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Enhancing understanding on safe motorcycle and three-wheeler use for rural transport in DRC

Inception Report

Transaid, Amend and TRL

RAF2114A

March 2019

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AMEND TRL THE FUTURE OF TRANSPORT

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Cover Photo: South Kivu, DRC (courtesy of i+Solutions)

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Contents

Abstract

This Inception Report details progress during the first four weeks of the project 'Enhancing understanding on safe motorcycle and three-wheeler use for rural transport and the implications for appropriate training and regulatory frameworks in DRC'. The main purpose of Phase 1 (Inception) is to build an understanding of the existing situation in the Democratic Republic of Congo (DRC), and to use this understanding to develop the detailed research strategy and methodology. The understanding of the existing situation is being developed through stakeholder mapping, stakeholder engagement and a literature review.

A total of 20 stakeholders have been identified and the team has engaged with 14 of these. Meetings have been held with stakeholders deemed most likely to contribute to the project, to provide valuable information or to have influence over use of the project's findings and implementation of its recommendations. The available literature related to motorcycles and three-wheelers in DRC is very limited. However, over 15 documents have been reviewed through a brief literature review.

The research strategy and methodology is broadly based on the strategy and methodology used in Phase 1 of the project and applied in Ghana, Kenya, Tanzania and Uganda (2018). After an initial scoping trip to DRC that took place in February 2019, the strategy was reviewed and finalised together with identifying key stakeholders and partners.

The questionnaires used in Phase 1 have been reviewed for use in DRC. They have been adapted for the DRC context, however the integrity of the questionnaires have been maintained to allow for cross-country comparisons.

Key words

Motorcycles, Motorcycle taxis, Three-Wheelers, Rural Transport, Rural Access, Safety, Training, Regulation, Africa, DRC

Acronyms, Units and Currencies

AfCAP	Africa Community Access Partnership
AfDB	African Development Bank
ASCAP	Asia Community Access Partnership
CNPR	Commission Nationale de Prévention Routière/ National Commission for Road Safety
CSO	Civil Society Organisation
DFID	Department for International Development
DRC	Democratic Republic of Congo
FC	Congolese Franc
FONER	Le Fonds National d'Entretien Routier de la Republique Democratique du Congo/ The National Road Maintenance Fund of the Democratic Republic of Congo
GBP	Pound Sterling
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IHP	Integrated Health Programme
iPPF	International Planned Parenthood Federation
JICA	Japan International Cooperation Agency
Logframe	Logical framework
NGO	Non-Governmental Organisation
PI	Principle Investigator
ReCAP	Research for Community Access Partnership
SPSS	Statistical Package for the Social Sciences
TB	Tuberculosis
QUAG	Quality Assurance Group
UK	United Kingdom (of Great Britain and Northern Ireland)
UKAid	United Kingdom Aid (Department for International Development, UK)
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
VAT	Value Added Tax
WHO	World Health Organization

Executive Summary

A project 'Enhancing understanding on safe motorcycle and three-wheeler use for rural transport and the implications for appropriate training and regulatory frameworks' was carried out in Ghana, Kenya, Tanzania and Uganda in 2018. In February 2019 this was extended to include DRC.

The use of motorcycles has increased greatly in Africa in recent years. Motorcycles are often used as taxis, with riders charging a fare to carry passengers or goods. In rural areas, motorcycle taxis play a crucial role in connecting people to services and farms to markets, and in many countries motorcycles are the most commonly found vehicle on rural roads.

However, motorcycle transport in rural areas is certainly not without risk, including the risk of being injured in a crash. Attempts by governments to regulate the use of motorcycle taxis – both for safety and other reasons – have largely failed to keep pace with the rapid influx of motorcycles into the continent and the high demand for their services by populations. Similar issues apply to motorised three-wheelers, although their numbers are far fewer.

The overall aim of the project is to improve knowledge and understanding concerning effective ways of enabling rural people to benefit from the safe use of motorcycles and three-wheelers, with emphasis on rural motorcycle taxis, rider training, appropriate regulatory frameworks and realistic enforcement methods in DRC.

The research objectives are to work with relevant stakeholders in DRC in order to achieve the overall project aim. The essence of the research is to use a country study to compile and present research evidence of best practices and appropriate regulatory frameworks for enabling the safe operation of rural motorcycles and three-wheelers to provide good, affordable and inclusive rural access for different groups of people.

Capacity building is an integral part of the project. Our team is balanced in terms of gender and age. International experts will work closely with national experts as well as with colleagues from relevant Ministries, the University of Kinshasa, NGOs and motorcycle associations.

The outputs of the project will facilitate the uptake and subsequent embedment of improved practices, policies and strategies by governments and other organisations in the project countries, and will also support the acquisition of knowledge and improved capacity of technical staff.

This Inception Report details progress during the first four weeks of the project. The main purpose of Phase 1 is to build an understanding of the existing situation in DRC, and to use this understanding to support the research strategy and methodology. The understanding of the existing situation is being developed through stakeholder mapping, stakeholder engagement and a literature review.

