



AfCAP
Africa Community Access Partnership



Long Term Pavement Performance Monitoring of Existing Trial Sections and Implementation of Regional Guidelines for Establishing and Monitoring Trial Sections in Tanzania

Project Mobilization Phase Report



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Cover photo: President's Office, Regional Administration and Local Government in Dodoma, Tanzania

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Abstract

A number of road trial sections were constructed under the then Prime Minister's Office – Regional Administration and Local Government (PMO-RALG) of Tanzania, now the President's Office-Regional Administration and Local Government (PO-RALG). AfCAP supported the construction of the road trials, which were designed to demonstrate and verify different options in design, material utilisation and construction methods for particularly low-volume roads. The two sites selected for demonstration were in the Bagamoyo and Siha districts, located on the Bago to Talawanda road in the Bagamoyo District (about 20.3 km in length) and on the Lawate to Kibongoto road in the Siha District (about 13 km in length) respectively.

The road trials have been monitored over several years and they provide information that can be used to assess the performance of different options in design, material utilisation and construction methods. There is a need for a systematic evaluation of the trial sections, including the methods for collecting data and quality of monitoring data, compared to standard protocol requirements.

To this end, CSIR Built Environment has been awarded the contract for ***Long Term Pavement Performance Monitoring of Existing Trial Sections and Implementation of Regional Guidelines for Establishing and Monitoring Trial Sections in Tanzania.***

The project is aimed at addressing all aspects of Long-Term Pavement Performance (LTPP) assessments, including capacity building of LoGITReC staff and others, in the establishment of new sections and processes and procedures required for monitoring them over time.

This document is the completion report on Project Mobilization Phase, following the award of the contract.

Key words

Low volume roads, materials, monitoring, pavement performance, trial section.

AFRICA COMMUNITY ACCESS PARTNERSHIP (AfCAP)

Safe and sustainable transport for rural communities

AfCAP is a research programme, funded by UK Aid, with the aim of promoting safe and sustainable transport for rural communities in Africa. The AfCAP partnership supports knowledge sharing between participating countries in order to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources. 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.afcap.org

Acronyms

AfCAP	:	Africa Community Access Partnership
CSIR	:	Council for Scientific and Industrial Research
LGA	:	Local Government Authority
LoGITReC	:	Local Government Infrastructure and Transportation Research Centre
PO-RALG	:	President's Office, Regional Administration and Local Government
ReCAP	:	Research for Community Access Partnership

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1 Introduction

Two sites were selected for demonstration and verification of different options in design, material utilisation and construction methods for particularly low-volume roads. The sites are in the Bagamoyo and Siha districts, located on the Bago to Talawanda road in the Bagamoyo District (about 20.3 km in length) and on the Lawate to Kibongoto road in the Siha District (about 13 km in length) respectively. The ultimate goal of the current project on Long Term Pavement Performance Monitoring of Existing Trial Sections and Implementation of Regional Guidelines for Establishing and Monitoring Trial Sections in Tanzania is to carry out a review of the trial sections from the two sites; refine and implement the existing regional protocols to ensure that data collected from existing and new sections are consistent with the existing regional protocols for establishment and monitoring of road trial sections during implementation of monitoring surveys while incorporating structured capacity building in order to enhance road research capacity within LoGITReC in Tanzania.

CSIR Built Environment was awarded the contract to provide technical services required to achieve the ultimate objectives of the project. In order to familiarise itself with the project working environment, the service provider's team planned for the project mobilization phase to be undertaken prior to project initiation. Most of the activities were undertaken from 13 to 17 February 2017. The mobilization plan is presented in Appendix.

This document is a completion report of the Project Mobilization Phase. It highlights the activities undertaken to ensure an understanding of the expected project outcome from the Client's point of view, working conditions, availability of support infrastructure, information sources and responsibilities in terms of facilities and services to be provided by PO-RALG and service provider. However the Inception Report will provide details, including approach to project execution.

2 Activities undertaken during the Project Mobilization Phase

The activities that were undertaken, involved meetings with project staff at the District Councils and site visits, to the road trials. A project kick-off meeting was also held as well as an initial meeting with Team Leader's Delegate (TLD).

2.1 Meeting with Team Leader's Delegate

The meeting was held on 6 February 2017 at the CSIR Campus in Pretoria. The TLD provided the background information to the project and clarified the Client's expectations which included the key expectation on integration of the database to be developed for this project with the regional database currently being developed in ReCAP's Back-Analysis project.

