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The magnitude and characteristics of road traffic injury in Kilolo District, Tanzania

Annexes to Final Report

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Amend

TAN2015B / SC14060

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AMEND ORG

The views in this document are those of the authors and they do not necessarily reflect the views of the Africa Community Access Partnership (AFCAP) or Cardno Emerging Markets (UK) Ltd for whom the document was prepared

Cover Photo:
A motorcycle pulling wooden planks, rural Kilolo District. *George Malekela*

Quality assurance and review table			
Version	*Author(s)*	*Reviewer(s)*	*Date*
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		Annabel Bradbury	17th April 2015
		Paul Starkey	17th April 2015
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		Annabel Bradbury	22nd May 2015
Final	Tom Bishop, George Malekela and Duncan Matheka		28th May 2015
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Abstract

These are the annexes of the final report of the study into the magnitude and characteristics of road traffic injury on two low volume rural roads in Kilolo District, Tanzania.

After providing the background to the study, the report details the study's three data collection activities: traffic counts, household surveys and motorcycle driver surveys, and then discusses their findings and implications.

The motorcycle driver survey identified a far greater magnitude of crashes than the household survey, with higher numbers of crashes and greater severity. 24% of motorcycle drivers had been involved in a crash in the past three months, while only 1% of all household members had been involved in a crash in the past three months, rising to over 5% among household heads. For crashes identified through the motorcycle driver survey, the number of days of normal activity missed as a result of the crash was double that of the crashes identified through the household survey.

The characteristics of all crashes – both those identified through the household survey and those identified through the motorcycle driver survey – are similar: involving young men with motorcycles, no training and no licences. The most common contributory factors were related to road user behaviour, the design and condition of the road, and environmental conditions.

Key words

Boda-boda, household, motorcycle, pedestrian, piki-piki, road traffic injury, rural road

Acronyms, Units and Currencies

AFCAP	Africa Community Access Partnership
Cardno-ITT	Cardno IT Transport
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
IFRTD	International Forum for Rural Transport and Development
NIMR	National Institute for Medical Research
OECD	Organization for Economic Cooperation and Development
RA	Research Assistant
RTI	Road Traffic Injury
Tsh, TZS	Tanzania shilling (USD 1 ≈ TZS 2000; GBP 1 ≈ TZS 3000)
UKAid	United Kingdom Aid (Department for International Development, UK)
WHO	World Health Organization

Annex A: Detailed Methodology

This annex provides a step-by-step guide to the methodology used during this study, with the intention being that the study could be replicated at a future time or in a different location.

However, it should be recognised that the methodology could be improved through a number of alterations, as highlighted in the recommendations of the report.

Obtaining permissions and cooperation

In Tanzania, as in any country, before doing any study, it is essential to obtain the relevant permissions, as well as cooperation from key stakeholders and partners.

National-level permission

At the national level, we obtained ethical clearance for the research from the National Institute of Medical Research (NIMR). As road traffic injury (RTI) is recognised as a public health issue, research into RTI is of interest to journals that focus on public health, epidemiology, etc. Even though the methodology of this research is not scientific, it is still likely to be of interest to journals, especially as the number of studies into RTI in rural Africa is very limited.

For a research paper to be accepted into such a journal, ethical clearance is required from the relevant agency in the country where the study was carried out. In this case, that agency is NIMR.

For the case of this specific project, we obtained an extension and amendment from a previous clearance. The letters approving the extension and amendment are included in Annex B.

For future studies, a new application for ethical clearance would likely need to be made to NIMR. Information on how to apply can be found at the NIMR website: www.nimr.or.tz.

Local permission and support

To obtain permission at a local level, the Team Leader and Data Collection Team Leader carried out a site visit to Iringa Region and Kilolo District.

We met and introduced the project to the Iringa Regional Commissioner, and received a letter of support from the Regional Administrative Secretary.

We were unable to meet the Kilolo District Executive Director, but met his delegate and received a letter of support.

With the letters from Iringa Region and Kilolo District, we introduced ourselves to the village leaders in the areas of the study roads.

In dealing with all local officials, from regional to village level, we were assisted by Mr. Filemon Elias from Kilolo District Council. Having his support and assistance was invaluable.

All letters of local permission and support are included in Annex B.

Identification of sites

The south west of Kilolo District was suggested as a possible study area by AFCAP's Transport Services Manager, whose intention was to support a 'cluster' of projects in the same area in order to

build a detailed picture of rural transport issues, and also to build on a previous study of rural transport along the Iringa to Kilolo Highway, carried out by IFRTD (Willilo and Starkey, 2013).

The other projects in the cluster were:

- A study of the challenges of access to markets faced by tomato farmers, carried out by IFRTD
- A study of elderly people's mobility issues, carried out by HelpAge International

Members of the team that had carried out the previous IFRTD study had identified that the use of motorcycles in south-west Kilolo District was fairly limited in comparison with other parts of Tanzania, making it a suitable site for the study into the magnitude and characteristics of RTI.

During the same site visit through which we obtained local permission and support, we also visited a number of potential study areas within Kilolo District.

We carried out the visits using a 4-wheel-drive car hired locally in Iringa. We found that the distances were long and roads were rough, so a strong car (including spare tyres) and a competent driver are essential.

During the site visits, we undertook the following tasks:

- Meetings with local officials, including village leaders and local police, to obtain support and understand local issues relating to road safety and the practicalities of carrying out the study
- Obtained the Kilolo District Council Socio-Economic Profile, 2013
- Simple traffic counts and observations, to obtain a basic understanding of use of the roads
- Estimates of population sizes living in the villages and along the potential study roads
- Consideration of logistics of data collection, including accommodation options, drive-times between key locations and availability of supplies such as food and telephone credit

We selected the Boma la Ng'ombe to Mwatasi and Ihimbo to Itimbo study areas because they met the key criteria of not being dominated by motorcycles (with walking being the key means of transport for the vast majority of people), and were identified as being suitable from a practical, logistical point of view.

Recruitment and training of data collection team

During the same site visit through which we obtained local permission and support, we identified a number of potential Research Assistants (RAs) to assist with data collection. We identified these people through asking people who we met for recommendations of people who had experience in assisting in research.

We met over ten potential RAs during the course of the initial site visit, explaining the project to them and undertaking an initial assessment of their ability.

One week prior to data collection, having developed the data collection methodology and identified how many RAs we required, our Data Collection Team Leader invited the eight candidates who had performed best during the initial meeting with them, to attend theoretical and practical assessment and training. The four top-performing candidates were selected as RAs, while the other four were retained as reserves.

The data collection team comprised the Data Collection Team Leader, who was responsible for scheduling and overseeing, and the four RAs.

Data collection

Data was collected through three different activities:

- Traffic counts, speed surveys and observation of road user behaviour along the study roads
- A cross-sectional survey of members of households within the study area
- A cross-sectional survey of motorcycle taxis operating in the study area

Data collection worksheets

The first drafts of the data collection worksheets were developed based on worksheets used during an AFCAP-funded Amend study carried out in 2011 and 2012 (Amend, 2013), the results of which have subsequently been accepted for and are awaiting publication in the Journal of Traffic Injury Prevention. The worksheets for this study were simplified from the 2011/12 worksheets.

The first drafts for this study were piloted by the Team Leader, Research Associate and Data Collection Team Leader in Kisarawe, a rural district close to Dar es Salaam, before being finalised.

Key elements of the worksheets for this study included:

- The questions were simple, to ensure full understanding of both Research Assistants and respondents
- For ease of analysis, all but one of the questions (the full crash description in Section D) was multiple choice
- For ease of analysis, the household surveys and motorcycle surveys contained mostly the same questions, with only a few changes specific to motorcycle drivers

The final worksheets are included in Annex C.

Traffic count, speed surveys and observations methodology

Purpose

The purpose of the traffic counts, speed surveys and observations of road user behaviour was to understand the numbers, types and behaviours of vehicles and road users using the study roads, and to set the context for comparison against data collected through future studies.

Methodology

Along each study road, one location was selected to carry out the traffic counts, speed surveys and observations. The locations selected were approximately halfway between the villages at either end of the study road, and were on flat, straight sections of road, with good visibility in both directions.

A team of two RAs was posted at the selected location to undertake the counts, surveys and observations for 12-hour periods, approximately from sunrise to sunset (6am to 6pm), on a three different days along the Boma la Ng'ombe to Mwatasi study road and two different days along the Ihimbo to Itimbo study road, specifically:

- On a weekday, which is not a market day. (Friday 20th February along Boma la Ng'ombe to Mwatasi road, and Friday 27th February along Ihimbo to Itimbo road)

- On a weekend day, which is not a market day. (Saturday 21st February along Boma la Ng'ombe to Mwatasi road, and Saturday 28th February along Ihimbo to Itimbo road)

- On a market day in at least one of the villages at either end of the study road. (Wednesday 18th February along Boma la Ng'ombe to Mwatasi road. There was no market day in either Ihimbo or Itimbo during the data collection period)

The RAs recorded the following information:

- Numbers and types of 4-wheeled vehicles, including their speeds (using a radar speed gun)
- Numbers of motorcycles (including motorised tricycles), including their speeds, number and gender of passengers, whether helmets were worn by the driver and any passengers, whether a load was carried, and whether the driver was distracted in any way, such as using a mobile phone, listening to music or talking to a passenger
- Numbers of bicycles, including number and gender of passengers, whether a load was carried, and whether the bicycle was being ridden or pushed
- Numbers, genders and ages of pedestrians, and whether a load was carried

The information was recorded on the worksheets included in Annex C.

Household survey methodology

Purpose

The purpose of the household survey was to understand demographics, travel behaviour, risk perception, and the magnitude and characteristics of road crashes among household members living in the study areas.