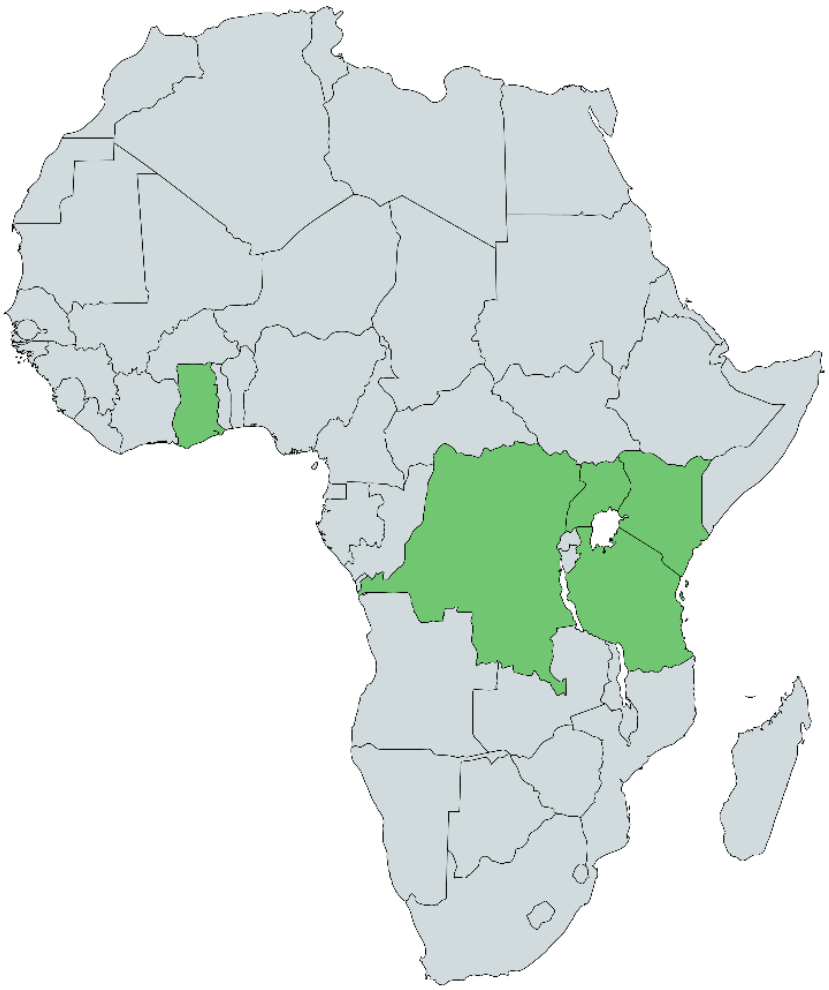
A total of 20 stakeholder organisations have been identified, and in-person/Skype meetings held with 14 of them, and over 15 documents have been reviewed through the literature review, which is summarised in Section 4. It should be noted that the available literature relating to motorcycle and motorised three-wheeler taxis in DRC is extremely limited and has an urban bias. The project team will continue to gather unpublished or so called 'grey literature' during Phase 2. A team kick off meeting has been held to bring the team together, update each other on progress and to share ideas. Two members of our team and a representative of the Cellule Infrastructure[1] of DRC attended the ReCAP Inter-Regional Implementation Meeting held in Nepal in February 2019.

[1] Cellule Infrastructure, or the Infrastructure Unit, is a technical body of the Ministry of Infrastructure Public

1 Introduction

The research project is based in DRC, and builds on the research completed in the first four countries: Ghana, Kenya, Tanzania and Uganda. All countries are shown in Figure 1.

Figure 1 The five project countries



The project is being supported by government through the local AfCAP partner institution, specifically Cellule Infrastructure, in the Ministry of Infrastructure, Public Works and Reconstruction.

Contractually the project started on 25th February 2019 and will run until 31st December 2019.

The purpose of this report is to update Cardno and the local AfCAP partner institutions on progress during the project's Phase 1 and to raise relevant issues that have surfaced during this period relating to the project.

Works and Reconstruction (MITPR), with administrative and financial autonomy.

2 Background

The use of motorcycles has increased greatly in Africa in recent years, both in urban and rural areas. In many African countries, in rural areas, motorcycles are often the most commonly found vehicle, and journeys that were previously made by foot or bicycle are now made using a motorcycle. This has been shown in previous research completed by ReCAP in Ghana, Kenya, Tanzania and Uganda, and is certainly the case in DRC. Additional research conducted by AfCAP and ReCAP has explored the benefits and challenges of this increase in motorcycle use in rural areas, as well as user needs, constraints and policy issues (Starkey, 2016). More information regarding this research can be found in the ReCAP Rural Access Library.

Motorcycles are often used as taxis, with riders charging a fare to carry passengers or goods. In rural areas, motorcycle taxis play a crucial role in connecting people to services and farms to markets. They provide employment, largely for young men who hire the motorcycles to operate as taxis on a temporary basis, and also a form of income for the motorcycles' owners.

Motorcycles often fill a gap in the provision of 'conventional' transport services such as minibuses and rural taxis, by providing transport directly from people's homes to main roads, village centres and essential services such as hospitals and markets. Supported by the now widespread use of mobile phones in rural Africa, motorcycle transport is very convenient, and as such is very popular with rural populations.

However, motorcycle transport in rural areas is certainly not without risk. Previous AfCAP research has found high rates of crashes and injuries among rural motorcycle taxi riders, and while many of these crashes are relatively minor single-vehicle incidents, others have been found to cause more serious injury. A serious injury to a household's principal income earner can push an entire family into poverty.

Attempts by governments to regulate the use of motorcycle taxis have largely failed to keep pace with the rapid influx of motorcycles into the continent and the high demand for their services by populations.

Based on research completed in Ghana, Kenya, Uganda and Tanzania, it is clear that the number of motorised three-wheelers in rural Africa is also increasing, although to nowhere near the same extent as motorcycles. While no literature was available to confirm this in DRC during the first four weeks of the study, additional information has been requested from partners and will be explored during Phase 2.

3 Approach and Methodology

3.1 Research Objective

The overall aim of the project is to improve knowledge and understanding concerning effective ways of enabling rural people to benefit from the safe use of motorcycles and three-wheelers in DRC, with emphasis on rural motorcycle taxis, rider training, appropriate regulatory frameworks and realistic enforcement methods.

The research objectives are to work with relevant stakeholders in DRC in order to achieve the overall project aim. The essence of the research is to use a country study to compile and present research evidence of best practices and appropriate regulatory frameworks for enabling the safe operation of

rural motorcycles and three-wheelers in DRC to provide good, affordable and inclusive rural access for different groups of people.

Capacity building and knowledge dissemination are integral parts of the AfCAP programme. This project will engage fully with the local AfCAP partner institutions, the relevant transport service authorities, government road safety related departments, concerned non-governmental organisations (NGOs) and civil society organisations (CSOs), appropriate rider training facilities and other relevant organisations to ensure that the knowledge acquired throughout the project is transferred and embedded within the relevant authorities, agencies and organisations.

Uptake and embedment are key targets for AfCAP. This project will take a multi-layered approach to uptake, including through national authorities or agencies and involvement at local level through decentralised authorities, local NGOs and CSOs, training facilities, operator associations and community structures. The outputs of this project will facilitate the uptake and subsequent embedment of improved practices, policies and strategies. The uptake and embedment may relate to policy and regulatory reforms in rural transportation and/or the operational practices of motorcycle operators and other stakeholders, such as training organisations. The project will support the acquisition of knowledge and improved capacity of trained technical staff.