2.2 Visit to Bagamoyo District Council

A meeting was held with the District Engineer Mr H Shaun and Engineer C Philip in Bagamoyo on 13 February 2017. Engineer Philip was involved in the trial project from construction phase. Available documents regarding the trial sections on Bago to Talawanda road were presented and examined. A visit was made to the site and a general inspection of the sections made. The following photos illustrate the condition of some of the sections.



Figure 1: Sand seal section, right hand side treated with cement, left hand side treated with lime



Figure 2: Concrete strip section



Figure 3: Hand-packed stone section

2.3 Visit to Siha District Council

A meeting was held on 17 February 2017 at the Siha District Council Offices. The meeting was held with the Acting Head of Works and Fire Rescue Department, Engineer P G Kawishe and Mr V Kimaro, a Road Technician. Engineer P G Kawishe has recently moved to Siha, but Mr V Kimaro was involved in the trial project from construction phase. Available documents regarding the trial sections on the Lawate to Kibongoto road were presented and examined. A visit was made to the site and a general inspection of the sections made. The following photos illustrate the condition of some of the sections. Unlike the Bago to Talawanda road project, the Lawate to Kibongoto road had very good signage with all sections clearly marked.



Figure 4: Project sign post



Figure 5: Grave wearing course section, with section identification marker



Figure 6: Paved block section, typical traffic

2.4 Project kick-off meeting

The project kick-off meeting was held on 15 February 2017 in Dodoma at PO-RALG offices. The objective was to explain the project goals and expected project results to ensure that all to be involved on the project understand what the project is for.

2.4.1 Presentation

The presentation covered the following:

- Introduction of the service provider project team
- Explanation of the role of each on the project
- Explanation of the important project milestones, indicating the critical importance of timing

- Explanation of the important project responsibilities of the service provider and the project partner

Following is the presentation that was made at the kick-off meeting:

Long Term Pavement Performance Monitoring of Existing Trial Sections and Implementation of Regional Guidelines for Establishing and Monitoring Trial Sections in Tanzania

**Project Kick-off Meeting
PO-RALG, Dodoma
13 February 2017**

M B Mgangira, Dr.- Ing., Pr. Eng

CSIR
our future through science

Background

Service Provider: CSIR	Partner: PO-RALG
<ul style="list-style-type: none">• M B Mgangira• J Anochie-Boateng• A van der Merwe	<ul style="list-style-type: none">• F Magafu, LoGITReC• District Engineers

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Background:

Trial sections

Bago to Talawanda road in the Bagamoyo District of the Pwani Region

Lawate to Kibongoto road in the Siha District of the Kilimanjaro Region

Need for a review



Background:

Need for a review but performance data may not be consistent between projects and over the monitoring periods.

Trial sections

Bago to Talawanda road in the Bagamoyo District of the Pwani Region

Tanzanian Pavement and Materials Design Manual (TPMDM)

Lawate to Kibongoto road in the Siha District of the Kilimanjaro Region

Dynamic Cone Penetrometer (DCP) method



Background:

Bagamoyo

- Construction: was completed in September 2011,
- Baseline data were collected by October 2011, with subsequent monitoring visits carried out in April 2012, September 2012 and April 2013



Background:

Siha

- Construction: completed in September 2012
- Baseline data were collected by January 2013, with one monitoring visit carried out in April 2013.



Background: Objectives

TASK 1:

- To evaluate the nature and quality of information available from existing road trials. An in-depth review (including an updated back-analysis) of the two selected existing road trials will be undertaken

TASK 2:

- To refine and implement existing regional guidelines/protocols to ensure that the establishment of road trials and collection of the information is standardised across Tanzania and the African region.



Background: Objectives

TASK 3:

- To conduct field surveys on the two selected demonstration/trial sections in order to collect performance data in accordance with the monitoring processes provided in the refined guidelines/protocols developed as part of Task 2;
- To evaluate the nature and quality of information available from existing road trials. Undertake an in-depth review (including an updated back-analysis) of the two selected existing road trials



Background: Objectives

TASK 3:

- provide in-service training to the LoGITReC research staff on practical implementation of the protocols. It is expected that the service provider will participate in at least two monitoring rounds during the duration of this assignment;
- To provide in-service training to the LoGITReC research staff on practical implementation of the protocols.

At least two monitoring rounds during the duration of this assignment with service provider.