Methodology

Through the initial pre-study visit to the study areas, it was identified that the majority of houses are in the villages at either end of the study road, with only a small number located alongside the road outside the villages.

Within each village, data collection was carried out from three different starting points:

- Point 1: Where the study road enters the built-up part of the village
- Point 2: Where the study road leaves the built-up part of the village
- Point 3: The approximate centre of the village

From Point 1 and Point 2, a team of two RAs made their way along the study road towards the village centre, collecting data from every house within 100m either side of the road.

From Point 3, a team of two RAs made their way along an imaginary line perpendicular to the study road, in whichever direction they felt had more houses, collecting data from every house within 100m either side of the perpendicular line. If they came to the edge of the village, they returned to Point 3 and carried out the same exercise going in the opposite direction.

Along the study road outside the villages, data was collected at every second house within 200m either side of the road, starting from the point where the road leaves the built-up part of one village, heading towards the village at the other end of the study road.

A team of two RAs approached each house included in the study and asked to speak to whoever is the ‘head of the household’ at that exact time. To be eligible for the survey, the head of the household had to be 18 years old or above and willing and able to respond to questions.

Having identified the head of the household, introduced themselves and the study, the RAs requested the head of the household to complete a questionnaire (included in Annex C). The head of the household was interviewed out of earshot of other household members, to minimise the opportunity for their responses to be influenced.

First, the head of the household was asked the total number of people currently living in that household, defined as 'Cooking and sharing meals together', and the number of people who had been involved in a road crash in the past three months.

Following this, the main part of the questionnaire was divided into four sections:

A. Demographics
B. Risk Perception
C. Crash Questionnaire (Basic)
D. Crash Questionnaire (Detailed)

All household heads were asked the questions in Sections A and B. Those household heads who themselves had been involved in a crash within the previous three months were asked the questions in Section C – these questions are basic, and so it was assumed that people were able to remember the details accurately for up to three months. Only those people who had been involved in a crash within the previous one month were asked the questions in Section D – these questions were more detailed, and included a full description of the crash, and so it was assumed that people would only be able to remember the details accurately for up to one month.

Following the interview with the household head, any other members of the household who had been involved in a crash in the past three months were also asked to respond to Parts A, B and C of the questionnaire, and possibly Part D – dependent on whether the crash was within the last one month.

In cases where the RAs found no-one present at any given house, or no household head over 18 years and able to answer the questions, they moved on to the next house. They did not return to houses where no-one was present.

The information was recorded on the worksheet included in Annex C.

Motorcycle driver survey methodology

Purpose

The purpose of the motorcycle driver survey was to understand demographics, travel behaviour, risk perception, and the magnitude and characteristics of road crashes among motorcycle drivers using the roads in the study areas.

Methodology

Through the initial pre-study visit to the study roads, it was identified that, while motorcycles were not as dominant as they have been seen to be in other areas of Tanzania, they still provide an important accessibility and mobility role in the study areas.

The motorcycles using the roads in the study areas can be grouped into two categories:

- Private motorcycles, known as 'piki-pikis', used by the owner to make personal trips
- For-hire motorcycles, known as 'boda-bodas', used by customers either to ride as a passenger or to transport goods. In some cases the driver is the owner, while in other cases the driver rents the motorcycle from a third party for a fee

Piki-piki drivers were found in public places or in their houses, while boda-boda drivers were found to congregate together at informal 'stands' alongside the road in the villages.

To carry out the survey, a team of two RAs approached the drivers, introduced themselves and the study, and then requested the drivers to complete a questionnaire (included in Annex C).

The RAs interviewed all drivers who agreed to participate. Each driver was interviewed out of earshot of other drivers, to minimise the opportunity for their responses to be influenced.

The questionnaire was divided into four sections:

A. Demographics
B. Risk Perception
C. Crash Questionnaire (Basic)
D. Crash Questionnaire (Detailed)

All drivers were asked the questions in Sections A and B. Those drivers who had involved in a crash within the previous three months were asked the questions in Section C – these questions are basic, and so it was assumed that drivers would be able to remember the details accurately for up to three months. Only those drivers who had been involved in a crash within the previous one month were asked the questions in Section D – these questions were more detailed, and include a full description of the crash, and it was assumed that drivers would only be able to remember the details accurately for up to one month.

The information was recorded on the worksheet included in Annex C.

Identification of contributory factors

In Section C of both the household survey and motorcycle driver survey, respondents were asked to say what they thought the primary contributory factor of the crash was, choosing from a list of five broad categories:

1. Road user behaviour
2. Road design and condition
3. Environmental conditions
4. Vehicle condition
5. Other

The table shows how each of these categories is defined.

Definitions of categories of contributory factors

Category	***Definition***
Road user behaviour	*Some element of human error, through a physical action made by one or more of the people involved in the crash, including drivers, passengers and pedestrians. For example, excessive speed for the prevailing conditions, careless or distracted behaviour, inadequate securing of a load, etc.*
Road design and condition	*Some element of the engineering of the road which could reasonably have been expected to be addressed by those responsible for road design and maintenance. For example, the roadway being damaged or poorly maintained (beyond that caused by a recent rainfall event), a lack of signage warning of a hazard, etc.*
Environmental conditions	*Some element of the immediate environmental conditions, for example heavy rain or strong wind, or recent rainfall which has left the road surface wet, slippery or damaged, or vegetation encroaching the roadway or road users' line of sight, etc.*
Vehicle condition	*Some element of the condition of one or more of the vehicles involved in the crash, for example brake failure or a puncture*
Other	*Any other factor, including the behaviour of animals*

In Section D of both surveys, following a detailed discussion with the respondent, the Research Assistant was asked to select both a primary and secondary contributory factor. The initial intention was for the RA to select from a list of fifteen detailed contributory factors, from within the five categories. These detailed contributory factors had been used during previous Amend research into the causes of motorcycle crashes (Amend, 2014). However, the previous research had involved the collection of more detailed information on each crash, including a site visit with the driver. Without this information, selection of the detailed contributory factor was difficult, and so the decision was made – part-way through this study – for the RAs to allocate contributory factors from only the broad categories.

Data collection timetable

The table below shows the timetable that the data collection team, divided into two teams (Team A and Team B) of two RAs, followed:

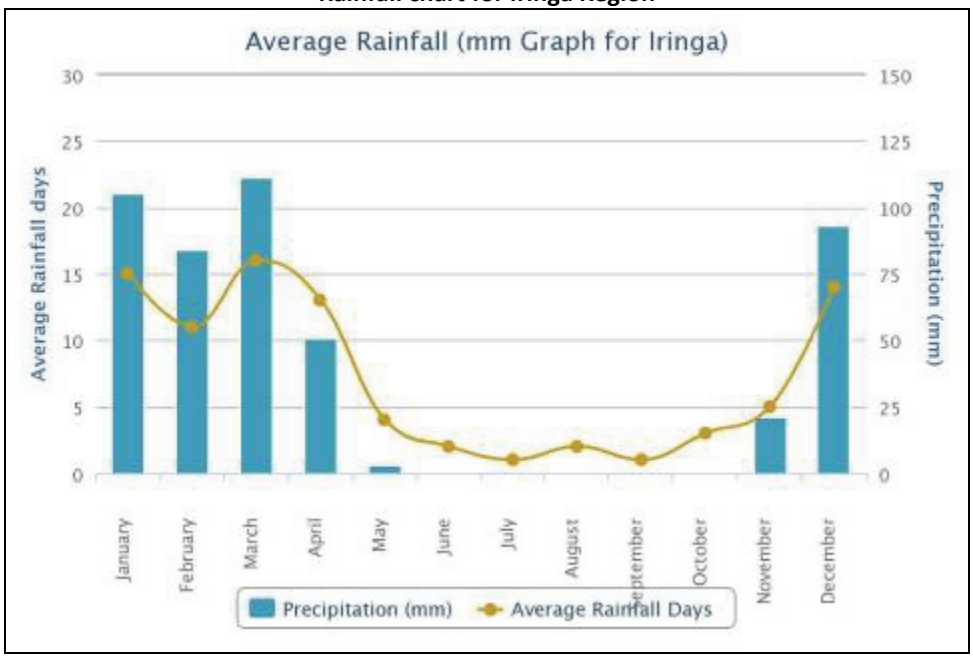
Data collection timetable

Date	***Study area***	***Traffic counts***	***Household survey***	***Motorcycle driver survey***
Monday, 16th February	*Boma la Ng'ombe to Mwatasi*		*Team A (Mwatasi)*	*Team B (Mwatasi)*
Tuesday, 17th February	*Boma la Ng'ombe to Mwatasi*		*Team A (Mwatasi)*	*Team B (Boma la Ng'ombe)*
Wednesday, 18th February	*Boma la Ng'ombe to Mwatasi*	*Team B (along road)*	*Team A (Mwatasi)*	
Thursday, 19th February	*Boma la Ng'ombe to Mwatasi*		*Team A, Team B (Boma la Ng'ombe)*	
Friday, 20th February	*Boma la Ng'ombe to Mwatasi*	*Team B (along road)*	*Team A (along road)*	
Saturday, 21st February	*Boma la Ng'ombe to Mwatasi*	*Team B (along road)*	*Team A (Boma la Ng'ombe)*	
Sunday, 22nd February	*Rest*	*Rest*	*Rest*	*Rest*
Monday, 23rd February	*Ihimbo to Itimbo*		*Team A (Ihimbo)*	*Team B (Itimbo)*
Tuesday, 24th February	*Ihimbo to Itimbo*		*Team A (Ihimbo)*	*Team B (Ihimbo)*
Wednesday, 25th February	*Ihimbo to Itimbo*		*Team A (Ihimbo)*	*Team B (along road)*
Thursday, 26th February	*Ihimbo to Itimbo*		*Team A, Team B (Itimbo)*	
Friday, 27th February	*Ihimbo to Itimbo*	*Team B (along road)*	*Team A (along road)*	
Saturday, 28th February	*Ihimbo to Itimbo*	*Team B (along road)*	*Team A (Itimbo)*	

As can be seen from the timetable, more time was dedicated to the household surveys, as these took more time to complete due to the need to move from house to house.

