td>
<td>Materials Testing and Research Department</td>
<td>Kenya</td>
</tr>
<tr>
<td>Claudette Akelo Atieno</td>
<td>Consultant</td>
<td>Director</td>
<td>Glorious Agribusiness</td>
<td>Kenya</td>
</tr>
<tr>
<td>Dr. Francis Nyangaga</td>
<td>Govt</td>
<td>Executive Director</td>
<td>Kenya Roads Board</td>
<td>Kenya</td>
</tr>
<tr>
<td>Henry Orwa</td>
<td>Consultant</td>
<td>project engineer</td>
<td>Norken International Limited</td>
<td>Kenya</td>
</tr>
<tr>
<td>Eng. George Kahuro</td>
<td>Govt</td>
<td>project engineer</td>
<td>Ministry of water and irrigation</td>
<td>Kenya</td>
</tr>
<tr>
<td>Eng. Margaret Ogai</td>
<td>Govt</td>
<td>Manager Contracts</td>
<td>Kenya Roads Board</td>
<td>Kenya</td>
</tr>
<tr>
<td>David Ruchiu</td>
<td>Private</td>
<td>Africa Director</td>
<td>Farm Concern International</td>
<td>Kenya</td>
</tr>
<tr>
<td>Christine Nzai</td>
<td>Government</td>
<td>Engineer</td>
<td>Materials Testing and Research Department</td>
<td>Kenya</td>
</tr>
<tr>
<td>Hillary Akwiri</td>
<td>Govt</td>
<td>Engineer</td>
<td>Kenya Rural Roads Authority</td>
<td>Kenya</td>
</tr>
<tr>
<td>Caroline Barber</td>
<td>Consultant</td>
<td>Head of Programmes</td>
<td>Transaid</td>
<td>UK</td>
</tr>
</tbody>
</table>
Annex C: Contribution to ReCAP Log Frame

Service Providers should forecast the contributions the project will make to the ReCAP logframe over the period of the project. Details of basis for calculation and recording are contained below. Number of columns should be adjusted to suit the length of project.