3.2 Methodology

The approach and methodology of the project remain as they were detailed in the project proposal, which is in line with the suggestions of the Scope of Work section in the project's Terms of Reference. Whilst the focus of this research is largely on rural areas, based on feedback from local partners, the survey will also include a peri-urban location where motorcycles play a critical connecting role.

Our coordinated networking approach, through which all members of the team are in regular communication will continue throughout the project.

The project is divided into three phases:

- Phase 1: Inception
- Phase 2: Research
- Phase 3: Uptake and Embedment

Phase 2: Research and Data Collection

The research component of the project is comprised of a survey that is directed at riders and users of motorcycles and three-wheelers in a minimum of two locations in DRC. Areas that will be targeted include at least one rural site and one peri-urban site. Although motorcycle use in urban areas is high, it will have to be considered if the there is enough capability to produce representative results in an urban area. The surveys that will be used will be based on those that have been validated in the previous research countries and will aim to better understand:

- Behaviours around motorcycle and three-wheeler use
- Advantages and disadvantages for regulators, riders, users and other stakeholders
- Awareness and adoption of regulation
- Personal safety
- Road security
- Availability and adoption of training
- Need for interventions

Phase 3: Uptake and Embedment

According to the World Health Organization (WHO, 2017) the introduction of compulsory training and a skills test to obtain a motorcycle permit or licence has been shown to be an effective intervention in two- and three-wheeler safety. Based on the stakeholder meetings and interviews with riders, there is evidence that training attendance is low and that training that is attended is designed for automobile drivers. This likely leads to a situation where riders have little knowledge beyond that necessary to physically operate a motorcycle or three-wheeler.

With better education and training riders would gain an understanding of the benefits of such things as helmets, driving licences, insurance, road traffic laws and passenger safety. With a more comprehensive understanding, riders can perform much more safely on the road and reduce the risk of crashes resulting in injury and death.

An initial desk review of motorcycle and three-wheeler related legislation and regulation is necessary to understand the infrastructure that is currently in place. A review of the training curriculum that is available at both public and private training facilities will then be essential to understand the quality of training given and if there is an opportunity for strengthening these programs. This review will draw on existing knowledge from both Transaid and Amend, interviewing stakeholders (including regulators, traffic police, training providers and associations) and riders.

Following completion of the research activities, a country discussion paper will be produced based on an initial analysis of the data and findings. This discussion paper will be used in a local workshop that brings together key government stakeholders, the project team, and international organisations to discuss outcomes and potential opportunities for improving motorcycle and three-wheeler conditions.

Based on the needs identified during the research phase and discussed during the dissemination meetings with partners, recommendations will be proposed.

3.3 Links to ReCAP Logframe

The project's contribution to the ReCAP Logical Framework is included in Annex A.

4 Progress during Inception Phase

Here we summarise progress to date on each activity undertaken during the Inception Phase.

4.1 Engage Principal Investigators

In March 2019 we identified a Principal Investigator in DRC, Professor Paul Mansiangi from the University of Kinshasa. Prof. Mansiangi, supported by Dr Aimee Lulebo also from the University of Kinshasa will be our local survey leads for the project. Paul Mansiangi is an established researcher and currently stands as the Director of the Environmental Health Department, School of Public Health. Aimee Lulebo is the Director of the Department of Epidemiology and Biostatistics. Their expertise will support the project with the recruitment and organisation of a research team for the survey, the review of the research tools, training of the research team and the review of data and related findings. They will be present at the dissemination event to represent the methodology and data collection aspect of the project.

Principal Investigator
Prof. Paul Mansiangi - Paul Mansiangi has more than 10 years of experience in organising and conducting large-scale studies where he manages the following tasks:

- Development of study protocols
- Assuring study procedures are in line with the requirements of the ethical committee
- Recruitment and training of the research team
- Training of the research teams
- Managing logistical and material preparation
- Management of data collection and analysis
- Report management

Prof. Mansiangi is also an active professor, teaching several courses at the University of Kinshasa.

Co-Principal investigator:
Dr Aimée Lulebo – Dr. Lulebo has more than ten years of experience in the design and conduct of field surveys. She has expertise with Epi data, Epi info, SPSS, and Stata data analysis software. She is an active lecturer of several courses including Epidemiology, Biostatistics and research methodology at the University of Kinshasa. Within projects her expertise includes supervision and quality control of data collection and data analysis.

We also intend to engage a consultant, Chris Super who has worked with Cellule Infrastructure in the past as a research assistant on a number of transport initiatives. His expertise in both the work of Cellule Infrastructure and the transport system of DRC will be important to helping ensure an effective research methodology, tools and data collection and ensuring close alignment with previous and current transport research activities in DRC.

A kick-off webinar was held on 4th March 2019 and attended by the project team (Caroline Barber, Tom Bishop, Neil Rettie and Kim van der Weijde). During this webinar, the project was explained in detail and team members had a chance to ask questions and offer feedback to the general structure of the project. The other team members in DRC were not included as we were waiting to have official approval from ReCAP. As soon as this permission is granted another kick-off call will be held with the whole team.

4.2 Understanding the existing situation in DRC

A detailed understanding of the existing situation in each country is essential to inform the development of the research strategies. We have gained this understanding through stakeholder mapping, stakeholder engagement and a brief literature review. We will build on this understanding over the next few months of the project.

4.2.1 Stakeholder mapping

Through our team's experience of previous research into rural transport, motorcycles and three-wheelers, including numerous AfCAP projects, we have identified and mapped relevant stakeholders.

In DRC, we have identified twenty initial stakeholders from government, the private sector and civil society.

The stakeholder mapping exercise is ongoing and will continue into Phase 2. While we are confident that we have identified the key government stakeholders in DRC, we recognise that we will continue to identify new private sector and civil society stakeholders throughout the project. As we continue to meet stakeholders, we are given contacts of others with interest related to the use of motorcycles and three-wheelers, especially private entrepreneurs and NGOs.

A full list of the stakeholders we have engaged with is included in Annex B.

4.2.2 Stakeholder engagement

As we have mapped the relevant stakeholders, we have identified those that are most likely to contribute to the project, provide valuable information on the existing situation and to have influence over the use of the project's findings and implementation of its recommendations. We have met with some of these stakeholders face-to-face or over Skype calls to introduce the project and seek their input.