It should be noted that the data collection took place during the rainy season. The following figure shows the average annual rainfall for Iringa Region.

Rainfall chart for Iringa Region



Source: www.worldweatheronline.com

Data collection logistics

During the two weeks of data collection, the Data Collection Team Leader, RAs and the driver of the car hired to transport the team, stayed in Luganga Lodge in Kilolo Town. From here, it was about a 1hr 30min drive to Boma la Ng'ombe and a 45min drive to Itimbo.

Data collection activities started by 9am, although often household surveys had to start later at around 11am, by which time people had returned from their farms after a morning's work. Traffic counts started at 6am, so demanded a very early start.

The team took a 30 minute break for lunch, apart from on traffic count days, when the driver would bring food to the RAs at the traffic count location.

The Data Collection Team Leader divided his time between the two teams of RAs, providing assistance and supervision where he was most needed. At the end of each day, he checked all the completed worksheets to ensure that they had been filled correctly. Any discrepancies were discussed with the RAs while the information was still fresh in their memories. The Data Collection Team Leader was also responsible for scheduling each day's activities, and for managing the budget.

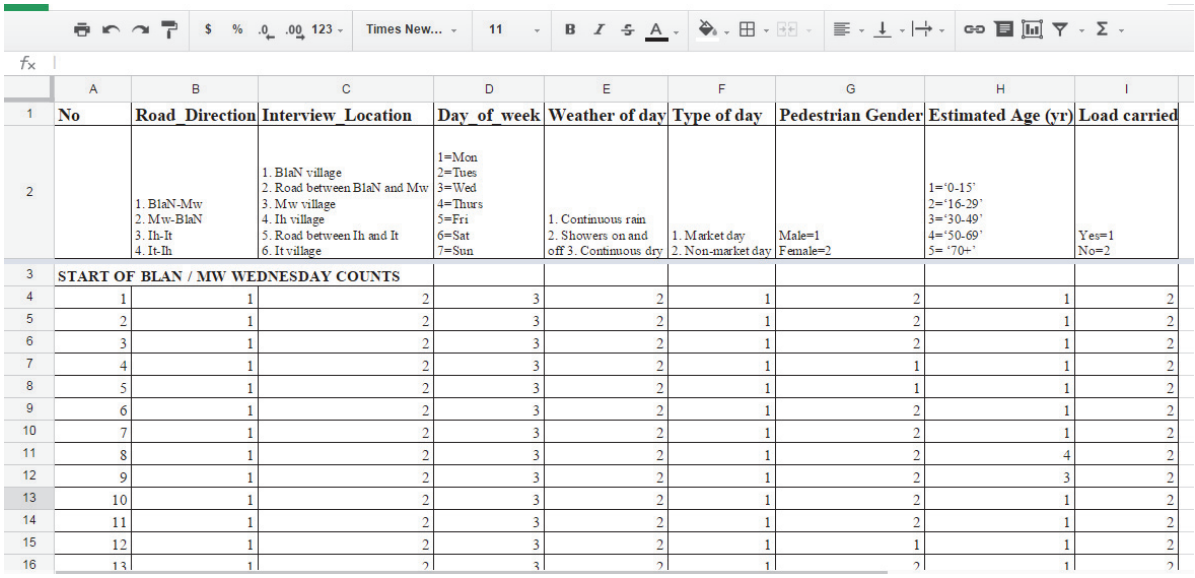
Data entry, analysis and presentation

Following completion of data collection, the data was transferred from the hard-copy worksheets into an Excel database by the Data Collection Team Leader and RAs. RAs worked in pairs, with one reading the data aloud and the other entering it into the spreadsheet. The RAs took regular breaks to ensure that they were able to concentrate, and so minimise mistakes.

The Data Collection Team Leader performed random spot-checks on the data recorded in the Excel database, to identify and correct any mistakes.

The next figure shows a screenshot of the Traffic Counts database.

Screenshot of Traffic Count database



	A	B	C	D	E	F	G	H	I
1	**No**	**Road_Direction**	**Interview_Location**	**Day_of_week**	**Weather of day**	**Type of day**	**Pedestrian Gender**	**Estimated Age (yr)**	**Load carried**
2		1. BlaN-Mw 2. Mw-BlaN 3. Ih-It 4. It-Ih	1. BlaN village 2. Road between BlaN and Mw 3. Mw village 4. Ih village 5. Road between Ih and It 6. It village	1=Mon 2=Tues 3=Wed 4=Thurs 5=Fri 6=Sat 7=Sun	1. Continuous rain 2. Showers on and off 3. Continuous dry	1. Market day 2. Non-market day	Male=1 Female=2	1='0-15' 2='16-29' 3='30-49' 4='50-69' 5= '70+'	Yes=1 No=2
3	**START OF BLAN / MW WEDNESDAY COUNTS**								
4	1	1	2	3	2	1	2	1	2
5	2	1	2	3	2	1	2	1	2
6	3	1	2	3	2	1	2	1	2
7	4	1	2	3	2	1	1	1	2
8	5	1	2	3	2	1	1	1	2
9	6	1	2	3	2	1	2	1	2
10	7	1	2	3	2	1	2	1	2
11	8	1	2	3	2	1	2	4	2
12	9	1	2	3	2	1	2	3	2
13	10	1	2	3	2	1	2	1	2
14	11	1	2	3	2	1	2	1	2
15	12	1	2	3	2	1	1	1	2
16	13	1	2	3	2	1	2	1	2

The data were analysed using Excel. Cross referencing was done by correlating various variables with the crashes reported. Tables and percentages were generated to present the data in a simple and clear way. Descriptive data were summarized and reported.

The analysis is simple, not requiring any specialised statistical knowledge.

Annex B: Letters of permission and support

National Institute for Medical Research

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NIMR/HQ/R.8c/Vol.II /410

Ministry of Health and Social Welfare
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Dar es Salaam
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Fax: 255 22 2110986

11th February 2015

Dr. Alejandro M Guerrero
AMMEND
C/o Dr. Bertha T Maegga
P.O. Box 38474,
DAR ES SALAAM

APPROVAL FOR EXTENSION OF ETHICAL CLEARANCE

This letter is to confirm that your application for extension on the already approved proposal: A population-based control study assessing road traffic injury on rural roads in Tanzania and the effectiveness of road safety measures at reducing injury rates, in Hai, Kilimanjaro and Bagamoyo, Pwani in Tanzania Guerrero A M *et al*), has been granted ethics clearance to be conducted in Tanzania.

The extension approval is based on the progress report received 19th December 2014 on the project Ref NIMR/HQ/R.8c/Vol. II/220 dated 25th June, 2013. Extension approval is valid until 1st May, 2015.

The Principal Investigator must ensure that other conditions of approval remain as per ethical clearance letter. The PI should ensure that progress and final reports are submitted in a timely manner.

Name: Dr Mwelecele Malecela

Signature

CHAIRPERSON
MEDICAL RESEARCH
COORDNATING COMMITTEE

Name: Dr Margaret E. Mhando

Signature

Ag CHIEF MEDICAL OFFICER
MINISTRY OF HEALTH, SOCIAL WELFARE

CC: RMO
DMO

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NIMR/HQ/R.8c/Vol. I/ 338

12th February 2015

Dr Alejandro M Guerrero
AMEND
C/O Dr Bertha T Maegga, TPHA
P O Box 38474,
DAR ES SALAAM

APPROVAL FOR PROTOCOL AMENDMENT

This letter is to confirm that your application for Amendment 02 on the study entitled: Road traffic injury on rural roads in Tanzania: A population-based control study assessing road traffic injury on rural roads in Tanzania and the effectiveness of road safety measures at reducing injury rates, in Hai, Kilimanjaro, and Bagamoyo, Pwani, Tanzania (Guerrero A M *et al*), whose Local Investigator is Dr Bertha Maegga, Tanzania Public Health Association, Dar es Salaam, Ref. NIMR/HQ/R.8a/Vol. IX/1321 dated 04th May 2012, has been granted approval to be conducted in Tanzania

The Principal Investigator of the study must ensure that the approval is for the following amendments:

1. .
2. Site:

Other conditions for approval are as per original approval.