<table>
<thead>
<tr>
<th>Intervention Logic</th>
<th>Indicator</th>
<th>Source of Verification</th>
<th>Baseline (Date)</th>
<th>Milestone 1 31 July 2017</th>
<th>Milestone 2 31 July 2018</th>
<th>Milestone 3 31 July 2018</th>
<th>End of Project Target (Date)</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome: Sustained increase in evidence base for more cost effective and reliable low volume rural road and transport services, promoted and influencing policy and practice in Africa and Asia</td>
<td>1. SUSTAINABILITY: Partner Government and other financiers co-funding research with ReCAP. Contributions in kind (K) and Core Contributions (C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Concrete examples of change (applied or formally adopted), influenced by ReCAP research that will be allied to #km of road in focus countries.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Number of citations in academic articles of ReCAP peer reviewed articles and/or working papers, conference papers etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output 1: RESEARCH and UPTAKE: Generation, validation and</td>
<td>1.1 LVRR: Number of peer reviewed papers generated from ReCAP supported or related LVRR research projects made available in open access format.</td>
<td>Title of paper, date and name of writers and publishers of a peer reviewed</td>
<td>May 2017</td>
<td></td>
<td></td>
<td></td>
<td>April 2018</td>
<td></td>
</tr>
<tr>
<td>Intervention Logic</td>
<td>Indicator</td>
<td>Source of Verification</td>
<td>Baseline (Date)</td>
<td>Milestone 1 31</td>
<td>Milestone 2 31 July 2017</td>
<td>Milestone 3 31 July 2018</td>
<td>End of Project Target (Date)</td>
<td>Assumptions</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------------</td>
<td>-----------------</td>
<td>----------------</td>
<td>-------------------------</td>
<td>--------------------------</td>
<td>-----------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>updating of evidence for effective policies and practices to achieve safe, all-season, climate-resilient, equitable and affordable LVRR and transport services in African and Asian countries. (Low Volume Rural Roads: LVRR / TS – Transport Services)</td>
<td>1.2. TS: Number of peer reviewed papers generated from ReCAP supported or related LVRR research projects made available in open access format.</td>
<td>paper; 2 Country Case Studies. A Final Synthesis Report.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3 Engineering Research: National policies, manuals, guidelines and/or research outputs that have been fully incorporated into Government/Ministerial requirements, specifications and recommended good practice as a result of ReCAP engineering research (including climate change adaptation and AfCAP and SEACAP adaptations). To include introduction of new policies and modification to existing policies.</td>
<td>Title, authors of the research report; Name of peer reviewed journal, title and date paper published</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>One peer reviewed paper in an international journal</td>
<td></td>
</tr>
<tr>
<td>Intervention Logic</td>
<td>Indicator</td>
<td>Source of Verification</td>
<td>Baseline (Date)</td>
<td>Milestone 1 31 July 2017</td>
<td>Milestone 2 31 July 2018</td>
<td>Milestone 3 31 July 2018</td>
<td>End of Project Target (Date)</td>
<td>Assumptions</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>------------------------</td>
<td>------------------</td>
<td>---------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td>----------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>1.4 TRANSPORT SERVICES Research: National policies, regulations and/or practices for rural transport services modified or introduced as a result of ReCAP research (including road safety and gender and AFCAP and SEACAP research)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To include introduction of new policies and modification to existing policies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6. LVRR and TS information generated for dissemination, and disseminated, that is not peer reviewed. Total to include research papers, final research reports, workshop reports, manuals and guidelines.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHECK IF THIS IS TO BE PART OF Service Provider Reporting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output 2:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPACITY BUILDING: The building of sustainable capacity to carry out research on low volume rural roads, and rural transport services in African and Asian</td>
<td>2.1. African / Asian experts or institutions taking lead roles in ReCAP Research Projects.</td>
<td>Contract documents between IFRTD and TRL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IFRTD as a collaborating partner is made up of African experts</td>
</tr>
<tr>
<td>2.3. Research projects with female researcher inputs at senior technical level.</td>
<td>Gender composition of the team as presented in the proposal</td>
<td>3 members out 7 members of core team are female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Intervention Logic

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Source of Verification</th>
<th>Baseline (Date)</th>
<th>Milestone 1 31 July 2017</th>
<th>Milestone 2 31 July 2018</th>
<th>Milestone 3 31 July 2018</th>
<th>End of Project Target (Date)</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>countries.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output 3: KNOWLEDGE: Generated evidence base of LVRR and transport services knowledge is widely disseminated and easily accessible by policy makers and practitioners (including education and training institutions).</td>
<td>3.2. ReCAP generated knowledge presented and discussed at high level international development debates and conferences</td>
<td>Name and Date of the workshop</td>
<td></td>
<td></td>
<td></td>
<td>Continuous policy engagement using research outputs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Title of paper presented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Title of a peer reviewed paper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.3. ReCAP generated knowledge disseminated through significant workshops and dedicated training, virtually or physically, that are rated by participants as effective..</td>
<td>Names, dates and attendance register for workshops</td>
<td></td>
<td>2 country workshops in Kenya</td>
<td>2 country workshops in Tanzania</td>
<td>One regional workshop</td>
<td></td>
</tr>
</tbody>
</table>
Annex D: Letters to Key Counterparts
28 April 2017

Elina Kayanda
PO RALG
PO Box 1923
Dodoma
Tanzania

Dear Mama Kayanda,

Reference: ReCAP Project on the Cost Beneficial Improvement of All Season First Mile Access

TRL (Transport Research Laboratory) and the International Forum for Rural Transport and Development (IFRTD) have been commissioned by the DFID funded Research for Community Access Partnership (ReCAP) to deliver a project on the ‘Evaluation of the Effect of Road Condition on the Quality of Agricultural Produce’.

