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

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Contents

Abstract

This DRC Final Report presents the DRC-specific findings of the project 'Enhancing understanding on safe motorcycle and three-wheeler use for rural transport and the implications for appropriate training and regulatory frameworks'. This project was carried out in DRC between February 2019 and December 2019.

The research strategy and methodology is broadly based on those used during the initial four country research phase of the project, applied in Ghana, Kenya, Tanzania and Uganda in 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. Activities included a review of the regulatory framework and existing training, a survey of the benefits and disbenefits of motorcycle and three-wheeler taxis, and key informant interviews.

The study has revealed that motorcycle taxis are very important for rural travel, and growing in popularity among rural communities. They are especially important for health-related trips and also provide economic advantages, creating employment and supporting agriculture.

As well as the many benefits that motorcycle taxis provide, riders and passengers are also frequently the victims of road traffic crashes, as well as crime, abuse and health issues. In addition, stakeholders advise that these modes of transport create safety risks for other road users. A very small proportion of people in rural communities do not – or cannot – use motorcycle taxis, but for the vast majority they are the most common form of day-to-day transport.

There is a poor level of compliance with existing regulations and training required by law in DRC by riders and capacity shortfalls in terms of enforcement by governmental actors. This has resulted in the poor uptake of training, a lack of legally required documentation, and helmet use.

The results of this study can be used by the DRC government and other key stakeholders to better understand the issues related to the use of motorcycle taxis in rural areas and to develop policy and practice to maximise the benefits and minimise the disbenefits. A number of recommendations are presented in this report. A supplementary activity is being explored together with local stakeholders based on the findings of this study, in order to positively influence the conditions for operators and users of motorcycles and motorised three-wheelers.

Key Words

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

Research for Community Access Partnership (ReCAP)

Safe and sustainable transport for rural communities

ReCAP is a research programme, funded by UK Aid, with the aim of promoting safe and sustainable transport for rural communities in Africa and Asia. ReCAP comprises the Africa Community Access Partnership (AfCAP) and the Asia Community Access Partnership (AsCAP). These partnerships support knowledge sharing between participating countries in order to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources. The ReCAP programme is managed by Cardno Emerging Markets (UK) Ltd.

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Acronyms, Units and Currencies

AfCAP	Africa Community Access Partnership
ANC	Antenatal care
ANIPTMC	Association National des Initiateurs et Propriétaires des Taxi-Motos du Congo
AsCAP	Asia Community Access Partnership
CBT	Compulsory Basic Training
CC	Cubic Capacity (engine size)
CDF	Congolese Franc (GBP 1 = CDF 2,048 on 06/09/19)
CNPR	Commission Nationale de Prévention Routière
CONADEP	Commission Nationale de Délivrance des Permis de Conduire
DFID	Department for International Development (United Kingdom)
DPS	Division Provinciale de Santé
DRC	Democratic Republic of Congo
GBP	British Pound Sterling
GPS	Global Positioning System
INPP	Institut National de Préparation Professionnelle
JICA	Japanese International Cooperation Agency
MONESCO	Mission de l'Organisation des Nations unies pour la stabilisation en République démocratique du Congo / The United Nations Organization Stabilization Mission in the Democratic Republic of the Congo
MTCC	Ministry of Transport and Communication Channels
PMU	Project Management Unit (of ReCAP)
ReCAP	Research for Community Access Partnership
TRL	Transport Research Laboratory
UK	United Kingdom (of Great Britain and Northern Ireland)
UKAid	United Kingdom Aid (Department for International Development, UK)
USD	United States Dollar (USD 1 = CDF 1,664 on 06/09/19)
WHO	World Health Organization

Executive Summary

The 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 between September 2017 and March 2019. In February 2019 the research was expanded to a fifth country, the Democratic Republic of Congo.

The use of motorcycles has increased greatly in sub-Saharan 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. In some countries, including Ghana, the use of motorcycles to carry fare-paying passengers is banned, although these bans are not always enforced, especially in rural areas. Motorised three-wheelers are also used in some rural areas, although their numbers are far fewer.

This DRC Final Report provides a brief introduction to the project and then describes the findings of the DRC research activities. It also presents the outcomes and recommendations resulting from a stakeholder workshop that was carried out on 17th October 2019.

The overall aim of this 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 an emphasis on rural motorcycle taxis, rider training, appropriate regulatory frameworks and realistic enforcement methods.

To accomplish this, a review of motorcycle and three-wheeler taxi-related legislation, training and enforcement has been completed. A wide range of stakeholders have been engaged and have shared their insights on motorcycle taxis and three-wheelers through a survey of the benefits and disbenefits. The survey was carried out in two provinces, Tshopo and Kinshasa, to obtain information from riders, passengers, taxi owners and owners of freight, as well as members of the community who do not use motorcycle or three-wheeler taxis. A total of 296 interviews were successfully completed and the findings are presented in this final report.

The study has revealed that motorcycle taxis are the most available and accessible form of transport in rural DRC. They are especially important for providing access to healthcare, creating employment opportunities, supporting the agriculture sector, as well as offering economic advantages over other forms of transport.

As well as the many benefits that motorcycle taxis provide, there are also considerable challenges. Riders, passengers and other road users often experience motorcycle related crashes, crime, abuse and health issues. Riders lack training and the legally required documentation to operate commercially. A very small proportion of people in rural communities do not – or cannot – use motorcycle taxis, but for the vast majority they were observed as the most common form of day-to-day transport.