Approval is up to 02nd May 2015

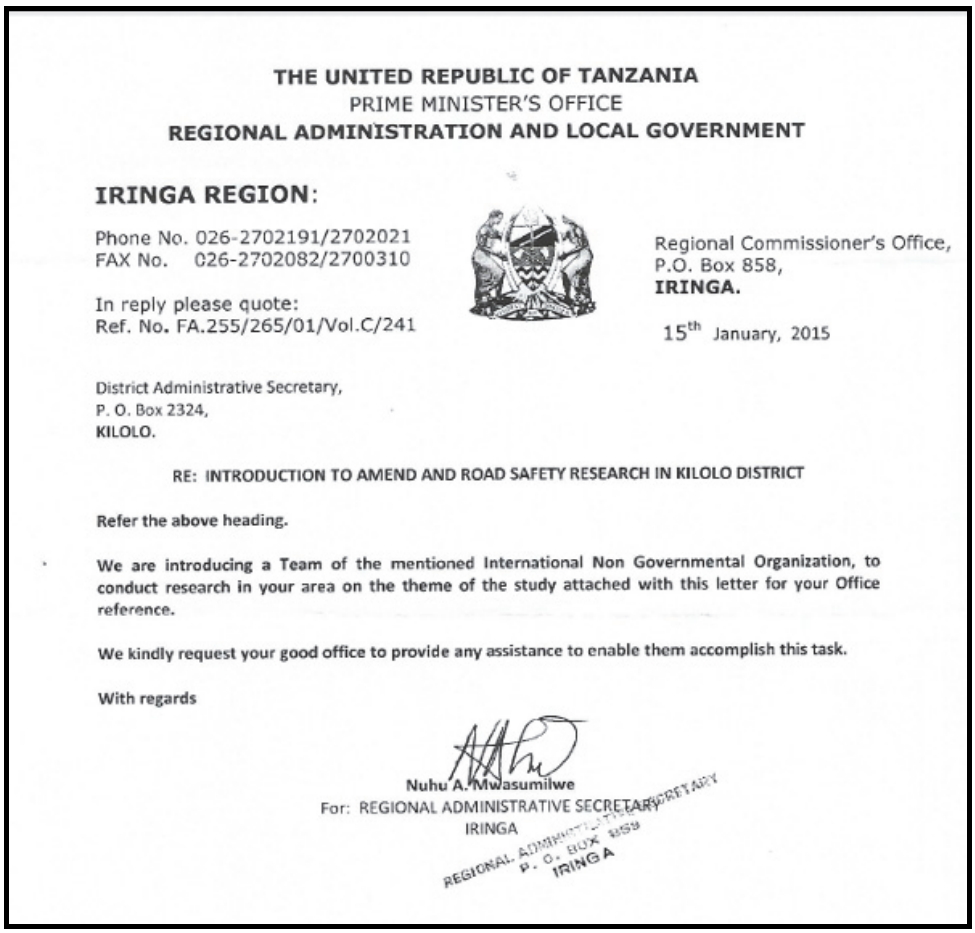
Name: Dr Mwelecele Malecela

Signature
CHAIRPERSON
RESEARCH

Name: Dr Margaret E Mhando

Signature
AG CHIEF MEDICAL OFFICER MEDICAL
MINISTRY OF HEALTH & SOCIAL WELFARE

Iringa Regional Administrative Secretary



THE UNITED REPUBLIC OF TANZANIA
PRIME MINISTER'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

IRINGA REGION:

Phone No. 026-2702191/2702021
FAX No. 026-2702082/2700310

In reply please quote:
Ref. No. FA.255/265/01/Vol.C/241

Regional Commissioner's Office,
P.O. Box 858,
IRINGA.

15th January, 2015

District Administrative Secretary,
P. O. Box 2324,
KILOLO.

RE: INTRODUCTION TO AMEND AND ROAD SAFETY RESEARCH IN KILOLO DISTRICT

Refer the above heading.

We are introducing a Team of the mentioned International Non Governmental Organization, to conduct research in your area on the theme of the study attached with this letter for your Office reference.

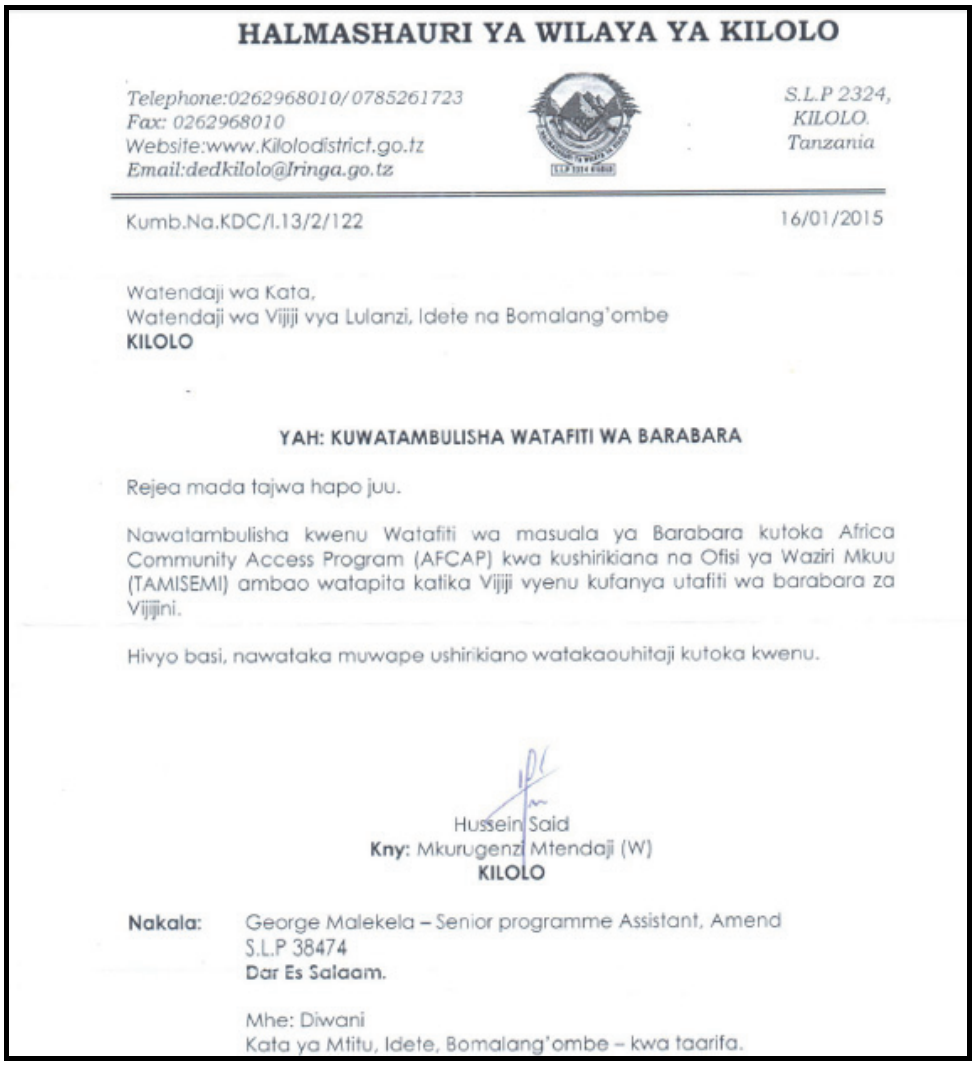
We kindly request your good office to provide any assistance to enable them accomplish this task.

With regards

Nuhu A. Mwasumilwe
For: REGIONAL ADMINISTRATIVE SECRETARY
IRINGA

REGIONAL ADMINISTRATIVE SECRETARY
P. O. BOX 858
IRINGA

Kilolo District Council



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KILOLO.
Tanzania

Kumb.Na.KDC/I.13/2/122 16/01/2015

Watendaji wa Kata,
Watendaji wa Vijiji vya Lulanzi, Idete na Bomalang'ombe
KILOLO

YAH: KUWATAMBULISHA WATAFITI WA BARABARA

Rejea mada tajwa hapo juu.

Nawatambulisha kwenu Watafiti wa masuala ya Barabara kutoka Africa Community Access Program (AFCAP) kwa kushirikiana na Ofisi ya Waziri Mkuu (TAMISEMI) ambao watapita katika Vijiji vyenu kufanya utafiti wa barabara za Vijijini.

Hivyo basi, nawataka muwape ushirikiano watakaouhitaji kutoka kwenu.

Hussein Said
Kny: Mkurugenzi Mtendaji (W)
KILOLO

Nakala: George Malekela – Senior programme Assistant, Amend
S.L.P 38474
Dar Es Salaam.

Mhe: Diwani
Kata ya Mtitu, Idete, Bomalang'ombe – kwa taarifa.

Annex C: Data collection worksheets

Traffic counts, speed surveys and observations

MOTORCYCLE COUNT WORKSHEET

ID No: .....

Road Direction: 1. Boma la Ng'ombe (BlaN)-Mwatasi (Mw) 2. Mw- BlaN

3.Ihimbo (Ih)-Itimbo(It) 4.It-Ih

Recorder 1 (Name):	**Date:**
Interview Location: 1. BlaN village 2. Road between BlaN and Mw 3. Mw village 4. Ih village 5. Road between Ih and It 6. It village	
GPS Location:	

Day of Week: 1=Mon 2=Tues 3=Wed 4=Thurs 5=Fri 6=Sat 7=Sun

Weather of the day: 1. Continuous rain 2. Showers on and off 3. Continuous dry

Type of Day: 1. Market day 2. Non-market day

'From (Time): ..... **'To** (Time): .....

No	No of passengers(*not including driver*)	Driver Helmet No=1 Yes=2	Passenger (Pass) Helmet No=1 Yes=2 N/A=3			Load carried Yes=1 No=2	Driver gender Male=1 Fem=2	Passenger Gender Male=1 Female=2 N/A = 3			Distractions Yes=1 No=2	Speed (kph)
			PASS 1	PASS 2	PASS 3			PASS 1	PASS 2	PASS 3		
1												
2												
3												
4												
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25												

MOTORVEHICLE COUNT WORKSHEET

ID No: .....

Road Direction: 1. Boma la Ng'ombe (BlaN)-Mwatasi (Mw) 2. Mw- BlaN

3.Ihimbo(Ih)-Itimbo(It) 4.It-Ih

Recorder 1 (Name):	**Date:**
Interview Location: 1. BlaN village 2. Road between BlaN and Mw 3. Mw village 4. Ih village 5. Road between Ih and It 6. It village	
GPS Location:	

Day of Week: 1=Mon 2=Tues 3=Wed 4=Thurs 5=Fri 6=Sat 7=Sun

Weather of the day: 1. Continuous rain 2. Showers on and off 3. Continuous dry

Type of Day: 1. Market day 2.Non-market day

'From (Time): ..... **'To** (Time): .....

1. Powered Tricycle (Bajaj, Toyo) 2. Cars (include 4WD) 3.PSV (Public Service Vehicle; e.g Bus)

4. Lorry/Pick-up/Truck 5. Tractor

No	Type of Vehicle (Use above codes)	Speed (kph)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

No	Type of Vehicle (Use above codes)	Speed (kph)
26		
27		
28		
29		
30		
31		
32		
33		
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49		
50		

BICYCLE COUNT WORKSHEET

ID No: .....