The project is concerned with the cost-beneficial improvement of ‘First Mile’ access and the transport services associated with moving harvest produce on the initial stages of movement from the farm to established road access. The research project will conduct fieldwork in Tanzania and Kenya to explore transport service and engineering solutions for the provision of improved access to markets for small scale farmers with reduced overheads and improved timeliness, and improving contributions to poverty reduction and food security.

The results of the research will eventually lead to:

- Identification of the specific elements of the transport system that can be improved in order to unlock growth in the smallholder value chain sector
- Better advice to road planners on the best location for access improvements
- Quantification of the economic benefits of better initial access
- A framework to provide advice to farmers and the authorities on the best pattern of transport in different circumstances
- Better understanding of the role of different forms of transport in the small scale agricultural environment, and the gender dimensions therein, and the need to regulate them.
We would be delighted if PO RALG agreed to be a partner organisation on the project, and if you could identify a key counterpart for us to liaise with, particularly for selecting fieldwork sites where there are prevailing challenges in the primary transport segment (between the farm and an all-season access road). These initial stages of crop movement are the most expensive (tonne/km), and provide the biggest transport constraints in terms of post-harvest losses and agricultural marketing.

We are currently preparing an Inception Report in which we shall provide a detailed programme of work, and we would like to provide a named counterpart at PO RALG who we can work with to shortlist fieldwork sites where first mile transport of agricultural produce is having a detrimental impact on the local economy and food security.

We shall also be setting up a Steering Group for the project to guide project delivery and performance, so if you or a colleague would like to be represented on the Steering Group for the duration of the project (10 months) please let me know. This will be a virtual forum for steering project implementation, although there shall be two country workshops and a regional workshop during the project at which the Steering Group may be represented.

We are very pleased to involve PO RALG in this exciting research project that will build on the existing research conducted by IFRTD on first mile transport challenges in the tomato smallholder sector in Kilolo District.

Yours sincerely,

Dr Annabel Bradbury
Group Manager, Asset Management
TRL Limited
28 April 2017

Gilliard W Ngewe  
Director General  
SUMATRA  
7th Floor, TPA Control Tower  
Kivukoni  
PO Box 3093  
Dar es Salaam  
Tanzania

Direct Tel: +44 (0)1344 770284  
Fax: +44 (0)1344 770356  
Email: abradbury@trl.co.uk

Dear Mr Ngewe,

Reference: ReCAP Project on the Cost Beneficial Improvement of All Season First Mile Access

TRL (Transport Research Laboratory) and the International Forum for Rural Transport and Development (IFRTD) have been commissioned by the DFID funded Research for Community Access Partnership (ReCAP) to deliver a project on the ‘Evaluation of the Effect of Road Condition on the Quality of Agricultural Produce’.

The project is concerned with the cost-beneficial improvement of ‘First Mile’ access and the transport services associated with moving harvest produce on the initial stages of movement from the farm to established road access. The research project will conduct fieldwork in Tanzania and Kenya to explore transport service and engineering solutions for the provision of improved access to markets for small scale farmers with reduced overheads and improved timeliness, and improving contributions to poverty reduction and food security.

The results of the research will eventually lead to:

- Identification of the specific elements of the transport system that can be improved in order to unlock growth in the smallholder value chain sector
- Better advice to road planners on the best location for access improvements
- Quantification of the economic benefits of better initial access
- A framework to provide advice to farmers and the authorities on the best pattern of transport in different circumstances
- Better understanding of the role of different forms of transport in the small scale agricultural environment, and the gender dimensions therein, and the need to regulate them.
We would be delighted if SUMATRA agreed to be a partner organisation on the project, and if you could identify a key counterpart for us to liaise with, particularly for selecting fieldwork sites where there are prevailing challenges in the primary transport segment (between the farm and an all-season access road). These initial stages of crop movement are the most expensive (tonne/km), and provide the biggest transport constraints in terms of post-harvest losses and agricultural marketing.