The findings of this study can be used by the government and other stakeholders in DRC to better understand the issues related to motorcycle taxis in rural areas and to develop policy and practice to maximise their benefits and minimise their disbenefits.

1 Introduction

1.1 Research Objectives

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

1.2 Research Countries

The research was carried out in the Democratic Republic of Congo (DRC), and builds upon similar research that was undertaken in 2018 in Ghana, Kenya, Tanzania and Uganda. All five countries are shown in Figure 1.

Figure 1 The five project countries

The project is being supported by the Government of DRC through the local AfCAP partner institution, specifically Cellule Infrastructure, in the Ministry of Infrastructure, Public Works and Reconstruction[1].

According to the 2018 World Health Organization (WHO) *Global Status Report on Road Safety*, there is currently no data available on the number of motorcycles and motorised three-wheelers in DRC (WHO, 2018).

1.3 Background

The use of motorcycles has increased greatly in sub-Saharan Africa in recent years, both in urban and rural areas. In many African countries, in rural areas, motorcycles are often the most commonly found vehicles, and journeys that were previously made on foot or by bicycle are now made using a motorcycle. This has

[1] Cellule Infrastructure, or the Infrastructure Unit, is a technical body of the Ministry of Infrastructure Public Works and Reconstruction (MITPR), with administrative and financial autonomy.

been demonstrated in previous research commissioned 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[2] charging a fare to carry passengers or goods. In rural areas, motorcycle taxis play a crucial role in connecting people to services and farm produce 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 owners of motorcycles.

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 all weather roads, village trading 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 and has been shown to result in crashes, rider health issues and infringements on personal security (Bishop et al, 2018). 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.

1.4 Background to Motorcycles and Three-Wheelers in DRC

Uganda, which borders DRC, was the first country in East Africa in which motorcycles were used as taxis, first being noted in the 1980s. The now ubiquitous term 'boda boda' (meaning 'border to border') was coined at the Uganda-Kenya border, where first bicycles and later motorcycles were used to transport people between the two border posts. It is likely that the use of motorcycle taxis came into DRC from the Uganda border.

While there is no verifiable data related to the number of registered motorcycles and motorised three-wheelers in DRC, the vast majority of stakeholders recognised the crucial role that motorcycle taxis are playing in filling the gap left by the lack of conventional transport services. However, according to Table A2 of the WHO *Global Status Report on Road Safety (2018)*, there were an estimated 26,529 road traffic deaths in 2016 in DRC, of which 11.7% are estimated to be riders of motorcycles and motorised three-wheelers. This is based on a population of 78.74 million in DRC in 2016.

During this study, riders often expressed their concern about the manner of enforcement related to motorcycles and motorised three-wheelers, that they are treated badly by drivers of four-wheeled vehicles, and that there is a high risk of crashes.

Attempts to regulate the sector have been challenging and have recently resulted in the decentralisation of regulation and training accountability to individual provinces, according to interviews with stakeholders.

Despite the challenges facing the sector, motorcycle taxis remain an important means of transport. In some rural areas, they are the only means of motorised transport, and are commonly used even in emergencies.

1.5 Research Methodology

Three main activities were conducted as part of this study. These activities were:

- A review of motorcycle and three-wheeler taxi related regulatory framework and enforcement methods;
- A review of motorcycle and three-wheeler taxi rider training;

[2] Throughout this report, the term 'rider' is used to mean the driver or operator of a motorcycle or three-wheeler. The term rider does not include passengers.

- A survey of benefits and disbenefits of motorcycle and motorised three-wheeler taxis among riders and other users in rural areas;
- Investigations to understand the barriers to motorcycle and three-wheeler taxi use faced by some members of the study communities.

The survey of benefits and disbenefits was carried out at six different sites across DRC within two provinces: Kinshasa Province and Tshopo Province. Kinshasa Province is located in the west of DRC near the Congolese border. The survey sites in Kinshasa Province were located 120 km from Kinshasa city. Tshopo Province is located in the north-eastern/central area of DRC and survey sites were located up to 90 km from Kisangani city. All sites were hard to access by conventional transport services.

2 Research Findings in DRC

2.1 Stakeholder Mapping and Engagement

A stakeholder mapping exercise in DRC identified a total of 20 key stakeholders who have some responsibility or interest related to motorcycle and three-wheeler taxis in rural areas, representing government, private sector, and civil society. A full list of these stakeholders can be found in this project's Inception Report (van der Weijde, 2019).

Since its introduction, the motorcycle sector has been considered an informal sector, often characterised by riders and motorcycles being largely unregulated, exhibiting poor riding habits, and being difficult to manage. Most riders have had no formal training and many operate without driving licences and do not wear helmets. There are a large number of crashes, especially in areas with higher volumes of traffic. Excessive alcohol consumption is also associated with motorcycle riders by some stakeholders.

Despite these challenges, motorcycles are generally considered to be a crucial mode of transport that offer the population increased opportunities for employment, increased access to social services between rural and peri-urban areas, medical centres, markets, for social trips, and other economic benefits. The majority of motorcycles are not owned by riders, rather they are rented from the owner by the rider.