During the initial scoping trip in Kinshasa, Cellule Infrastructure arranged several introductory meetings with key government stakeholders, international organisations, enforcement agencies and motorcycle associations. Representatives from the following bodies were engaged with:

- Cellule Infrastructure
- Japan International Cooperation Agency (JICA)
- Ministry of Transport / Ministère des Transports
- National Committee of Road Safety / Commission Nationale de Prévention Routière
- Ministry of Infrastructure, Public Works and Reconstruction / Ministère des Infrastructures, Travaux Publics et Reconstruction Provincial Ministry of Transport Kinshasa / Ministère Provincial des Transports de Kinshasa
- Road Traffic Police / Police de circulation routière
- Motorcycle and Motorcycle Rider Associations (4) / Les associations des chauffeurs de moto et mototaxi (4)
- The World Bank
- Department for International Development (DFID)
- John Snow Initiative: Maternal and Child Survival Programme

Additional stakeholders were identified and contacted during Phase 1 of the project. These stakeholders have either worked on projects pertaining to or including motorcycles and include:

- Pikilily
- i+ Solutions

4.2.3 Brief literature review

Here we summarise a brief literature review that was undertaken to gather existing literature related to the use of motorcycles and three-wheelers for rural transport in DRC. Due to a lack of literature available, the team will continue to collect grey literature during Phase 2 and will complete research dedicated to legislation and training in June. The literature review is available on the Motorcycle Safety Regional project web page. Full references are included in the literature review but are not included in this summary.

Methodology

Literature was sourced using primarily the *Web of Science* and *Google Scholar*. Additional literature was requested from identified stakeholders, however this is still to be provided and is being followed up. A list of key words and phrases were developed by the project team based on the identified key themes for investigation in relation to motorcycles and three-wheelers in DRC - infrastructure, uptake, road safety and regulation.

These documents were supplemented by additional academic literature and so-called 'grey' literature sourced by the project team.

Findings

The number of motorcycles in DRC is currently far greater than that of three-wheelers, and this is reflected in the literature, with there being far more information on motorcycles than three-wheelers. The majority of the literature also focuses on urban areas rather than rural areas.

Motorcycles and three-wheelers account for 23% of all road traffic deaths; equating to more than 286,000 deaths around the world annually, and this number is rising. However, despite being seen as a problem by many in the road safety community, motorcycles in particular are a key resource for many people. In rural areas, motorcycles are used on a daily basis to travel to both rural and urban areas and for example to reach schools and offices, and provide a form of employment and income-generation.

Theme: Infrastructure

Due to war and civil unrest, weak policy, and a lack of capacity and resources, the transport system in DRC has deteriorated since the 1970's. Maintenance of the existing system has been further challenged and has led to continued, worsening conditions. An estimated 50% of the country remains inaccessible by road or rail, and in Kinshasa, for example, 80% of the road remains unpaved. Conditions such as these have contributed to an increased reliance on motorcycles for transport, which are able to travel across varying terrain conditions as well as through traffic that frequents the few developed roads of more urbanised areas.

Theme: Uptake

The value of motorcycles and three-wheelers in mitigating the challenges experienced by isolated communities in low- and middle-income countries in accessing healthcare, education, markets, and employment is well understood. The ability of these vehicles to negotiate poor quality rural roads, tracks and paths inaccessible by other vehicle types, and the door-to-door service they provide, is having a transformative effect on rural areas and the lives of rural people. They serve areas where limited forms of other public transport operate.

The availability and affordability of imported Chinese and Indian manufactured models have contributed positively to youth employment. In the north-eastern Lubero territory, for example, it is estimated that 80% of motorcycles are Asian imports.

While no readily available information was found on the number of registered motorcycles and three-wheelers in DRC, it is clear that the number of motorcycles has rapidly increased in DRC in recent years. Motorcycles offer advantages in both rural and urban areas and have led to a high level of uptake in both zones. In some hubs and neighbourhoods such as in Lubumbashi, public transport is now dominated by motorcycle taxis.

Access to motorcycles in DRC has been found to be either through direct ownership or through informal leasing. In the case of the latter, payments are generally financed through taxi services. Several groups have taken to the profession of motorcycle taxi, including those unemployed, discharged soldiers, youths, as well as those already employed groups. Advantages to the motorcycle taxi profession include being an easy entry profession and one which is in high demand.

Theme: Road Safety

There is a clear lack of data related to road traffic crash related deaths occurring within DRC. To illustrate, in 2016 there were 385 reported road crash related deaths (according to government

statistics) across all modes of transport, whereas WHO estimate this number to be 26,529. According to a report by Kalume and Ilunga (2016), motorcycles are also anecdotally reported that there is an increasing association with threats to safety, such as attacks on passengers, kidnapping, rape and robbery (Kalume and Ilunga, 2016).

Proper safety equipment including a helmet and protective clothing is reportedly required in DRC, however research indicates that this practice has not been adopted by riders in DRC.

Partly because motorcycle transport has found itself outside of the law and lacking regulation, there has been a high level of personal and road insecurity on the road relating to motorcycle use.

Additional information and data regarding road safety will be collected during Phase 2.

Theme: Regulation

The rapidly growing nature of this sector makes it challenging to now regulate and manage. Regulation is the responsibility of individual provinces and therefore is not harmonised throughout the country. The repercussions of a lack of regulation and enforcement include unsafe practices, untrained riders, a lack of vehicle registrations, a lack of compliance of the Highway Code, an absence of helmets for both riders and passengers, a failure to pay taxes on motorcycles, frequent road traffic crashes, and a lack of vehicle or rider insurance.

In general, legislation requires all riders to have a valid motorcycle license and for all vehicles to be officially registered. According to the limited research available, it appears that neither formal licensing nor vehicle registration are widely adopted practices. Lack of compliance with the Highway Code has repercussions on all users of the road, however this does not appear to be upheld by law enforcement in DRC.

Many urban areas impose restrictions on the times and zones in which motorcycles are allowed to operate. These decisions are often made to try to decrease the rate of crashes, which are thought to be caused by the increased number of motorcyclists.

Additional research will be carried out regarding regulation, legislation and training during Phase 2.

Conclusions

While motorcycle use in DRC continues to increase, a large array of negative aspects is associated with this trend, mostly in terms of road safety risks. While undoubtedly being a motorcycle taxi rider or passenger bears risks, their continued use indicates that the advantages continue to outweigh the risks.

The urban focus of much of the literature and information available highlights gaps of knowledge in rural areas. There is an overall lack of research and information on three-wheelers in DRC.