We are currently preparing an Inception Report in which we shall provide a detailed programme of work, and we would like to provide a named counterpart at SUMATRA who we can work with to shortlist fieldwork sites where first mile transport of agricultural produce is having a detrimental impact on the local economy and food security.

We shall also be setting up a Steering Group for the project to guide project delivery and performance, so if you or a colleague would like to be represented on the Steering Group for the duration of the project (10 months) please let me know. This will be a virtual forum for steering project implementation, although there shall be two country workshops and a regional workshop during the project at which the Steering Group may be represented.

We are very pleased to involve SUMATRA in this exciting research project that will build on the existing research conducted by IFRTD on first mile transport challenges in the tomato smallholder sector in Kilolo District.

Yours sincerely,

Dr Annabel Bradbury
Group Manager, Asset Management
TRL Limited
28 April 2017

Eng J Ogango  
Director General  
KeRRA  
Blueshiel Towers  
Upperhill, 6th Floor  
PO Box 48151-00100  
Nairobi  
Kenya

Dear Eng Ogango,

Reference: ReCAP Project on the Cost Beneficial Improvement of All Season First Mile Access

TRL (Transport Research Laboratory) and the International Forum for Rural Transport and Development (IFRTD) have been commissioned by the DFID funded Research for Community Access Partnership (ReCAP) to deliver a project on the ‘Evaluation of the Effect of Road Condition on the Quality of Agricultural Produce’.

The project is concerned with the cost-beneficial improvement of ‘First Mile’ access and the transport services associated with moving harvest produce on the initial stages of movement from the farm to established road access. The research project will conduct fieldwork in Kenya and Tanzania to explore transport service and engineering solutions for the provision of improved access to markets for small scale farmers with reduced overheads and improved timeliness, and improving contributions to poverty reduction and food security.

The results of the research will eventually lead to:

- Identification of the specific elements of the transport system that can be improved in order to unlock growth in the smallholder value chain sector
- Better advice to road planners on the best location for access improvements
- Quantification of the economic benefits of better initial access
- A framework to provide advice to farmers and the authorities on the best pattern of transport in different circumstances
- Better understanding of the role of different forms of transport in the small scale agricultural environment, and the gender dimensions therein, and the need to regulate them.
We would be delighted if KeRRA agreed to be a partner organisation on the project, and if you could identify a key counterpart for us to liaise with, particularly for selecting fieldwork sites where there are prevailing challenges in the primary transport segment (between the farm and an all-season access road). These initial stages of crop movement are the most expensive (tonne/km), and provide the biggest transport constraints in terms of post-harvest losses and agricultural marketing.

We are currently preparing an Inception Report in which we shall provide a detailed programme of work, and we would like to provide a named counterpart at KeRRA who we can work with to shortlist fieldwork sites where first mile transport of agricultural produce is having a detrimental impact on the local economy and food security.

We shall also be setting up a Steering Group for the project to guide project delivery and performance, so if you or a colleague would like to be represented on the Steering Group for the duration of the project (10 months) please let me know. This will be a virtual forum for steering project implementation, although there shall be two country workshops and a regional workshop during the project at which the Steering Group may be represented.

We are very pleased to involve KeRRA in this exciting research project that will build on the existing research conducted by IFRTD on first mile transport challenges in the onion smallholder sector in Nyeri County, and also on the work TRL conducted for AFD on the Ex-Post Evaluation of AFD/GoK Roads 2000 in Central Kenya.