According to the Commission Nationale de Prévention Routière (CNPR), or the Road Safety Commission, there were 12,554 reported crashes and 407 related deaths in Kinshasa city during 2018. Of these, 195 crashes and 40 deaths were reported as being motorcyclists. This does not include any reported passengers or pedestrians. Based on the feedback collected during stakeholder meetings, the number of reported motorcycles and three-wheeler crashes is likely to be gravely under-reported, as the police are generally only summoned when there is a death or serious injury caused by the crash. Data on rural motorcycle crashes does not appear to exist.

2.2 Review of Motorcycle and Three-Wheeler Taxi-Related Regulatory Framework and Enforcement Methods

2.2.1 Overview

The key legislation for motorcycles and three-wheelers is the *Code de la Route*, the equivalent of what is called the Road Traffic Act in many other countries which effectively constitutes national legislation. The most recent revision of the *Code de la Route* was carried out in 2018. All stakeholders referred to the *Code de la Route* as a core document governing road transport.

The use of both motorcycles and three-wheelers to carry passengers and/or goods for a fare is permitted by law in DRC.

It should be noted that the regulatory framework and enforcement methods in DRC were developed at the central level and were initially implemented throughout the country. However, since the decentralisation in 2013, provinces have been empowered to develop and implement motorised transport legislation in line

with the needs of their province. Despite this fact, it was evident from discussions with government stakeholders that provinces remain reliant on the original laws established in Kinshasa Province, and particularly by the national government in Kinshasa City. The project team was not able to find any examples of where the legislation had actually been adapted at the provincial level, although some stakeholders at the provincial level suggested that this was in process.

It is important to note that verifying the level of adaptation of all provincial laws in DRC would only be possible by visiting all 26 provinces, which was beyond the scope of this project. Consequently policies, legislation and training material were primarily sourced from bodies located in Kinshasa City. Equally, stakeholders responsible for the development and monitoring of these documents are also typically based in Kinshasa. While ministry representatives, policymakers, and enforcement agencies were identified in both research sites in Kinshasa Province and Tshopo Province, the majority of policy, legislation and training originated from the national government in Kinshasa City. Furthermore, both provinces that were visited advised that they were currently updating their regulatory framework and enforcement methods.

2.2.2 Legislative Requirements and Processes

According to the Ville Province de Kinshasa's Bureau d'Engins et Cyclomoteurs, motorcycle owners/riders are required to have:

- Valid vehicle registration and licence plate
- Valid driving licence
- Bi-annual *contrôle technique* or mechanical inspection of vehicles
- Annual motorcycle tax
- Valid vehicle insurance
- Business licence/ Motorcycle taxi operator's licence (required for the carriage of people or goods on a commercial basis)

The cost of registering a motorcycle and obtaining a licence plate is USD 40[3]. The *vignette*, a motorcycle tax, is a recent introduction in Kinshasa Province and there are plans for a large sensitisation effort ahead of implementing the tax. The vignette, which is already in place for cars, has yet to be activated for motorcycles due to a lack of political will, which has led to a waived tax until now. The vignette will cost USD 21 for motorcycles and USD 25 for three-wheeled vehicles.

In Kinshasa Province, it is the responsibility of the state, specifically the Commission Nationale de Délivrance des Permis de Conduire (CONADEP), to issue driving licences. Obtaining a licence requires the rider to undertake a medical vision test, a practical exam, and a theoretical exam. Ministry officials advise that the process to obtain these is relatively simple, however riders are often both unable to afford these services, or otherwise believe that these documents are not necessary.

The current driving licensing system has been suspended in DRC while it is under review. The new licensing system will require riders to follow a training course and pass theoretical and practical exams at a recognised driving school. Upon passing the exam, the student will receive a certificate or *brevette* that they can present to the provincial Ministry of Transport and Communication Channels (MTCC) in order to obtain a licence. However, even though the licensing system has been formally suspended, licences are still being issued by the government according to a number of stakeholders.

Clear laws are in place in DRC regarding motorcycles in the *Code de la Route*; the requirements to wear helmets which are secured by a chin strap, carriage of passengers and goods, lighting and braking requirements, and mechanical inspection of vehicles (every six months for passenger carrying vehicles including motorcycles and three-wheelers).

[3] DRC uses both CDF and USD.

2.2.3 Challenges Facing Enforcement

As part of this study, interviews at both the national and local level revealed that there are numerous challenges facing the enforcement of motorcycle taxi related legislation in DRC, both in rural and urban areas. A common discussion topic during interviews with stakeholders include the lack of:

- Knowledge and respect for the *Code de la Route*
- Concern about the high number of crashes
- Enforcement of laws pertaining to motorcycles and three-wheelers
- Vehicle registration and taxation
- Driving licences
- Formal training
- Regulation of driving schools including the definition of a minimal curriculum

Even when having the necessary documents in place, riders appear to be afraid of getting stopped by the police and pressured into making payments. This was one of the reasons why riders lacked the motivation to acquire the necessary documents. Riders were also observed ignoring police stops and exhibiting aggressive riding that showed a lack of respect for police officers.

The police in Kisangani City, in Tshopo Province, explained that motorcycles are currently not being controlled by traffic officers. As a result, inappropriate rider behaviour, ownership of the required legal documents and the use of protective equipment is being overlooked. Furthermore, when the officers were carrying out their road traffic duties, the police cited a poor ability to control riders, largely due to a lack of resources to properly carry out their roles. Riders often refuse to stop for officers and are disrespectful towards the police, sometimes threatening officers by coming to the police station *en masse*.