Road Direction: 1. Boma la Ng'ombe (BlaN)-Mwatasi (Mw) 2. Mw- BlaN

3.Ihimbo(Ih)-Itimbo(It) 4.It-Ih

Recorder 1 (Name):	**Date:**
Interview Location: 1. BlaN village 2. Road between BlaN and Mw 3. Mw village 4. Ih village 5. Road between Ih and It 6. It village	
GPS Location:	

Day of Week: 1=Mon 2=Tues 3=Wed 4=Thurs 5=Fri 6=Sat 7=Sun

Weather of the day: 1. Continuous rain 2. Showers on and off 3. Continuous dry

Type of Day: 1. Market day 2. Non-market day

'From (Time): …….. **'To** (Time): ……..

No	No of passengers*(not including driver)*	Load carried Yes=1 No=2	Driver gender Male=1 Female=2	Passenger (Pass) Gender Male=1 Female=2 N/A = 3			Distractions while riding Yes=1 No=2	Pushed or ridden? Pushed = 1 Ridden = 2
				PASS 1	PASS 2	PASS 3		
1								
2								
3								
4								
5								
6								
7								
8								
9								
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11								
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13								
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16								
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23								
24								
25								

PEDESTRIAN COUNT WORKSHEET

ID No: .....

Road Direction: 1. Boma la Ng'ombe (BlaN)-Mwatasi (Mw) 2. Mw- BlaN

3.Ihimbo(Ih)-Itimbo(It) 4.It-Ih

Recorder 1 (Name):	**Date:**
Interview Location: 1. BlaN village 2. Road between BlaN and Mw 3. Mw village 4. Ih village 5. Road between Ih and It 6. It village	
GPS Location:	

Day of Week: 1=Mon 2=Tues 3=Wed 4=Thurs 5=Fri 6=Sat 7=Sun

Weather of the day: 1. Continuous rain 2. Showers on and off 3. Continuous dry

Type of Day: 1. Market day 2. Non-market day

'From (Time): ..... **'To (Time):** .....

Estimated Age categories in years: 1. '0-15' 2.'16-29' 3.'30-49' 4.'50-69' 5. '70+'

No	Gender Male=1, Fem=2	Estimated Age in years (Use above codes)	Load Yes=1, No=2
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

No	Gender Male=1, Fem=2	Estimated Age in years (Use above codes)	Load Yes=1, No=2
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
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Household surveys

Household Questionnaire

[To be filled by household heads and other household members]

Definitions:

- *Household: People who live in the same house or homestead and who cook and share meals together*
- *Household Head: The person best placed to represent the other members of the household, who is over 18 years of age*
- *Crash: A collision between at least one moving vehicle (whether motorised or non-motorised) and another vehicle, person or object, whether moving or stationary, and whether or not a bodily injury was sustained by any person involved.*
- *Study Road: The stretch of road between the two villages, including the villages themselves*
- *Involved in a Crash: To have been in or on any of the vehicles which experienced the collision, or to have been impacted physically in any way by the collision, or to have caused the crash through some physical action*
- *Witnessed a Crash: To have been seen the collision, but not been involved*
- *Normal Activity: The activity that occupies the majority of your waking time, for example, in this context, 'farming', 'working', 'studying', or 'housework / looking after family'*

ID Number:	**Date of Interview** *(day/month/yr):*
Interviewer Name:	**Assistant Interviewer Name :**
Study road: 1.Boma la Ng'ombe-Mwatasi (BlaN – Mw) 2.Ihimbo-Itimbo (Ih – It)	
Interview location: 1. BlaN village 2. Mw village 3. Road between BlaN and Mw villages 4. Ih village 5. It village 6. Road between Ih and It villages	

Is the person answering this questionnaire the head of the household they are representing? If yes, answer questions i) and ii) before proceeding to Q1. If no, start with Q1.

If no head of the household is present, move on to the next house without recording any information.

i) What is the total number of ALL people in this household (indicate their gender)? ……
(……. Males ……Females)

ii) Have any members of this household been involved in a road crash in last 3 months? 1. Yes, 2. No

If Yes, how many and when? ……..

- Within last one month: ……. Males ……Females
- Between one month and three months ago: ……. Males ……Females

Notes to Research Assistant:

- *Any member of the HH identified as having been involved in a crash in the last three months, needs to fill a separate Household Questionnaire*
- *If the person who was involved in the crash is the HH head, continue to fill Sections A and B, and (if relevant – ie crash in last three months / one month) C or D of this questionnaire*

Section A - Demographics

Q1. How old are you? _____ *years*

Q2. Gender: 1. Male 2. Female

Q3. What is your primary occupation?

1. Farmer
2. Driver (bodaboda)
3. Driver (other)
4. Teacher
5. Shop-keeper
6. Builder/ Mason/ laborer/ casual
7. Student
8. Not in school, no formal employment
9. Other (Specify): .....

Q4. What is your education level?

1. No schooling
2. Home schooling
3. Completed some primary school
4. Completed primary school
5. Completed some secondary school
6. Completed Form 4
7. Completed Form 6
8. Earned certificate
9. Earned diploma
10. University graduate or higher

Q5. What is your MAIN means of transport or travelling along the study road in your daily activities?

1. Walking
2. Bicycle driver
3. Bicycle passenger
4. Motorcycle (private, i.e. 'piki-piki') driver
5. Motorcycle (private, i.e. 'piki-piki') passenger
6. Motorcycle (hired, i.e. 'boda-boda') driver
7. Motorcycle (hired, i.e. 'boda-boda') passenger
8. Powered tricycle (private, i.e. Bajaj, Toyo) driver
9. Powered tricycle (private, i.e. Bajaj, Toyo) passenger
10. Powered tricycle (hired, i.e. Bajaj, Toyo) driver
11. Powered tricycle (hired, i.e. Bajaj, Toyo) passenger
12. Small car (private) driver
13. Small car (private) passenger
14. Small car (hired, i.e. taxi) driver
15. Small car (hired, i.e. taxi) passenger
16. PSV (public service vehicle, i.e. bus) driver
17. PSV (public service vehicle, i.e. bus) passenger
18. Lorry / pick-up truck driver
19. Lorry / pick-up truck passenger
20. Tractor driver
21. Tractor passenger
22. Other (specify):.....

Q6. Do you own any of the following in your household (select all that you have and indicate the number)?

1. Bicycle .....
2. Cart (hand cart, animal cart)
3. Motorcycle .....
4. Powered tricycle (i.e. Bajaj) ....
5. Car .....
6. Bus .....
7. Lorry / Pick-up ....
8. Tractor ....
9. Other (specify) .....
10. None

Section B – Risk Perception

Q7. How safe do you feel when using the study road?

1. Safe
2. Unsafe

Q8. Of the following, which do you consider to create the greatest risk of you being involved in a crash while using nearby roads?

1. Road user behaviour
2. Road design or condition
3. Environmental conditions
4. Vehicle condition
5. None
6. Other (specify): .....

Q9. Have you witnessed a crash in the last 3 months? 1. No 2. Yes

If Yes, how many? ..... Where were they? *(Indicate number)*

1. Study road ....
2. Other unsealed road in Kilolo District ....
3. Other unsealed road elsewhere ....
4. Sealed road ....

Q10. Have you been involved in a crash in the last three months?

1. Yes. Continue to Q11.
2. No. Finish

Section C – Crash Questionnaire (Basic)

To be filled by all people who have been involved in a crash in the last three months

Q11. What was your mode of travel at time of crash?

1. Walking
2. Bicycle driver
3. Bicycle passenger
4. Motorcycle (private, i.e. 'piki-piki') driver
5. Motorcycle (private, i.e. 'piki-piki') passenger
6. Motorcycle (hired, i.e. 'boda-boda') driver
7. Motorcycle (hired, i.e. 'boda-boda') passenger
8. Powered tricycle (private, i.e. Bajaj, Toyo) driver
9. Powered tricycle (private, i.e. Bajaj, Toyo) passenger
10. Powered tricycle (hired, i.e. Bajaj, Toyo) driver
11. Powered tricycle (hired, i.e. Bajaj, Toyo) passenger
12. Small car (private) driver
13. Small car (private) passenger
14. Small car (hired, i.e. taxi) driver
15. Small car (hired, i.e. taxi) passenger
16. PSV (public service vehicle, i.e. bus) driver
17. PSV (public service vehicle, i.e. bus) passenger
18. Lorry / pick-up truck driver
19. Lorry / pick-up truck passenger
20. Tractor driver
21. Tractor passenger
22. Other (specify):.....

Q12. Where was the crash?

1. Study road
2. Other unsealed road in Kilolo District
3. Other unsealed road elsewhere
4. Sealed road

Q13. What time was the crash? 1. Day (light) 2. Night (dark)

Q14. What was the primary cause of crash?

1. Road user behaviour
2. Road design or condition
3. Environmental conditions
4. Vehicle condition
5. Other (specify): .....

Q15. Which of your body parts was most severely injured?

1. None
2. Head
3. Face
4. Neck
5. Chest
6. Abdomen
7. Back
8. Upper limbs & Collar bone
9. Lower limbs

Q16. What type of injury was sustained? (Pick only the most serious one)

1. Bruise/ Body Pain
2. Cut
3. Broken bone/joint dislocation
4. Amputation
5. Burn
6. Concussion
7. Other (Specify) .....
8. No injury

Q17.Was anybody else injured in the crash, excluding yourself? 1. Yes 2. No

If Yes, indicate the gender and mode of transport of all other people injured, excluding yourself:

Injured Person	Gender: 1. Male 2. Female	Mode of transport (Use codes on question 11)
1		
2		
3		
4		
5		
6		
7		

8		
9		
10		

Section D – Crash Questionnaire (Detailed)

To be filled by all people who have been involved in a crash in the last one month

Q18. Did you take any protective action prior to the incident? 1. No 2. Yes

If yes, what? 1. Helmet 2. Reflectors 3. Glasses 4. Boots 5. Seat belt 6. Others (specify) .....