While the need to improve the safety of rural motorcycle riders and passengers is undeniable, a balance must be struck between safety and the crucial role motorcycles and three-wheelers play in improving lives in DRC.

Active and past projects show that there are organisations committed to improving the infrastructure and safety related to transport in Kinshasa. This project aims to provide further insight into how the safety and regulation of motorcycle and three-wheeler use in greater DRC can be optimised.

4.2.4 Evaluation of existing initiatives

The team has started to review and evaluate existing initiatives aimed at improving motorcycle and three-wheeler services and access.

I+Solutions - using motorcycles for the distribution of essential medicines:

I+solutions was established in 2005 and focuses on supporting the procurement and distribution of essential medicines and creating sustainable access to medicines and health products. Current projects span across 45 countries throughout Africa, Asia, and Central and South America. Through its consultancy and capacity-building projects, i+solutions aims to develop health infrastructure that countries can continue to manage by themselves. I+solutions also manages certain aspects of procurement on behalf of the Global Fund, a project valuing over $600 million for TB, HIV/AIDS, and malaria commodities.

I+solutions has been working in DRC since 2009, initially focused on procurement. Since 2014 they have expanded their activities to include health encompassing projects. Initiatives they have been involved with include:

- '3C' – Together with The United Nations Population Fund (UNFPA) focusing on Commodities, Chain and Care – This project introduces holistic care to manage and reduce sexual and gender based violence through improving access to commodities (Commodities), increasing the efficiency and effectiveness of the supply chain for pharmaceutical products (Chain) and increasing access to quality health care (Care). UNFPA manages the demand and community aspects while i+solutions ensures commodity availability through an informed push model[2].
- 'Jeune 3S' – Partnered with Cordaid, this youth programme increases access to contraceptives through education and youth friendly services for children aged 10 years or older. The project also ensures that family planning commodities are available in homes and in health facilities. This project supports a population of 3.5 million people across 12 health zones.
- Integrated health programme – A project led by ABT Associates and funded by USAID. i+solutions is responsible for commodity availability at the last mile[3] within communities. This programme covers nine provinces. Drug availability between provincial and health facility level is managed by Chemonics.
- Supply chain assessment programme – i+solutions is finalising the planning of this programme together with iPPF and funded by DFID.

The Integrated Health Programme (IHP) is of particular interest. The IHP uses a motorcycle component to ensure commodity availability at the last mile. In remote areas, health facilities are facing challenges related to planning, ordering, and drug requisitions due to issues such as costs of fuel and availability of transport. In-country management tools for reporting and measuring consumption are not in place. This makes the physical distribution to health zones challenging, considering health facilities are responsible for the requisition of commodities from their respective health zones.

[2] An 'informed push model' is a supply chain mechanism that delivers commodities directly to health facilities by making real-time stocking decisions based on inventory and consumption data.

[3] 'The Last Mile' refers to bringing essential services to the poorest people, whether in remote rural areas or in urban slums, described by the UN as the people and places that are under-served and excluded, where development needs are greatest and where resources are most scarce.

In response to these challenges, i+solutions has introduced an informed push model where, health zones are responsible for delivering family planning commodities, HIV, malaria and TB medicines to health facilities. Transportation is provided by a private motorcycle-taxi, contracted by the health zone. Health zones are divided into 'corridors', wherein the motorcycles travel to deliver the necessary commodities to independent health facilities. This approach has reduced stock outs of at least one product from 13 out of 18 health facilities at the start of the pilot to four health facilities after the start of the pilot. The number of health facilities with expired stocks was also reduced from eight health facilities to four. Riders are also instructed to transfer health based messages to individual health facilities relating to sensitisation. Motorcycle riders are currently contracted privately by the health zones.

i+solutions is looking to upscale the IPM to 27 health zones and intend to transform commodity related logistics at a national level. i+solutions is keen to explore possible areas of collaboration with this research project.

Pikilily: Motorcycle Training in the Mining Region of Watsa (2017)

Pikilily is an organisation based in Mwanza, Tanzania, that delivers motorcycle ambulance services, safe motorcycle training and female empowerment across Africa. In 2017, Pikilily worked together with the mining group Randgold (now Barrick Gold) in Watsa, DRC, south of the Kibali mines, to improve safe practices of both motorcycle riders and users. This work was a part of Randgold's corporate social responsibility and took place over a two-week period. Initially, Barrick Gold aimed to sensitise 1,000 riders and a group of women and child users. The programme successfully sensitised 500 riders on motorcycle maintenance and rider safety over the course of two half-day sessions. Motivation to attend both phases of the training was notably high and riders and users were not paid to attend these sessions. The programme worked in partnership with motorcycle associations, who were also highly engaged and eager to have their riders attend. A separate sensitisation was given to drivers of three-wheelers, which consisted of a group of 15-20 drivers.

Training of trainers was given to several heads of associations in order to build local capacity. Motorcycle maintenance and the basic motorcycle checks were identified as two challenges to safe operations, as well as availability of spare parts. The low quality of spare parts meant that parts frequently required replacement, and in many cases this lead to motorcycle taxis operating without adequate parts. The lack of availability of small helmets for children was also a challenge for riders and users. Despite these challenges having been identified as influencing the project, a lack of respect for the Highway Code by riders, and the consequent implications on road safety, were considered to be the primary challenge influencing motorcycle related crashes.

An additional sensitisation activity was organised to educate users on factors that should be considered when selecting a motorcycle taxi to use, which included basic motorcycle checks, the ability to communicate with the rider in case of problems, and other relevant topics. Training was given to 100 women and 60 children through a local summer camp. Despite concerns about willingness to attend, there was a high turn-out based on feedback from users, '*being tired of seeing accidents,*' and a genuine interest in learning how to best avoid them. This passenger training was primarily aimed at educating users on how to remain safe while using motorcycle taxis, however it also served to encourage motorcycle owners to better maintain their motorcycles, considering users would be able to better select a safe vehicle.

Pikilily's approach will be reviewed by the team so see if there are lessons that can be used in future interventions.

National Integrated Transport Master Plan

Japan International Cooperation Agency (JICA), Cellule Infrastructure (CI), and the 'Ministere des Infrastructures, Travaux Publics et Reconstruction' have come together to work on the improved urban development of Kinshasa City, which will incorporate the development of transport infrastructure. This development programme will continue up to 2030. The initial milestone of this project includes a study, which develops an 'Urban Transport Master Plan' based on the verification of current conditions, plan development, and a preliminary feasibility study.