Ministry of Transport and Communication Channels

"The motorcycle is a means of transport used by all for many reasons. It is probably the most important means of transport here (in the City of Kinshasa) and in rural areas. But the Sector is not regulated. It is informal because one does not need a license to exploit it, one does not have to respect the laws because it is unregulated and unorganized, one does not need to be registered, and it is very easy to access this mode of transportation."

Mr. Bagula – Ministry of Transport and Communication Channels, Kinshasa

According to the MTCC, the motorcycle sector is not well regulated. Most riders do not have a licence, do not register their vehicles, and do not know the contents of the *Code de la Route*. The Ministry also admits to difficulties in enforcing rider licensing compliance.

There are also reported incidents of corruption from the police. When performing checks for driving licences, vehicle registration, or insurance, if the rider does not have the necessary documents the police are said to expect a payment of between 5,000 CDF to 25,000 CDF before they release the rider. *L'Association Nationale des Initiateurs et Propriétaires de Taxis Motos du Congo* (ANIPTMC) claims that as long as riders are expected to pay these 'fees', riders will not be able to pay the contribution to their associations, the fee to obtain the necessary documents such as a licence and vehicle registration, or the cost of receiving training.

According to the Bureau d'Engins et Cyclomoteurs, it is difficult to ensure that activities such as registration and licensing are carried out. There are new motorcycles entering Kinshasa every day. The Bureau d'Engins et Cyclomoteurs believes that if there is increased enforcement of the law pertaining to riders then they will adhere more strictly to the requirements.

2.2.4 Motorcycle Associations

There have historically been four government recognised motorcycle associations in DRC, of which ANIPTMC is the only one that currently fulfils all legislative criteria and remains recognised by the government. However, additional associations were identified in both provinces targeted by this study.

All associations consulted accepted riders and owners of both motorcycles and motorised three-wheelers. Associations are generally based in urban centres, and extend their reach through sub-sections that are managed by committees. The structure of each association generally includes a president at national, provincial, territorial, and commune levels. Association staff reportedly work as volunteers and are not paid a salary. However, it seems they do receive some kind of compensation from the contributions that are paid by members.

Members are identified by a membership card and are expected to pay a regular fee. According to associations, however, only a small proportion of riders are able to pay their membership fee.

The advantage of being a member of an association is its role in representing and protecting its members. Associations also support riders and their families if they are experiencing challenges with the police, as well as if they have been involved in a crash resulting in damage, injury or death. During the survey and various interviews, both association leaders and members claimed that associations used to offer more benefits, such as insurance, but this is no longer the case.

Motorcycle associations were found to be popular amongst riders. According to the survey of benefits and disbenefits, 62% of riders interviewed were members of a motorcycle association. This is a higher proportion of riders when compared to the four other project countries. ANIPTMC claimed to have over 441,000 members in DRC, including both paying and non-paying members.

Associations and government representatives gave varied responses when questioned about their working relationships. While it seems associations are in contact with ministerial bodies, their collaboration is minimal. During an interview, one association President argued that he feels forgotten by the government in the sense that they do not receive any financial support, despite the fact that they are performing a public service. Another association claimed that they do not interact with the government and do not receive any support. The association advised that “they do not occupy [themselves] with politics, or vice versa”.

When associations were questioned on whether they would be available to support the training and sensitisation of motorcyclists, all responded positively if the necessary funding and support was provided. Ministerial and training bodies were in agreement that associations would have a positive influence on the availability of training. There are some challenges to implementing this in Kisangani, however, as the motorcycle association is currently suspended due to alleged irregularities.

2.3 Review of Motorcycle and Three-Wheeler Taxi Rider Training

There is currently no national training curriculum for riders of motorcycles and three-wheelers. However, both the national MTCC and CNPR (*la Commission Nationale de Prévention Routière*/National Road Safety Commission) are in favour of the development of such a curriculum in order to improve the competence of riders.

There is however, a *remise a niveau*, or upgrade handbook, issued in 2018 for drivers of vehicles, including motorcycles, in the Democratic Republic of Congo. This handbook was introduced to bring current licence holders up to a national minimum standard in terms of road user knowledge. It has a module specific to motorcycle riding that contains clear advice and recommendations for riders to follow, which goes beyond the basic law. For example, while confirming that a suitable helmet is required, the handbook goes on to recommend the wearing of gloves, a jacket, trousers and boots with clear explanations as to why these should be worn. A training, or *remise a niveau*, is required for all current licence holders and is provided over a five day period, with two hours of instruction per day. This training is given by the MTCC in order to improve the knowledge of riders and road safety. The *remise a niveau* is currently being offered for free, although a new licence costs USD 35.