Yours sincerely,

Dr Annabel Bradbury
Group Manager, Asset Management
TRL Limited
28 April 2017

Eng Stephen Kogi
Chief Engineer (Materials)
Materials Testing and Research Division
State Department of Infrastructure
PO Box 11873-00400
Nairobi
Kenya

Dear Eng Kogi,

Reference:  ReCAP Project on the Cost Beneficial Improvement of All Season First Mile Access

TRL (Transport Research Laboratory) and the International Forum for Rural Transport and Development (IFRRTD) have been commissioned by the DFID funded Research for Community Access Partnership (ReCAP) to deliver a project on the ‘Evaluation of the Effect of Road Condition on the Quality of Agricultural Produce’.

The project is concerned with the cost-beneficial improvement of ‘First Mile’ access and the transport services associated with moving harvest produce on the initial stages of movement from the farm to established road access. The research project will conduct fieldwork in Kenya and Tanzania to explore transport service and engineering solutions for the provision of improved access to markets for small scale farmers with reduced overheads and improved timeliness, and improving contributions to poverty reduction and food security.

The results of the research will eventually lead to:

- Identification of the specific elements of the transport system that can be improved in order to unlock growth in the smallholder value chain sector
- Better advice to road planners on the best location for access improvements
- Quantification of the economic benefits of better initial access
- A framework to provide advice to farmers and the authorities on the best pattern of transport in different circumstances
- Better understanding of the role of different forms of transport in the small scale agricultural environment, and the gender dimensions therein, and the need to regulate them.
One aspect of the research is to explore the rural infrastructure challenges and solutions that need to be considered as support systems to small-holder farming enterprises, in particular ensuring all weather motor vehicle access for rural feeder roads. Andrew Otto is the LVRR Engineer on the project and his task will be to quantify the roughness of the feeder roads, and evaluate the effect of road condition on the quality of agricultural produce that is transported from farm to market.

We would be delighted if MTRD agreed to be a partner organisation on the project, and if you could identify a key counterpart for us to liaise with, particularly for selecting fieldwork sites where there are prevailing challenges in the primary transport segment (between the farm and an all-season access road). These initial stages of crop movement are the most expensive (tonne/km), and provide the biggest transport constraints in terms of post-harvest losses and agricultural marketing.

We are currently preparing an Inception Report in which we shall provide a detailed programme of work, and we would like to provide a named counterpart at MTRD who we can work with to shortlist fieldwork sites where first mile transport of agricultural produce is having a detrimental impact on the local economy and food security.

We are very pleased to involve MTRD in this exciting research project that will build on the existing research conducted by IFRTD on first mile transport challenges in the onion smallholder sector in Nyeri County, and also on the work TRL conducted for AFD on the Ex-Post Evaluation of AFD/GoK Roads 2000 in Central Kenya.

Yours sincerely,

Dr Annabel Bradbury
Group Manager, Asset Management
TRL Limited
### Annex E: Risk Matrix