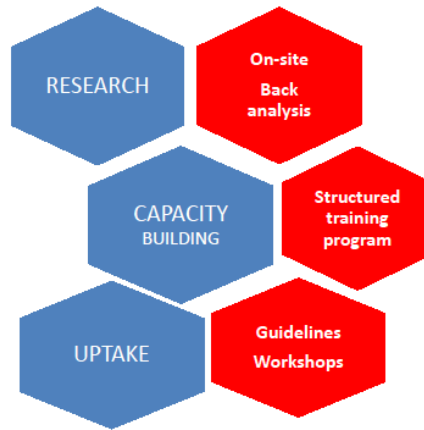
Project

The key partners in the implementation of the project are:

- Tanzania National Roads Agency (TANROADS)
- Tanzania Central Materials Laboratory (CML)
- Dar es Salaam Institute of Technology
- Mbeya University of Science and Technology
- National Road Fund Board
- Private sector (engineering consultants and contractors)
- University of Dar es Salaam



Core Objectives



Structured Training Programme

Session	Day 1	Day 2	Day 3	Day 4
1	Module 1: Overview Experimental Design	Module 5: Planning: Location, climate, Traffic	Module 8: Construction requirements (Data collection)	Module 12: Administration Dissemination
Break				
2	Module 2: Experimental matrix	Module 6: Materials sampling	Module 9: Data collection and management	Module 13: Individual presentation
Break				
3	Module 3: Setting up Test sections – control section	Module 6, cont.: Field and laboratory measurements	Module 10: Frequency of analysis, sampling data	Module 14: Individual presentation
Break				
4	Module 3, cont.: Setting up Test Sections:	Module 7: Monitoring requirements, including safety	Module 11: Linkage to pavement design	Module 15: Feedback
5	Review/Discussion	Review/Discussion	Review/Discussion	Review/Discussion



Discussion on ToR: Facilities and Services

PO-RALG will:

- Provide office facilities in Dodoma, Siha and Bagamoyo Districts for the service provider's key experts during their in-country visits;
- Provide road transport to and from the trial sites in Siha and Bagamoyo, and any other;
- Cover the cost of venue hire for the dissemination workshops;
- Cover the cost of materials sampling from the trial sites and respective laboratory testing at LoGITReC, as required; and
- Provide all existing reports and documentation pertaining to the trial sections under review



Discussion on ToR: Facilities and Services

Service Provider will be responsibilities:

- Providing computers, software and administrative support for the key experts;
- International travel to and from Tanzania for key experts;
- All in-country costs for accommodation, subsistence and air travel in Tanzania;
- Equipment hire for field surveys and monitoring measurements where these are not available at LoGITReC. A Provisional Sum has been provided in the budget for the purpose;
- Materials sampling and laboratory testing from the trial sites that will be carried out by laboratories other than LoGITReC, including by laboratories outside Tanzania, should that be necessary. A Provisional Sum has been provided in the budget for the purpose



Discussion on ToR: Facilities and Services

Service Provider will be responsibilities:

Meals and refreshments for the dissemination workshops, to be organised in consultation with LoGITReC.

Note that ReCAP will not pay for any transport, accommodation and allowances for participants as this is the responsibility of the respective institutions. The cost of the service provider's staff attending any workshops is included in the fees section of their financial proposal and will not be paid for separately;



2.4.2 Visit to LoGITReC Central Materials Research Laboratory

A visit was made to newly established LoGITReC Central Materials Laboratory to familiarise the team with available infrastructure and equipment. Figure below shows a section of the working area in the laboratory.



Figure 7: LoGITReC Central Materials Research Laboratory

3 Concluding remarks

The purpose of this document was to highlight the activities undertaken during the Project Mobilization Phase, prior to project initiation to familiarise the service provider's team with the project working environment and ascertain availability of support infrastructure, and hold the kick-off meeting. It is not the objective of this document to provide any analysis and details of project methodology. The discussion on project approach will be provided in the Inception Report.

APPENDIX A: Project Mobilization Plan

TAN2098A: Project Mobilisation

Date	Activity	Responsibility
13/02/2017	Visit Bagamoyo site Meeting with Leaders	PO-RALG
14/02/2017	Meeting with Local Leader of Chalinze District Travel to Dodoma	PO-RALG
15/02/2017	<u>Project Kick-off Meeting with DID</u> <ul style="list-style-type: none"> • Presentation of project approach • Clarification on TOR • Confirmation of project partners • Confirmation on equipment availability/procurement • Visit Knowledge Management Centre • Visit Laboratory 	PO-RALG Consultant Team All PO-RALG All All
16/02/2017	Travel to Siha	All
17/02/2017	Visit Siha site Meet local Leader	PO-RALG
Notes: <ul style="list-style-type: none"> • It is expected that PO-RALG will arrange that the District Engineers involved on the projects are available during the site visits or available for discussion in Dodoma on 15/02/2017 • PO-RALG to arrange for key staff involved or to be involved in field data collection and knowledge management to be available for a meeting with the Data Management Expert on 15/02/2017 in Dodoma. 		