Government recognised driving schools must meet specific requirements for registration. These include:

- A physical address
- Grounds where the practical training can be conducted
- Office infrastructure including a desk for the director and secretary of the school
- A classroom with a board to write on
- A computer and projector
- Viable equipment such as a car/motorcycle
- Qualified personnel to give the training
- A bank account
- Proof of payment of taxes

In principle, the school is reviewed each year by their Provincial MTCC to ensure that they continue to meet the minimum requirements. There were found to be no registered training schools in the rural areas where the surveys were conducted. The nearest registered training schools are in the urban centres – Kinshasa and Kisangani. In Kisangani, there is only one training school. In Kinshasa, there are eight recognised driving schools. Of the four driving schools that were interviewed in Kinshasa Province, all explained that there was little or no demand for motorcycle training. The project team identified one formal training centre that offers motorcycle training in Kisangani, the *Institute National de Preparation Professionelle* (INPP), who have branches in several provinces with the support of funding from Japanese International Cooperation Agency (JICA). While the INPP in Kisangani offers training to motorcycle riders in the province, they advised that the demand for this type of training is extremely low. When asked, one motorcycle association believed that this training is not affordable for motorcycle riders, which is offered at 110,000 CDF in Kisangani Province.

Nearly all stakeholders agreed that currently the vast majority of motorcycle riders are untrained. Even if a student attends a driving school and does not pass the exam, they are still able to obtain a licence as they do not need to provide proof of successfully completing training prior to sitting a basic riding test.

This project's survey of benefits and disbenefits concurred with this finding, and found that none of the motorcycle taxi riders interviewed had undergone any formal training.

In Kisangani, the police have also been involved with the MTCC and Division of Transport regarding the introduction of training and sensitisation activities.

2.4 Opportunities

Both at a national and provincial level, the MTCC would like to harmonise the training curriculum and training school regulations under one national standard. When designing these standards, the MTCC also believes that the local context of DRC must be taken into account, considering that the majority of current training regulations have been sourced from other Francophone countries such as Belgium. Currently the Provincial MTCC in Kisangani is reviewing the regulations that are in place for all vehicle classes and has commissioned a study to help determine which changes are necessary.

In Kinshasa the Provincial MTCC is also revising their regulatory framework and enforcement methods to improve the guidelines available to motorised transport. The Transport Division (within the MTCC) in Kisangani is also planning to conduct some refresher training and seminars for motorcycle taxi riders but there is no clear timeframe for this activity.

The motorcycle association of Tshopo Province, the MTCC, and the Division of Transport each stated that they would consider working in collaboration with one another to increase sensitisation and training opportunities for riders was welcomed. However, the current suspension of the Motorcycle Association must first be addressed before this can be introduced.

According to INPP in Kisangani, all actors (riders, MTCC, INPP) have different requirements that need to be addressed, including improved coordination, the consideration of the cost of organising quality training, and creating demand for training. There is also a need to focus on licences, registration of motorcycle taxis,

and enforcement to ensure that riders have these documents which would lead to a better regulated and safer sector.

2.5 Survey of the Benefits and Disbenefits of Motorcycle and Three-Wheeler Taxis

A full understanding of the benefits and disbenefits of motorcycles and three-wheelers in rural areas is required to help decision-makers develop appropriate and effective policies and legislation that can realistically be implemented and enforced.

The findings of this activity will give decision-makers a balanced view of the benefits and disbenefits of motorcycles and three-wheelers in rural areas, from the point of view of those people who own, ride and use them, and will also give insights into non-user perspectives. It will thus add to the overall body of knowledge related to motorcycles and three-wheelers as a means of improving rural access.

In DRC the survey was carried out in three different locations. Two locations were in Tshopo Province and one in Kinshasa Province. In each location two different villages were selected.

The survey comprised interviewing people from five different user groups:

1. Riders of motorcycle and three-wheeler taxis
2. Passengers of motorcycle and three-wheeler taxis
3. Owners of motorcycle and three-wheeler taxis
4. Owners of freight, who use motorcycle and three-wheeler taxis to transport their goods
5. Non-users – people who very rarely or never use motorcycle and three-wheeler taxis

The questionnaires covered the following topics:

- Overall opinions
- Economics and finance
- Access and mobility
- Injuries and health issues
- Crime and personal security
- Access to services and protective equipment

2.5.1 Survey Locations

The survey of benefits and disbenefits was carried out in six different sites across DRC. Table 1 outlines the six settlements and more detailed information is provided in Tables 2 to 4.

Table 1 Survey Settlements, DRC

Location	Province	Health Zone[4]	Village	# of interviewees
Rural, 9 km from Kisangani	Tshopo	Lubunga	Batiagayi	99
Rural, 8 km from Kisangani	Tshopo	Lubunga	Lula	
Rural, 90 km from Kisangani	Tshopo	Wanie Rukula	Babingi	100
Rural, 23 km from Kisangani	Tshopo	Wanie Rukula	Madula	
Rural, 105 km from Kinshasa city	Kinshasa	Maluku I	Impini	97
Rural, 120 km from Kinshasa city	Kinshasa	Maluku I	Musabu	

[4] A health zone is a decentralised entity, planning and implementing the Primary Health Care strategy in accordance with the central system level strategies, guidelines and health standards.

Information about the settlements was obtained through the Ministry of Health's site profiles, interviews with local leaders, discussions with local people and general observation by the project team. This information should be considered as a snapshot of what was found during the short visit to each settlement, rather than a comprehensive profile.