Q19. Did you seek medical attention as a result of the crash? 1. No 2. Yes

Q20. If Yes to Q19, Where did you seek medical attention?

1. Hospital
2. Clinic / Health centre
3. Pharmacy
4. Traditional healer
5. Other (specify): .....
6. No medical attention sought

Q21. If you visited a hospital, how many nights did you stay in the hospital? ..... nights

Q22. How many days of normal activity did you miss as a result of the crash? ..... days

Q23. Were the police informed? 1. No 2. Yes

Q24. Did you lose income or incur costs as a result of the crash? 1. No 2. Yes

Q25. Crash description: Research Assistant to write a full description of the crash in words.

Motorcycle driver surveys

Bodaboda Driver Questionnaire

[To be filled by bodaboda drivers]

Definitions:

- *Bodaboda Driver: A person who drives a motorcycle, charging a fare for transporting passengers or goods*
- *Crash: A collision between at least one moving vehicle (whether motorised or non-motorised) and another vehicle, person or object, whether moving or stationary, and whether or not a bodily injury was sustained by any person involved.*
- *Study Road: The stretch of road between the two villages, including the villages themselves*
- *Household: People who live in the same house or homestead and who cook and share meals together*
- *Involved in a Crash: To have been in or on any of the vehicles which experienced the collision, or to have been impacted physically in any way by the collision, or to have caused the crash through some physical action*
- *Witnessed a Crash: To have been seen the collision, but not been involved*
- *Normal Activity: The activity that occupies the majority of your waking time, for example, in this context, 'farming', 'working', 'studying', or 'housework / looking after family'*

ID Number:	**Date of Interview** *(day/month/yr):*
Interviewer Name:	**Assistant Interviewer Name :**
Study road: 1.Boma la Ng'ombe-Mwatasi (BlaN – Mw) 2.Ihimbo-Itimbo (Ih – It)	
Interview location: 1. BlaN village 2. Mw village 3. Road between BlaN and Mw villages 4. Ih village 5. It village 6. Road between Ih and It villages	

Section A - Demographics

[To be filled by all Bodaboda drivers, whether or not they have been involved in a crash in the past 3 months]

Q1.How old are you? _____ *years*

Q2. Gender: 1. Male 2. Female

Q3. What is your primary occupation?

1. Farmer
2. Driver (bodaboda)
3. Driver (other)
4. Teacher
5. Shop-keeper
6. Builder/ Mason/ laborer/ casual
7. Student
8. Not in school, no formal employment
9. Other (Specify): .....

Q4. What is your relationship to the motorcycle that you use as a bodaboda?

1. You own it
2. You borrow it at no cost
3. You rent it from somebody on a short-term basis (up to one month at a time)
4. You are employed by somebody else to drive it
5. Other (specify): .....

Q5. How long is your experience in riding a bodaboda? (in months or years):

1. Less than 3 months
2. 3 - <6 months
3. 6–<9 months
4. 9–<12 months
5. 1–<2 years
6. More than 2 years

Q6. Do you own a driving licence?

1. No
2. Yes – verified by interviewer
3. Yes – unverified by interviewer

Q7. What is your highest education level?

1. No schooling
2. Home schooling
3. Completed some primary school
4. Completed primary school
5. Completed some secondary school
6. Completed Form 4
7. Completed Form 6
8. Earned certificate
9. Earned diploma
10. University graduate or higher

Q8. What is your MAIN means of transport or travelling along the study road in your daily activities?

1. Walking
2. Bicycle driver
3. Bicycle passenger
4. Motorcycle (private, i.e. 'piki-piki') driver
5. Motorcycle (private, i.e. 'piki-piki') passenger
6. Motorcycle (hired, i.e. 'boda-boda') driver
7. Motorcycle (hired, i.e. 'boda-boda') passenger
8. Powered tricycle (private, i.e. Bajaj, Toyo) driver
9. Powered tricycle (private, i.e. Bajaj, Toyo) passenger
10. Powered tricycle (hired, i.e. Bajaj, Toyo) driver
11. Powered tricycle (hired, i.e. Bajaj, Toyo) passenger
12. Small car (private) driver
13. Small car (private) passenger
14. Small car (hired, i.e. taxi) driver
15. Small car (hired, i.e. taxi) passenger
16. PSV (public service vehicle, i.e. bus) driver
17. PSV (public service vehicle, i.e. bus) passenger
18. Lorry / pick-up truck driver
19. Lorry / pick-up truck passenger
20. Tractor driver
21. Tractor passenger
22. Other (specify):.....

Q9. Do you or anyone else in your household own any of the following (select all that you have and indicate the number)?

1. Bicycle .....
2. Cart (hand cart, animal cart)
3. Motorcycle .....
4. Powered tricycle (i.e. Bajaj) ....
5. Car .....
6. Bus .....
7. Lorry / Pick-up ....
8. Tractor ....
9. Other (specify) ....
10. None

Section B – Risk Perception

[To be filled by all Bodaboda drivers, whether or not they have been involved in a crash in the past 3 months]

Q10. How safe do you feel when using the study road?

1. Safe
2. Unsafe

Q11. Of the following, which do you consider to create the greatest risk of you being involved in a crash while using the study road?

1. Road user behaviour
2. Road design or condition
3. Environmental conditions
4. Vehicle condition
5. None
6. Other (specify): .....

Q12. Have you witnessed a crash in the last 3 months? 1. No 2. Yes

If Yes, how many? .... Where were they*(Indicate number)***?**

1. Study road ....
2. Other unsealed road in Kilolo District....
3. Other unsealed road elsewhere ....
4. Sealed road ....

Q13. Have you been involved in a crash in the last three months?

1. Yes. Continue to Q14.
2. No. Finish

Section C – Crash Questionnaire (Basic)

[To be filled by all Bodaboda drivers who have been involved in a crash in the past 3 months]

Q14. What was your mode of travel at time of crash?

1. Walking
2. Bicycle driver
3. Bicycle passenger
4. Motorcycle (private, i.e. 'piki-piki') driver
5. Motorcycle (private, i.e. 'piki-piki') passenger
6. Motorcycle (hired, i.e. 'boda-boda') driver
7. Motorcycle (hired, i.e. 'boda-boda') passenger
8. Powered tricycle (private, i.e. Bajaj, Toyo) driver
9. Powered tricycle (private, i.e. Bajaj, Toyo) passenger
10. Powered tricycle (hired, i.e. Bajaj, Toyo) driver
11. Powered tricycle (hired, i.e. Bajaj, Toyo) passenger
12. Small car (private) driver
13. Small car (private) passenger
14. Small car (hired, i.e. taxi) driver
15. Small car (hired, i.e. taxi) passenger
16. PSV (public service vehicle, i.e. bus) driver
17. PSV (public service vehicle, i.e. bus) passenger
18. Lorry / pick-up truck driver
19. Lorry / pick-up truck passenger
20. Tractor driver
21. Tractor passenger
22. Other (specify):.....

Q15. Where was the crash?

1. Study road
2. Other unsealed road in Kilolo District
3. Other unsealed road elsewhere
4. Sealed road

Q16. When was the crash? 1. Day (light) 2. Night (dark)

Q17. What was the primary cause of crash?

1. Road user behaviour
2. Road design or condition
3. Environmental conditions
4. Vehicle condition
5. Other (specify): .....

Q18. Which of your body parts was most severely injured?

1. None
2. Head
3. Face
4. Neck
5. Chest
6. Abdomen
7. Back
8. Upper limbs &Collar bone
9. Lower limbs

Q19. What type of injury did you sustain? (Pick only the most serious one)

1. Bruise/ Body Pain
2. Cut
3. Broken bone/joint dislocation
4. Amputation
5. Burn
6. Concussion
7. Other (Specify) .....
8. No injury

Q20.Was anybody else injured in the crash, excluding yourself? 1. Yes 2. No

If Yes, indicate thegender and mode of transport of all other people injured, excluding yourself:

Injured Person	Gender: 1. Male 2. Female	Mode of transport (Use codes on question 14)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Section D – Crash Questionnaire (Detailed)

[To be filled by all Bodaboda drivers who have been involved in a crash in the past 1 month]

Q21. Did you take any protective action prior to the incident? 1. No 2. Yes

If yes, what? 1. Helmet 2. Reflectors 3. Glasses 4. Boots 5. Other (specify)……..

Q22. Did you seek medical attention as a result of the crash? 1. No 2. Yes

Q23. If Yes to Q22, Where did you seek medical attention?

1. Hospital
2. Clinic / Health centre
3. Pharmacy
4. Traditional healer
5. Other (specify): ……
6. No medical attention sought

Q24. If you visited a hospital, how many nights did you stay in the hospital? ……. nights

Q25. How many days of normal activity did you miss as a result of the crash? …… days

Q26. Were the police informed? 1. No 2. Yes

Q27. Did you lose income or incur costs as a result of the crash? 1. No 2. Yes

Q28. Crash description: Research Assistant to write a full description of the crash in words.

Annex D: Crash descriptions

Household surveys

The following are all of the crash descriptions obtained through the household survey, as described by the respondent and recorded by the Research Associates.

Piki-piki driver injury

Piki-piki driver, interviewed at Itimbo

"It was on 8th February 2015 when the piki-piki driver was from Ndiwili town where he had gone to buy the seeds (maize seeds) that he could plant at his farm. On his way back to Itimbo, he reached to an area near Isoliwaya village and the weather changed and it started raining when he was still on the way back to Itimbo.