<table>
<thead>
<tr>
<th>Risk ID</th>
<th>Description</th>
<th>Overall P-I Rating</th>
<th>Effect</th>
<th>Mitigation Strategy</th>
<th>Risk Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No agreement is reached on a way forward for the project at the end of Phase 2</td>
<td>P-L I-H</td>
<td>The efficacy with which the project is conducted relies on the inception report being approved by ReCAP, and identifying national and local government and development agency stakeholders to buy-in to the project and manage their expectations of the project outcomes.</td>
<td>Inception report outlines the final programme and methodology to be implemented in Phase 2. Work closely with the ReCAP Technical Manager and key stakeholders to ensure that the methodology is agreed early on in the process. Technical review will ensure development and delivery of a robust approach.</td>
<td>Team Leader and Technical Reviewer</td>
</tr>
<tr>
<td>2</td>
<td>Difficulty identifying external stakeholders and arranging discussions</td>
<td>P-L I-M</td>
<td>Important to liaise closely with relevant authorities and partner organisations in Kenya and Tanzania, as well as personnel working on associated projects i.e. the work undertaken by Steyn et al (2015).</td>
<td>Work closely with ReCAP Technical Manager and in-country representatives to identify appropriate representatives and contact them early.</td>
<td>Team Leader Access Planning Specialist</td>
</tr>
<tr>
<td>3</td>
<td>Difficulty identifying steering group members</td>
<td>P-L I-M</td>
<td>Important to identify a select group of experts and practitioners to join the steering group who can guide the research team and avoid pitfalls.</td>
<td>Work closely with ReCAP Technical Manager and in-country representatives to identify appropriate representatives and contact them early.</td>
<td>Team Leader Access Planning Specialist</td>
</tr>
<tr>
<td>4</td>
<td>Project not delivered on time or to budget</td>
<td>P-M I-H</td>
<td>The project has already been identified as having a very tight programme of work, with a high number of deliverables (reports, workshops, scientific papers).</td>
<td>The PM must communicate effectively with the TRL and IFRTD team to ensure accurate forecasting of project progress and delivery. Ensure regular team meetings are held in person or via Skype; and a suitable record of meetings is maintained. <em>A revised Activity Schedule in Annex A proposes an extension to the project of 8 weeks in order to conduct data collection and analysis without delays to the project.</em></td>
<td>Project Manager (PM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Project not delivered to the quality expected by the client</td>
<td>P-L I-H</td>
<td>Without careful monitoring and management, the project outputs may not be delivered to ReCAP’s satisfaction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TRL’s internal Technical Review process will ensure that all outputs and deliverables are produced to the highest standard, and monthly progress on the project will be monitored using a RAG system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Team Leader and Technical Reviewer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Problems identifying suitable sites for fieldwork</td>
<td>P-L I-M</td>
<td>We shall have 8 weeks (in Phase 2) to identify suitable sites in Kenya and Tanzania, and to undertake field trips with local counterparts, as well as reporting on our findings, which will be a demanding schedule.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Both TRL and IFRTD have significant experience of working in Kenya and Tanzania, and with government agencies who can advise us on the most appropriate data collection sites based on a set of criteria that shall be defined during the Inception Phase.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>All key specialists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Delays in conducting fieldwork for data collection and capturing a large enough sample size</td>
<td>P-M I-H</td>
<td>The fieldwork component of this project is the most crucial phase as this will provide the data, and therefor the evidence of the cost-beneficial improvement of all season access for rural farmers. Delays maybe caused by access problems, adverse weather conditions, and poor health etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A data collection period of 10 weeks has been programmed in order to collect a sample of 1,000 questionnaires by a team of 6 enumerators, in addition to the local researchers. A statistical technique called power analyses confirms that this sample size will provide robust and statistically significant results. Our new Activity Schedule proposes 16 weeks of data collection to account for any unforeseen delays and problems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Team Leader and local researchers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Difficulty in organising five workshops in the timeframe provided</td>
<td>P-M I-M</td>
<td>An estimated 60 participants are expected at each workshop, and this will be a significant logistical challenge to organise without any unforeseen constraints.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IFRTD are very well connected and have a network of national forum groups to assist in the organisation of workshops in Kenya and Tanzania. It may not be appropriate to invite 60 workshop participants to the country workshops, particularly in Phase 2 before any fieldwork has commenced. We envisage that these first workshops will provide a platform for a more strategic discussion about site selection with a more modest group of</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Team Leader Access Planning Specialist</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Constraints related to production of technical papers for a peer reviewed journal and international conferences</td>
<td>P-L I-L</td>
<td>At least one peer-reviewed journal paper and at least 2 conference papers are expected – this is largely dependent on the deadlines for such journals/conferences, and our ability to report any meaningful results before Phase 4.</td>
<td>TRL and IFRTD are very experienced in writing papers for publication at conferences and in journals. We shall identify opportunities for publishing in appropriate forums early on, in conjunction with the ReCAP Technical Manager.</td>
<td>Team Leader and Technical Reviewer</td>
</tr>
</tbody>
</table>