Source: ArcGIS

Figure 2 Map of all survey sites in DRC: Babingi, Batiagayi, Impini, Lula, Madula, Musabu,

Table 2 Settlements in Lubunga Health Zone, Tshopo Province

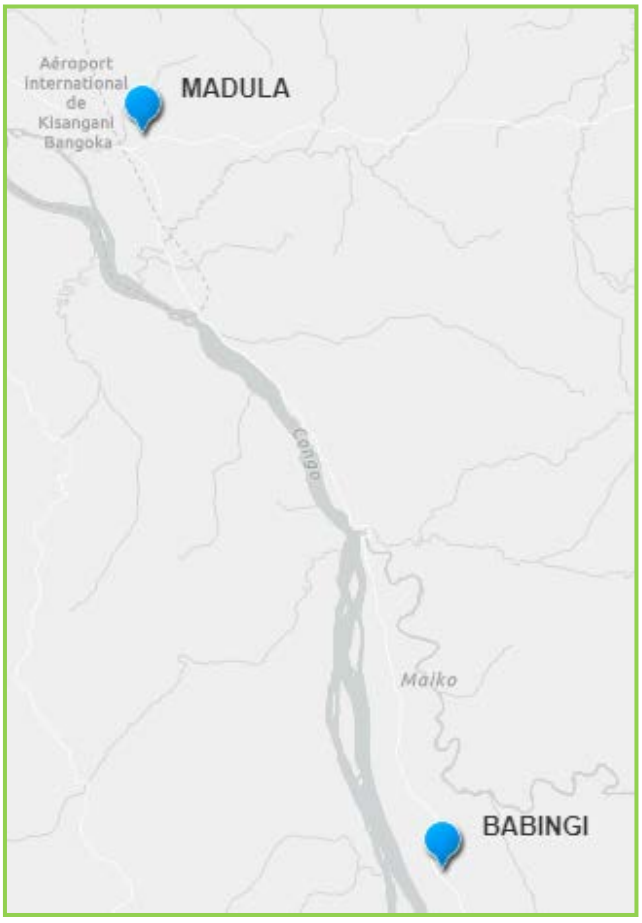
	Village: Batiagayi Health Zone: Lubunga, Osio Route: Opala	Village: Lula Health Zone: Lubunga, Ngene Ngene Route: Ubundu
Location and access	• Latitude : 0.445833 • Longitude : 25.153333 • 9 km from district centre (Kisangani) along the Opala route • 9 km from nearest sealed road • Less remote location (access Kisangani motorcycle and canoe must still be used)	• Latitude : 0.446389 • Longitude : 25.193889 • 8 km from district centre (Kisangani) along the Ubundu route • 8 km from nearest sealed road • The location is 8 km from Kisangani but the road is in a total state of disrepair
Transport options	• Motorcycles and bicycles are the principle modes of transport • Accessible all year round by motorcycles and bicycles	• Motorcycles and bicycles are the predominant mode of transport. Bicycles also very common. • Motorcycles and bicycles are used all year
Population	• Village of Batiagayi: 1,467 people • Ethnic groups include: Alengola, Bakumu, Bambole, Batopoke, Bangandu, Lokele, Bazimba and Batetela.	• Village of Lula: 840 people • Ethnic groups include: Baniamituku, Basoko, Bamongo, Walengola and Batopoke.
Economy	• Dependent on agriculture and livestock. The most cultivated products are cassava, rice and squash. Young motorcyclists are in the minority as the majority of young people are farmers.	• Agriculture dependent, mainly cassava and rice. • Many young people are farmers, some young men work as motorcycle taxi riders
Recent development	• The arrival of motorcycles, mobile phones, and new television channels are considered recent developments in the village. Motorcycle taxis have created employment for young people and facilitated mobility of the population.	• The introduction of motorcycle taxis and mobile phone are considered as developments for the village. The motorcycle taxis have created employment for young people and facilitated mobility of the population.
Local issues	• Land conflict • Long distances to travel to draw water from undeveloped springs • After the rain, large puddles form on the road (unsealed) which becomes slippery	• Land conflict • Long distances to travel to draw water from undeveloped springs • After the rain, large puddles form on the road (unsealed) which becomes slippery

Source: ArcGIS

Figure 3 Map of Batiagayi and Lula

Table 3 Settlements near Wanie Rukula Health Zone, Tshopo Province

	Babingi Village	Madula Village
Location and access	• Latitude :-0.055833 • Longitude: 25.583611 • 32 km from BCZ (Bureau Central de Zone de Sante) of Wanie Rukula • 90 km from Kisangani	• Latitude : 0.465833 • Longitude: 25.372222 • 35 km from BCZ (Bureau Central de Zone de Sante) of Wanie Rukula • 23 km from Kisangani
Transport options	• Motorcycle taxis are the main means of transport used in the village • Accessible all year by motorcycle taxi	• Motorcycle taxis have become the main transport for the village as they are less expensive than other motorised transport • Accessible all year by motorcycle taxi
Population	• 5,199 people • Many young people	• 8,256 people • Many young people
Economy	• Agriculture dependent - mainly maize, cassava and rice • Driving motorcycle taxis is the main income-generating activity for young men	• Agriculture dependent - mainly maze and cassava • Driving motorcycle taxis is the main income-generating activity for young men
Recent development	• Motorcycle taxis have brought some mobility and economic activities	• Motorcycle taxi riders are able to pay medical bills more easily than other social classes in the village
Local issues	• No mobile phone network coverage • No clean drinking water • No irrigation system	• No clean drinking water sources