He reached to an area where there was some water flowing on the road and he did not see well where to pass. As he was trying to pass over, the front tyre slipped and he failed to control the motorcycle since the road was too slippery. He then fell down and sustained some injuries on his left arm. After the accident, he took the motorcycle home, because there was no any help he tried to drive himself back.

When he reached home, he informed his brother and the brother took him to Ndiwili dispensary where he got treatment and discharged on the same day. He did not perform his daily activities for two days since he felt some pain to his left arm that was injured. He says that he lost some money due to the fact that he did not go to work for two days and he also some money was used for his treatment. His motorcycle was damaged, both indicators and the front light were broken. This accident was not reported to the police".

Piki-piki driver injury

Mr Jonas, interviewed at Boma la Ng'ombe

"On Sunday 15th February at around 9am, Mr. Jonas left his home in Nyamatonga village, driving his piki-piki to Boma la Ng'ombe where he has timber forest. Rounding a corner, not going too fast, a normal speed, he suddenly saw a large Scania truck coming towards him.

He realised that the road was too narrow for him to pass safely, so to save himself, he tried to move off the road. He found that the road shoulder was covered in loose stones, and he lost control and fell. He injured his left leg in the fall, and burned his right ankle on the motorcycle's exhaust pipe.

Fortunately, his friends were heading in the same direction on their motorcycles, and they say what happened. They stopped to help him and took him to the pharmacy to get some medicines to apply to his wounds. He spent three days at home without being able to work at his farm. Mr Jonas did not report the incident to the police because he was afraid that his piki-piki would be confiscated by the police as he does not have a driving licence."

Boda-boda passenger injury

Queenie, interviewed at Ihimbo

"On Friday 13th February 2015 at around 4pm, Queenie was returning from school to her home in Ihimbo as a passenger on a hired boda-boda. After five minutes of the journey, they reached Vibao Vitatu, where Queenie was supposed to drop.

As the driver was slowing down, he saw a car coming from behind. The road was narrow, so he told Queenie to jump off quickly so that the car would not have to stop. But she struggled to jump off, and she fell and burned her right leg on the exhaust pipe.

The boda-boda driver drove off. Queenie managed to walk home, and her mother than sent her to hospital. She was attended to and discharged on the same day after being given a dressing for the burn. She did not go to school for seven days as a result of the injury, and her mother did not go to the farm for three days, staying home to look after her. "

Boda-boda passenger and driver injury

Sauda, interviewed at Itimbo

"On 11th February, Sauda was travelling from Itimbo village to Ndiwili using a hired motorcycle (Bodaboda). After 15 minutes of their ride from Itimbo, Sauda and the bodaboda driver had an accident which was caused by puncture the motorcycle got while it was on the move.

The bodaboda driver failed to control the motorcycle due to the puncture and suddenly they fell down beside the road (both Sauda and the motorcycle driver). After that accident, they were both injured although the injuries were not severe. Sauda felt little pain on her left leg. Therefore, Sauda left the bodaboda driver with his motorcycle and took another motorcycle which took her to Ndiwili Town.

Sauda did not go to the hospital because she did not get any serious injury. She did not miss a single day of her normal activities and did not lose her income. Sauda says, the accident was not reported to the police".

Piki-piki driver injury

Ombeni, interviewed at Itimbo

"On 15th February 2015, Ombeni was driving his piki-piki returning to Itimbo where he lives from Luganga where he had gone to purchase fuel for his business. His journey back home (Itimbo) was at around 13.30hrs and the road was wet and slippery since it had rained earlier that day.

After he passed Isoliwaya-Itimbo border, he reduced the speed to 10 kph since there is a slope to Itimbo. Due to the slipperiness of the road and the gallon of fuel he was carrying on his motorcycle, it reached a point where he could no longer control the motorcycle. So he fell to the ground together with his motorcycle but he did not sustain any injuries. He then got up and went on with his journey to Itimbo.

Ombeni did not go to the hospital to get medical treatment since he did not sustain any injury and did not lose any days of his normal activities but he says he lost some money due to loss caused by the fuel which was in the gallon, it was poured on the ground. His motorcycle did not get any damage and the accident was not reported to police".

Piki-piki driver injury

Zacharia, interviewed at Itimbo

"On 15th February 2015, Zacharia the piki-piki driver was coming from Viwengi where he went to purchase some oil for home use in Itimbo where he lives. His journey started at around 14.00hrs and it was a rainy day and the road was wet and slippery.

He reached around Lusaula area where there is a small uphill and road surface is very rough. Since it had rained the whole day, that part of the road was damaged by the water passing over the road. Zacharia tried his best to control the motorcycle and he was riding it at about 12 kph, but the fore wheel of the motorcycle slipped and he fell on the ground. Zacharia did not sustain any injury, he then got up on his own, started the motorcycle and went on with his journey to Itimbo.

Zacharia did not go to the hospital and did not lose any day of his normal activities because he was not injured. He also says that he did not lose any of his money due to the accident since he was not injured during the accident. His accident was not reported to the police. Zacharia also says that if it wasn't for the rough road and weather condition being bad, he wouldn't find himself in that accident because he had taken all precautions before."

Piki-piki driver injury

Gozbert, interviewed at Mwatasi

"On 17th February 2015, Gozbert was travelling on his piki-piki from Mwatasi to Kipanga. It was at around 07.00hrs when he started his journey to Kipanga. Just after six minutes of his ride, he reached around Mount Madumba where he had an accident.

He says that the motorcycle was at around 20 kph. After taking the corner to Ilogombe, he suddenly saw ten big stones across the road which had blocked the whole road. He tried to avoid the stones and the front wheel succeeded but the other wheel hit the stone and he fell down with his motorcycle. Gozbert was thrown away by the motorcycle after it reached the ditch aside the road and dropped him on other stones, hitting his head. The helmet's glass broke and cut him deep on the right cheek. He also got some bruises on his both arms.

He says that he tried and managed to get up, started the motorcycle and turned around and went back to Mwatasi where he lives. His father went to the village chairman to get a letter for some treatments at Mwatasi clinic while he went to the clinic where his wounds were dressed and he was given some other medications to apply at home. His cheek needed a minor operation. He says that he was advised to rest and check on his wounds for seven days and if the pain continues, he must go back to the clinic for further treatments. Gozbert says he did not spend any money at the clinic since he is a registered member of the National Health Insurance Fund. He also says that his accident was not reported to any police station".

Piki-piki driver injury

Piki-piki driver, interviewed at Mwatasi

"On 17th February 2015, Gozbert (the piki-piki driver) was travelling on a motorcycle from Mwatasi to Kipanga. It was at around 07.00hrs when he started his journey to Kipanga. Just after six minutes of his ride, he reached around Mount Madumba where he had an accident.

"On 18th January 2015 at around 5.00 hours the piki-piki driver was on the way to his farm to collect some harvests. The road surface was wet and slippery. Some parts of the road had too much mud since it had rained few hours earlier that night.

On his way to the farm he saw a certain part of the road which seemed to be dry but there was too much mud so he passed on that part and the fore wheel managed to pass but the back one slid and the motorcycle was no longer easy to control. Due to that, the piki-piki driver fell down with it and his left leg had a dislocation which caused him so much pain.

He managed to get up by himself and went on with his journey to the farm. On his way back home with the harvests collected, he felt so much pain and when he arrived home he left that sack of maize at home and he started his way to hospital/ clinic where he got medical treatment. There he was given some medicine to apply on his leg. The piki-piki driver spent five days of work at home. He also says that he lost some money which he used at the clinic for the medical treatment and his accident was not reported to the police".

Motorcycle driver surveys

The following are all of the crash descriptions obtained through the motorcycle driver survey, as described by the respondent and recorded by the Research Associates.

Boda-boda driver and passenger injury

Jack, interviewed at Boma la Ng'ombe

"On 20th January 2015 Jack was carrying a passenger to the market in the nearby village of Masisiwe on his boda-boda. It had rained heavily shortly beforehand and the road was slippery. Jack knew it was risky, so asked the passenger to be careful.

Part-way through the journey, Jack lost control on a very slippery stretch of road, and he, the passenger and the motorcycle all fell. They were still lying on the road when another motorcycle passed and helped them up.

The driver of the other motorcycle first took the injured passenger to a nearby dispensary. He then returned, took Jack's motorcycle to a nearby house for safe-keeping, and then took Jack to a clinic in Boma la Ng'ombe.

Jack was unable to work for two days after the crash, due to pain in his leg. He did not report the crash to the police."

Boda-boda driver injury

Florence, interviewed at Ihimbo

"On 17th February 2015, Florence the bodaboda driver was travelling from Itimbo to Ihimbo. He started his journey at about 14.00hrs. The road condition on that day was wet and slippy due to the rain which rained that day.

Florence rode the motorcycle in a moderate speed of 30kph so as to be able to control it. Even though he drove/rode in a very low speed he got an accident at the nearest village called Isoliwaya. Florence failed to control his motorcycle due to the bad condition of the road, the road was slippery and Florence fell down with his motorcycle. Florence was not severely injured although he had some pain on his leg.

Florence managed to pull up his motorcycle and went to Ihimbo clinic for medical check up. He was given pain killers by the physician and after the treatment he continued with his journey. Florence did not lose any day of his normal activities but he spent some money to repair his motorcycle which had damages on the front mudguard. Florence did not report the accident to the police."

Multiple victim boda-boda crash

Devi, interviewed at Mwatasi

"On the evening of Wednesday 28th January 2015, Devi was carrying two passengers on his boda-boda from Mwatasi to Lusinga via Boma la Ng'ombe. As it was late, he drove fast, at approximately 80 kph.