Based on the initial research, the following activities have been proposed for the Urban Transport Master Plan:

- Modernisation of the railway
- Development of a Bus Rapid Transit (BRT) system
- Bus and Paratransit
- Road development
- Road Maintenance
- Ensuing traffic safety and ensuring smooth traffic flow

JICA has expressed interest in this research into two and three-wheelers in DRC and was especially interested in any capacity building elements to help improve the safe operation of two and three-wheelers.

DFID: Three Wheeler Introduction and possible Scale-Up

DFID is involved in transport sector work through a project based in Kinshasa that aims to improve transport in order to support livelihoods. This is being achieved through increased access to markets and services through improved transport, mostly through river services. One aspect of the project, however, aims to explore the feasibility of three-wheeler introduction and scale-up in Kinshasa to support increased access to markets and services via road transport. The initiative is in its early stages but there are possible opportunities for collaboration.

Motorcycle Training

The National Committee for Road Safety or the Commission Nationale de Prévention Routière (CNPR) is the national body concerned with activities related to the monitoring and enforcement of road safety related activities and is also the body in charge of motorised vehicle training. The committee was created under the ordinance of the President. With regards to motorcycles and motorised three-wheelers, the CNPR offers theoretical training and refresher training to riders. In our understanding, the training is based around car driver training, but includes a module specifically related to motorcycles. There is no specific training for three-wheelers. CNPR's current target is to train all riders currently on the road in Kinshasa that do not have a licence, which they plan to execute together with other related ministries. The CNPR also carries out inspections of private training schools and sets the criteria necessary to become viable schools.

In addition to training related activities, the CNPR is also carrying out a study focused on identifying the cause of road crashes, including those related to motorcycles.

Harmonizing Regulation

Currently, provinces are responsible for the establishment of their own road regulation, which has left an uncoordinated and varying set of regulations in place across the country. Variations in

regulation can include hours and zones of operation, and critical issues such as helmet use. Various transport and infrastructure ministries have expressed their interest in harmonising legislation across all provinces. This will aid provinces in their ability to enforce regulation, avoid confusion for riders, and allow for the harmonisation of regulation and training material across the country. This research presents an opportunity to review the legislation in at least two provinces (where the surveys will be carried out), make comparisons and present recommendations on the way forward.

5 Revised Workplan

No major changes have been made to milestones or to subsequent tasks and sub-tasks. Dates relating to milestones were refined slightly based on the timeframe for ethical approval and to allow sufficient time to develop the discussion paper ahead of the workshop.

The team has made good progress in the first four weeks of the project. In April and May the surveys for DRC will be finalised and translated. The application for ethical approval will then be made and is expected to be granted by June. The review of training and legislation will run from April to June, with an in-country visit planned in June to support the preceding desk-work. Training of the research team on the survey will take place in July and the fieldwork will then be carried out in the last two weeks of July. Following a combined training session, research teams will be split into two groups that will work on parallel to efficiently carry out the necessary surveys. We aim to cover three survey sites (two rural and one per-urban) and to complete a minimum of 150 questionnaires. We will then complete the data entry and analysis in August ahead of the draft country paper in September and workshop in October.

Technical inputs from the project team are provided in Annex C, and the revised workplan is shown in Annex D.

6 Management Approach

The project is being managed as described in the proposal, with the Quality Assurance Group supporting the Team Leader and the Key Experts supporting the PIs.

The PIs have extensive research experience within DRC. While we have a very high degree of confidence in their research capabilities, their work has mostly been tailored to public health. Because of this, we have required the team to work with a consultant who has worked with Cellule Infrastructure, who has experience in the transport and infrastructure of DRC. Together we believe their complimentary skills will yield a highly successful research team.

The project's risk register has been updated and is included in Annex E.

7 References

Kalume, A. and Ilunga, A. (2016). Des Conditions d'Exercise du Transport Par Taxi-Motos dans la Ville de Lubumbashi, s.l.: KAS African Law Study Library - Librairie Africaine d'Etudes Juridiques.

WHO (2017). Powered Two- And Three-Wheeler Safety: A Road Safety Manual For Decision-Makers And Practitioners. Available at: http://apps.who.int/iris/bitstream/10665/254759/1/9789241511926-eng.pdf

Annex A: Contribution to ReCAP Log Frame

The project's contribution to the ReCAP Log Frame is shown in the following table.

It should be noted that:

- We expect to be able to add more detailed targets after the research methodologies have been finalised
- As key outputs will be delivered towards the end of the project, we expect that changes to policy, regulation and practice, citations, presentations at conferences will be achieved beyond the end of the project contract. To demonstrate this, we have added targets for achievements with one year and within two years of the end of the project

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Feb 2019	Target: End of Project, Dec 2019	Target: Within One Year of End of Project, Dec 2020	Target: Within Two Years of End of Project, Dec 2021	Assumptions
Outcome: Sustained increase in evidence base for more cost effective and reliable low volume rural road and transport services, promoted and influencing policy and practice in Africa and Asia	1. SUSTAINABILITY: Partner Government and other financiers co-funding research with ReCAP. Contributions in kind (K) and Core Contributions (C)	In kind support will be fully documented in line with the AfCAP guidelines					It is anticipated that in kind (K) contributions will be leveraged during the life of the project. This may take the form of additional Amend/Transaid staff time (beyond the contractual days) or securing funding in-country from government or private sector to support certain activities such as training, workshops or piloting an initiative. UK private sector support will also be investigated through Transaid's corporate partners.