Source: ArcGIS

Figure 4 Map of Madula and Babingi

Table 4 Settlements in Maluku I Health Zone, Kinshasa Province

	Impini Village	Musabu Village
Location and access	• Latitude :-4.038056 • Longitude: 15.815 • 105 km from Kinshasa city centre • 25 km from the main sealed road • 70 km from the BCZS • 70 km from the General Hospital	• Latitude : -4.033056 • Longitude : 15.840833 • 120 km from Kinshasa city centre • 27 km from the main sealed road • 80 km from the BCZS • 80 km from the General Hospital
Transport options	• Access is difficult, especially during the rainy season • Motorcycles are predominant mode of transport	• Access is difficult, especially during the rainy season • Motorcycles are predominant mode of transport • There are also trucks which transport agricultural products • During the rainy season the village is inaccessible with an increase in the cost of transport
Population	• 1,243 people • More younger people than older people • Ethnic groups: The Tekes are dominant. Followed by the Yaka and Mbala	• 4,500 people approx. • Ethnic groups: The Yakas are dominant, followed by the Tekes and Mbala
Economy	• Agriculture dependent, mainly cassava Other products are aubergines, chillies, tomatoes, okra and maize.	• Agriculture dependent, mainly cassava Other products are aubergines, chillies, tomatoes, okra and maize.
Recent development	• The motorcycle taxis have helped to open up the village, allowing goods to be transported to the city for trade.	• The motorcycle taxis have helped the village to develop. There are now shops where you can find all the food found in Kinshasa. It also helped to open up the village.
Local issues	• No drinking water • No electricity • No schools • Not well-developed roads	• No drinking water • No electricity • Not well-developed roads

Source: ArcGIS

Figure 5 Map of Impini and Maluku

2.5.2 Survey Respondents

A total of 296 people participated in the survey of benefits and disbenefits of motorcycle and three-wheeler taxis. Table 5 shows the breakdown of the survey respondents.

Table 5 Survey Respondents, DRC

	Motorcycle taxis				Motorised three-wheeler taxis				
Health Zones	Riders	Passengers	Vehicle owners	Freight owners	Riders	Passengers	Vehicle owners	Freight owners	Non-users
Maluku I	36	30	10	15	0	0	0	0	6
Lubunga	34	30	10	15	0	0	0	0	10
Wanie Rukula	35	30	10	15	0	0	0	0	10
Total number of respondents	105	90	30	45	0	0	0	0	26

A number of health facilities and hospitals were also visited to better understand the link between motorcycle use and the health of riders, passengers and other road users.

In general, the survey team was able to identify riders, passengers, owners and freight owners of motorcycle taxis. Non-users were significantly harder to identify. Whilst a few motorised three-wheeled motorcycles were observed on the routes into Lubunga and Muluku, there were significantly fewer motorised three-wheelers in comparison to motorcycles, which explains the absence of respondents in this category. This was especially the case in rural areas, which is comparable to the findings in the other four project countries, with the exception of Ghana.

While the project team is unable to complete an analysis of motorised three-wheelers, the lack of uptake of motorised three-wheelers in rural areas in comparison to motorcycles is an interesting finding in itself. Higher capital costs coupled with physical access challenges on rural tracks are possible reasons for this.

Figure 6 shows the age profile of the motorcycle taxi riders.

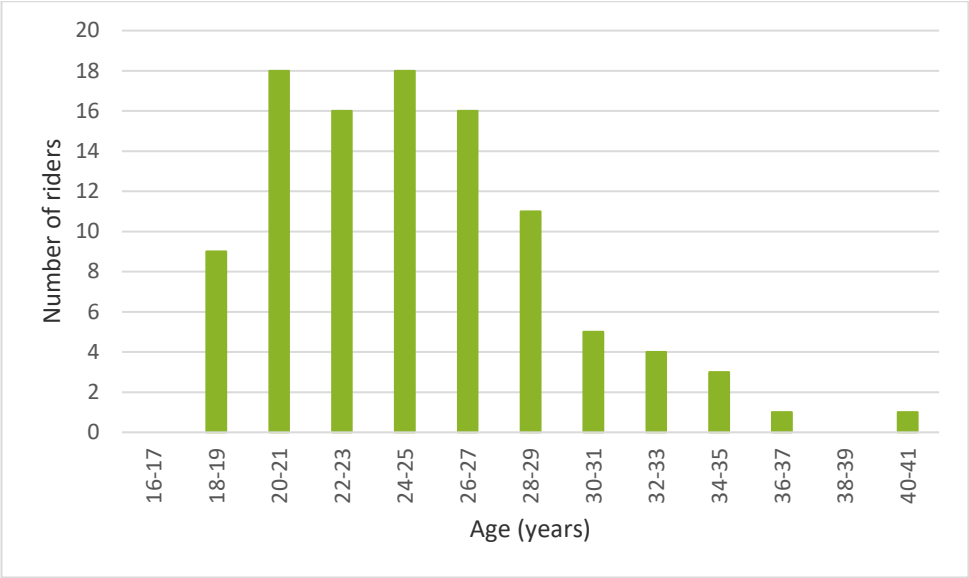


Figure 6 Age profile of riders interviewed, DRC

The chart shows that the vast majority of riders who were interviewed were between 20 and 30 years of age. Of the 105 riders interviewed, only one was female. Two riders had a visible disability of which one was a visual disability.

Figure 7 shows the level of education achieved by survey respondents.