As he passed through Boma la Ng'ombe village centre, he saw a parked bus but did not slow down. He did not realise that passengers were disembarking. As he approached the bus, two passengers disembarked into the road in front of him. Devi swerved but could not avoid the two bus passengers, and he also struck a woman who was carrying a baby on her back.

Both Devi and the baby were knocked unconscious, the other victims were seriously injured, and the motorcycle was badly damaged. Witnesses arranged a car to take all of the injured to the regional hospital in Iringa.

Devi stayed in the hospital for about two weeks. Eventually, he and all other injured were discharged. Devi had to pay Tsh 120,000 for the car that transported him and the others to hospital. The other victims also demanded money for compensation, for which Devi had to ask his parents and other family members to contribute.

He still drives a boda-boda, although he now drives more slowly – he realises that he was taught an important lesson. At the time of the interview, the scars from the crash were still evident.

The crash was reported to the police."

Boda-boda driver and passenger injury

Mr David, interviewed at Boma la Ng'ombe

"In late January, Mr. David (boda-boda driver) received a call from a passenger in Boma la Ng'ombe who directed him to go and pick other passengers in Mwatasi and take them to Boma la Ng'ombe. This was at around 15.00hrs.

Just few minutes after Mr. David had dropped his passengers at Boma la Ng'ombe, on his way back to Mwatasi he got an accident. At a curve Mr. David saw another motorcycle where the driver was at very high speed and he was listening to music. The coming motorcycle had a passenger. Mr. David tried to avoid colliding with the other motorcycle driver and he was able to avoid him but he got some injuries on his right leg since he fell down with his motorcycle. The other motorcycle driver was safe but his passenger was injured after falling down too.

Mr. David did not go to the hospital but he took some medicine from pharmacy. Mr. David did not work for seven days whereby he lost some income since he was not working for all those days. The accident was reported to police since the passenger of the other motorcycle had to get PF3 so that he can be treated at the hospital."

Piki-piki driver injury

Mr Beatus, interviewed at Mwatasi

"It was on 18th January 2015, when Mr. Beatus (piki-piki driver) was riding a motorcycle from Mwatasi to Ngingula where his wife was staying. He was going to pick his wife. His journey started at around 15.00hrs.

Just few minutes after passing the Boma la Ng'ombe junction, he took the direction to Ngingula, he saw another motorcycle whereby the driver was very speeding, he was avoiding the collision with another motorcycle and due to that he fell into a ditch which was in the road. He fell into the ditch with his motorcycle which caused him with bruises.

He did not go to the hospital to get treatment because he did not report the case to the police therefore, he did not have PF3 to show to the hospital for him to get treated. He did not go to work for 14 days due to the injuries and pain he felt. This accident reduced his income and also he could not go to pick his wife therefore he had to ask a boda-boda driver to go and pick his wife which was more costly."

Boda-boda driver injury

Kennedy, interviewed at Mwatasi

"On 27th January 2015, Kennedy (bodaboda driver) was travelling from Mwatasi village where he stays to Pomelini village where he was going to see his friend who was sick. His journey started at around 16.00hrs.

After 30 minutes he reached a place called Kiesa where he hit a cow which was crossing the road. Kennedy says the road was very straight and he could see everything that was coming ahead/ in front and he was riding his motorcycle at about 50kph. Kennedy says, he was not expecting to see an animal crossing since there was no road sign indicating that there are animals crossing around that area. After hitting the cow, Kennedy lost control and balance of his motorcycle and eventually he fell down. Due to that, Kennedy sustained some bruises on his right knee.

Kennedy went to a nearby health facility but did not get treated because they asked him his identification card and at that time he had not carried it. He then decided to go back to Mwatasi where he went to the dispensary and got medical treatment. He spent about 45 minutes at the dispensary before he was allowed by the Medical Officer to go back home and take enough rest. Kennedy spent six days without doing his normal activities which also caused reduction of his income. His motorcycle was not damaged and the crash was not reported to police."

Piki-piki driver injury

Rabi, interviewed at Boma la Ng'ombe

"On 16th February 2015, Rabi (the piki-piki driver) and his wife were travelling from Boma la Ng'ombe village to Mwatasi village where their farm is. They were going to do some farming activities.

It took them about ten minutes of their ride when they saw a car coming in front of them. Rabi decided to swerve along the road so as to allow the car to pass freely. Even though Rabi swerved the car followed and pushed them. Both Rabi and his wife fell. However, no one was seriously injured although Rabi felt some body pain. The car driver apologised to Rabi and his wife due to his carelessness on the road. Rabi and his wife forgave the car driver. Rabi pulled up his motorcycle and asked his wife to get on it and continued with the journey to the farm.

The victims did not go to any medical centre for treatment but due to the body pain he sustained, Rabi did not to go to the farm for two days. The accident was not reported to the police. Rabi complains that the road is too narrow. Therefore, he advises the government to expand the road networks especially the road from Boma la Ng'ombe to Mwatasi so as to avoid accidents."

Boda-boda driver injury

Hiari, interviewed at Boma la Ng'ombe

"On 27th January 2015, Hiari the bodaboda driver took his motorcycle travelled to Idegenda village to supply beers to retail shops. He normally uses his motorcycle for trading activities. Hiari took the beers and started his journey to Idegenda. Before the time of travel, there was very heavy rain at the village of his destination but he thought the road was in good condition because it had not rained at Boma la Ng'ombe when he started his journey.

Hiari had nearly reached Idegenda before his motorcycle fell. The accident was caused by the road which was very rough for the motorcycle to pass. The load carried by Hiari was very heavy so he failed to get up himself. People who witnessed the accident went there in order to help him. They pulled Hiari who was severely injured on his knee. Hiari was unable to walk freely so they had to put him on another motorcycle and he was sent back home.

Despite the fact of being injured on his knee, Hiari was not taken to any health facility for treatment. Because of the injury sustained, Hiari stayed at home for a week (7 days) without working. The accident was not reported to the police. He claims that he did not report it to the police because he did not possess a driving license."

Piki-piki driver injury

Mr Mzuma, interviewed at Ihimbo

"On 16th February 2015, Mr. Mzuma (the piki-piki driver) rode his motorcycle from Ihimbo village where he stays to Kisinga to visit his farm. At around 17.00hrs, Mr. Mzuma was on his way back to Ihimbo village. It had rained heavily that day and the road was too slippery.

After reaching Isoliwaya village, Mr. Mzuma lost control and balance of his motorcycle. He did not manage to control his motorcycle due to the slipperiness or the road. He therefore, fell down with his motorcycle and sustained some bruises. He then pulled up his motorcycle and continued with his journey back to his home place.

Mr. Mzuma did not go to the hospital since he was not seriously injured but due to the bruises he got, he stayed at home for only one day without working. His motorcycle was not damaged and the crash was not reported to the police".

Boda-boda driver injury

Mr Gulima, interviewed at Ihimbo

"On 20th February 2015, Mr. Gulima (bodaboda driver) was riding his motorcycle from Itimbo to Ndiwili to drop a passenger, soon after dropping the passenger at Ndiwili (at around 10.00hrs), he started his journey back to Itimbo village where he parks his boda boda.

On his way back to Itimbo, he rode over a small stone which led him fell into a ditch. He could not control and balance his motorcycle therefore he fell into a ditch. Because of this, Mr. Gulima sustained some bruises but the injuries were not severe.

Then he pulled-up his motorcycle and went to a pharmacy to get some medical treatment. Mr. Gulima stayed home for two days without working due to the pain he felt from the bruises. Mr. Gulima lost some income since he did not work for two days. Mr. Gulima is doing better now and he resumed to his daily activities. Mr. Gulima says the crash was not reported to the police".

Boda-boda driver injury

Elijah, interviewed at Itimbo

"On 28th January 2015, Elijah (bodaboda driver) was travelling with his motorcycle from Itimbo village to Ihimbo village to go and carry soft drinks. Elijah started his journey at around 13.00hrs but before reaching Ihimbo he had an accident.

Hardly had Elijah reached Ihimbo when the front tire of his motorcycle ran on small stone that was on the road. After he had ran over the stone, he lost balance and control of the motorcycle, he then fell down. Because of that, Elijah was badly injured on his legs.

Elijah went to Ihimbo clinic where he got treatment but although he was treated, he spent fourteen days without working. He still has some scars on his body caused by that accident. His motorcycle was damaged in the front parts. Elijah did not report the accident to the police and he blames the government for not improving road networks in rural areas such as the road from Ihimbo to Itimbo. Elijah says "if the road was smooth, I could not have been injured like this" he points on his scars. He says their roads must be improved because all agricultural products come from the villages."

Piki-piki driver injury

Geofrey, interviewed at Itimbo

"On 17th February 2015, Geofrey (the piki-piki driver) who lives in Itimbo started his motorcycle and went to Ihimbo to buy fertilizer for his farms (Geofrey's main economic activity is farming). He managed to reach to Ihimbo with some difficulties caused by the rain that had rained before the time of his travel. Geofrey had carried three bags of fertilizer with the maximum of 150 kgs on his motorcycle and started his journey back to Itimbo.

While he was on the way back to Itimbo, the road was still slippery. The condition of the road made Geofrey not to be able to control the motorcycle. Not only the condition of the road that led difficulties to him but also the weight of the load made him to be unstable in steering. Eventually, he fell down with his motorcycle. The bags of fertilizer and the motorcycle fell on his body. Geofrey tried hard to push the motorcycle. As he was trying to save himself, there was a pedestrian who went and helped to grab Geofrey from the motorcycle. Because of the accident, Geofrey sustained injuries on his right leg.

Then Geofrey went to Itimbo clinic for treatment, however he spent only few minutes at the clinic until he was allowed to go home. He stayed at home for three days without working. the motorcycle was not damaged anywhere because he rode it at a very low speed of about 25kph. The accident was not reported to the police".

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