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Feb 2019	Target: End of Project, Dec 2019	Target: Within One Year of End of Project, Dec 2020	Target: Within Two Years of End of Project, Dec 2021	Assumptions
	2. Concrete examples of change (applied or formally adopted), influenced by ReCAP research that will be applied to #km of road in focus countries.	N/A	N/A	N/A	N/A	N/A	N/A
	3. Number of citations in academic articles of ReCAP peer reviewed articles and/or working papers, conference papers, etc.	Conference proceedings Google Scholar and similar sources	0		1	2	Within one year of the end of the project, it is expected that this research will be cited in conference papers. Within two years, it is expected that this research will be cited in other research papers.
Output 1: RESEARCH and UPTAKE: Generation, validation and updating of evidence for effective policies and practices to achieve safe, all-season, climate-resilient, equitable and affordable LVRR and transport services in African and Asian countries.	1.1 LVRR: Number of peer reviewed papers generated from ReCAP supported or related LVRR research projects made available in open access format.	N/A	N/A	N/A	N/A	N/A	N/A
	1.2. TS: Number of peer reviewed papers generated from ReCAP supported or related TS research projects made available in open access format.	Two academically – orientated research papers produced	0				

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Feb 2019	Target: End of Project, Dec 2019	Target: Within One Year of End of Project, Dec 2020	Target: Within Two Years of End of Project, Dec 2021	Assumptions
(Low Volume Rural Roads : LVRR / TS – Transport Services)							
	1.3 Engineering Research: National policies, manuals, guidelines and/or research outputs that have been fully incorporated into Government/Ministerial requirements, specifications and recommended good practice as a result of ReCAP engineering research (including climate change adaptation and AfCAP and SEACAP adaptations). To include introduction of new policies and modification to existing policies.	N/A	N/A	N/A	N/A	N/A	N/A
	1.4 TRANSPORT SERVICES Research: National policies, regulations and/or practices for rural	New policies and practices will be fully documented in line with the	0	0	1 (uptaken)	1 (embedded)	Within one year of the end of the project, it is expected that one concrete example of change will be adopted in each of the four project

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Feb 2019	Target: End of Project, Dec 2019	Target: Within One Year of End of Project, Dec 2020	Target: Within Two Years of End of Project, Dec 2021	Assumptions
	transport services modified or introduced as a result of ReCAP research (including road safety and gender and AfCAP and SEACAP research) To include introduction of new policies and modification to existing policies.	AfCAP guidelines					countries. Within two years, it is expected that those concrete examples of change will be embedded within policy or practice.
	1.6. LVRR and TS information generated for dissemination, and disseminated, that is not peer reviewed. Total to include research papers, final research reports, workshop reports, manuals and guidelines.	ReCAP PMU	0	Final Report accepted Technical brief completed			
Output 2: CAPACITY BUILDING: The building of sustainable capacity to carry out research on low volume rural roads, and rural	2.1. African / Asian experts or institutions taking lead roles in ReCAP Research Projects.	Final Report / ReCAP PMU	0	5			The PI is expected to successfully complete the project.

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Feb 2019	Target: End of Project, Dec 2019	Target: Within One Year of End of Project, Dec 2020	Target: Within Two Years of End of Project, Dec 2021	Assumptions
transport services in African and Asian countries.	2.3. Research projects with female researcher inputs at senior technical level.	Final Report / ReCAP PMU	0	2			The Chair of QUAG and Research Lead all expected to successfully complete the project.
Output 3: KNOWLEDGE: Generated evidence base of LVRR and transport services knowledge is widely disseminated and easily accessible by policy makers and practitioners (including education and training institutions).	3.2. ReCAP generated knowledge presented and discussed at high level international development debates and conferences	Proceedings of high level international development debates and conferences			1	2	It is expected that members of the project team will present the results of the project at least once per year during the two years following the end of the project.
	3.3.ReCAP generated knowledge disseminated through significant workshops and dedicated training, virtually or physically, that are rated by participants as effective.	Reports of Four-Day Team Workshop and One-Day Country Workshops	0	All workshops rated by a minimum of 90% of participants as 'effective'			

Annex B: Identified Stakeholders

Stakeholder	Relevance / Information Sought
Government Stakeholders	
Cellule Infrastructure	Primary stakeholder, local experts on transport and infrastructure. Coordination of meetings with stakeholders, review of ongoing and planned activities, identification of needs.
Ministry of Transport / Ministère des Transports	Expert stakeholder on transport and infrastructure. Review of ongoing and planned activities and national needs.
National Committee of Road Safety / Commission Nationale de Prévention Routière	Expert stakeholder on training, regulation and registration. Review of ongoing and planned activities and national needs.
Ministry of Infrastructure / Ministère d'Infrastructure	Expert stakeholder on infrastructure. Review of ongoing and planned activities and national needs.
Provincial Ministry of Transport Kinshasa / Ministère Provincial des Transports de Kinshasa	Expert stakeholder on transport and infrastructure in Kinshasa. Review of ongoing and planned activities and national needs.
Road Traffic Police / Police de circulation routière	Stakeholder regarding regulation and road safety.
Private Sector Stakeholders	
Pikilily	Experience in training motorcycles in DRC
I+Solutions	Experience in utilising motorcycles as a part of the pharmaceutical supply chain in DRC.
Civil Society Stakeholders	
Japan International Cooperation Agency	Primary stakeholder in National Integrated Transport Master Plan.
Motorcycle taxi riders' associations	Key stakeholder group relating to motorcycle and three-wheeler riders.
The World Bank	Stakeholder involved in transport and infrastructure development in DRC.
DFID	Primary funder of the project and involved in additional transport/infrastructure projects in DRC.
John Snow Initiative: Maternal and Child Survival Programme	Partner of Transaid and involved in projects using motorcycles in public health focused programmes.

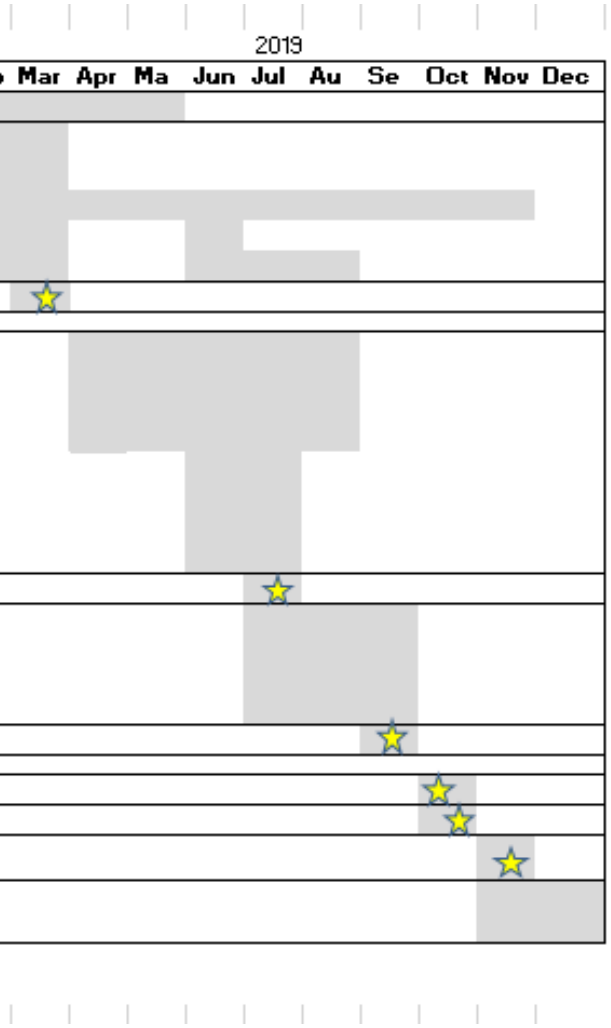
Annex C: Technical Inputs

Role	Name	Total Project Days
Team Leader	Tom Bishop	7
Chair of Quality Assurance Group	Caroline Barber	10.5
Technical Review and Quality Assurance Group	Darren Divall	0
Motorcycle Safety Specialist / Trainer	Neil Rettie	13
Research Coordinator	Kim van der Weijde	33
Finance Manager	Valerie Johnson	1.5
Transport Economist	John Hine	2
Principal Investigators	Paul Mansiangi and Aimée Lulebo	27
	Local Researchers	66
Transport Consultant	Chris Super	TBC

The level of effort from the team has been updated from the proposal and is presented here. The only change since the proposal is the reduction in days for Darren Divall. This has been offset by two days for John Hine. A new team member is also proposed, Chris Super, a transport consultant and researcher. These team changes will have no impact on the overall technical team budget.

Annex D: Revised Workplan

	Task	Sub-Task
Phase 1: Inception	1.1: Engage National Expert	
	1.2: Understand the Existing Situation in Each Country	Stakeholder mapping Stakeholder engagement Brief literature review Evaluation of existing initiatives
	1.3: Inception Report	
Phase 2: Research	2.1: Undertake In-Country Research	Survey of benefits and disbenefits (includes ethical approval, field work, data entry and analysis. The survey is planned for July 2019 Review of training, including in-country visit in June Review of legislation, including in-country visit in June
	2.2: Progress Report	
	2.3. Capacity building	Focused capacity building intervention, potentially around training of motorcycle/three-wheeler trainers
	2.4: Preparation of Draft Discussion Paper	
Phase 3: Uptake & Embedment	3.3: One-Day Country Workshop	
	3.4: Draft Final Report	
	3.5: Final Report and Technical/Policy brief	
	3.6: Dissemination of Study Findings and Recommendations	



Deliverables and Milestones ☆

Annex E: Risk Matrix

Programme Risk Assessment and Mitigation Matrix	Very High		High		Medium		Low	

Potential Risk	Risk Grading[4]		Description of risk	Proposed Management and mitigation actions
	Probability	Impact		
A. Risks identified in project proposal				
A1: A lack of crash data means that disaggregation of rural/urban data is not possible	H	M	From our past experience, and looking at what we have been able to obtain so far, it seems that crash data is not available, and data that is available may not be reliable. This will hinder our ability to understand in-depth the location of crashes.	We will work closely with Ministries to gather available data. Gathering of primary crash data is out of scope for this assignment, although data on crashes from the perspectives of a range of target groups will be gathered.
A2: Challenges in gathering information from stakeholders in the short timeframe	H	M	Due to the nature of this extension, there will be a short window of opportunity to complete interviews, focus groups, and stakeholder meetings. This leaves little flexibility in changing approach in the case of unexpected events or an approach that does not yield fruitful results.	By using an experienced and local research team we aim to implement research using a methodology and approach that will align well with the selected sites. The research team will be split into two groups following training to increase the efficiency of the data collection phase. Past experience of our research team working in peri-urban and Kinshasa will greatly reduce the time needed to identify and organise the target audience to be surveyed. Having the support from local ministries and Cellule Infrastructure will also be essential in ensuring participation in the data collection phase.
A3: Strong general opposition towards motorcycles and motorcycle taxis	M	M	Decision-makers tend to live in urban areas and so have a stronger understanding of urban issues than of rural issues. In urban areas in many African countries, motorcycles are commonly associated with crashes and injuries and crime.	We will strive to obtain and present a full understanding of transport issues based on data, thereby aiming to enable decision-makers to make policy based on fact rather than on their personal perceptions. Furthermore, the scoping trip held in February indicated that there is a general understanding of and appreciation of the importance of motorcycles in DRC.
A4: The visa process for DRC means results in	L	M	The visa process is more comprehensive for DRC than the other four countries. It can	As we are aware of this risk, Transaid and partners will work to ensure early submission of visa documents to minimize the risk of a time delay. Any

[4] **Probability** = the likelihood of this risk occurring despite the management and mitigation activities being in place. **Impact:** = the effect on the ability of the programme to achieve its objectives without major revision or review.

Programme Risk Assessment and Mitigation Matrix	Very High		High		Medium		Low	

Potential Risk	Risk Grading[4]		Description of risk	Proposed Management and mitigation actions
	Probability	Impact		
delays to planned travel			take 3-4 weeks to process visas for DRC and requires numerous documents.	airline reservations will also be made with the possibility to amend or cancel.
B. Risks identified since project commencement				
B1: Delays due to in-country instability or health risks	M	H	DRC has a history of political instability, especially in light of the recent presidential elections. We are also aware that the World Health Organization has put in place strong warnings due to the existence of both the plague and Ebola outbreaks in DRC.	We are continuing to monitor the political and health situation in DRC, using the UK Foreign and Commonwealth Office and WHO websites as well as our network of in-country contacts. We will develop a DRC specific safety and security plan to ensure that risks are minimised. Transaid has robust process for managing security and the team will be required to adhere to these.
B2: Risks associated with working in rural areas	M	L	There are numerous potential risks associated with working in rural areas in Africa. These include risk of road traffic crashes, security risks, health risks and more.	Transaid, Amend and TRL have significant experience of managing projects in rural areas in Africa. All of our team members have experience of working in rural areas. We will not ask any members of the team to travel to areas that are identified as risky. We will ensure that all team members required to work in rural areas take all reasonable precautions including, for example: - Using only vehicles hired from reputable companies with professional drivers, and vehicles in excellent condition - Staying in accommodation with adequate security - Staying in groups of no less than two at all times - Maintain regular communication - Only drinking bottled water We will also be travelling with local experts, which will decrease the risk by avoiding solo-travel which may be regarded as suspicious.