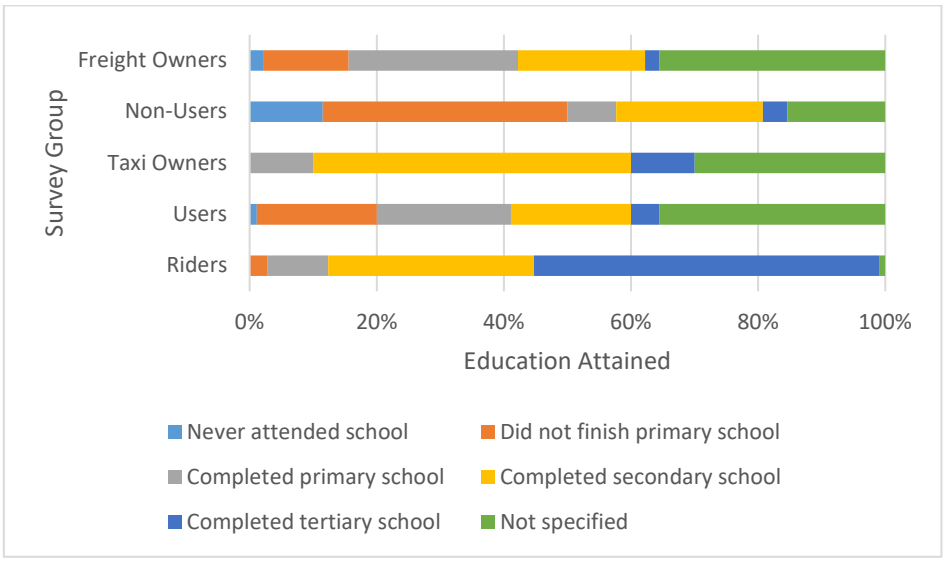


Figure 7 Educational profiles of survey respondents, DRC

Fifty-four percent of riders interviewed had completed a tertiary education/university degree and 32% had completed secondary school. This indicates that riders have a higher level of education than any other groups of respondents interviewed in DRC, such as motorcycle and freight owners. Riders in DRC appear to be more highly educated than in other project countries, which is perhaps linked to the considerable difficulties young people have in finding employment.

Figure 8 Two motorcycle taxi riders in Wanie Rukula. Riders frequently reported having a high level of education.

Sixty-two percent of riders said they are a member of a motorcycle taxi association. However, there appear to be multiple definitions of "membership" and these riders may not all be fully paid-up members.

Sixty-eight percent of riders said they own a mobile phone in working order, and from these riders, 47% said that they have access to the internet on their phone.

Figure 9 shows the age and gender of passengers.

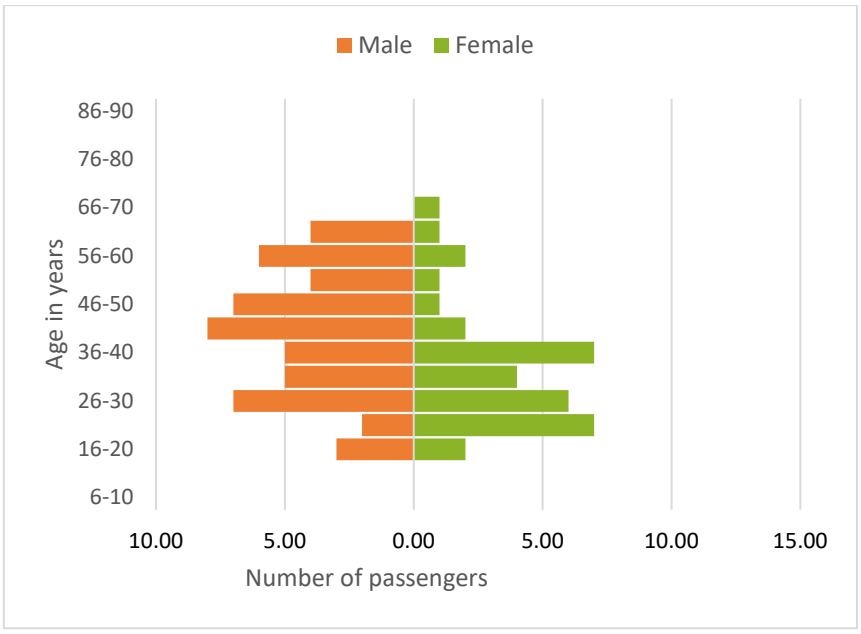


Figure 9 Age profile and gender of passengers interviewed, DRC

Figure 9 shows that motorcycles are more popular as a mode of transport with males (59%) than with females (41%). Fifty-nine percent of passengers interviewed were male, and 41% were female. Men of a wide range of ages used motorcycle taxis, whilst the majority of female passengers were under 40 years.

Four percent of passengers interviewed were observed as having a form of disability including difficulty with walking, vision and hearing.

Eighty-eight percent of passengers said that the suitability of motorcycle taxis for rural passenger transport was either 'Good' or 'Excellent'. Nine percent defined the suitability as 'Bad'.

2.5.3 Access and mobility

Sixty-two percent of passengers said that it was either 'very easy' or 'quite easy' to access a motorcycle taxi – the lowest of the five countries in the study. As shown in Figure 10, passengers value riders who ride slowly and carefully (23%), who they know and trust (19%), who offer a cheap price (19%), whose vehicle is in good condition (14%) and who are older (8%). The data also shows that in many areas, motorcycles are simply the only type of motorised transport available.

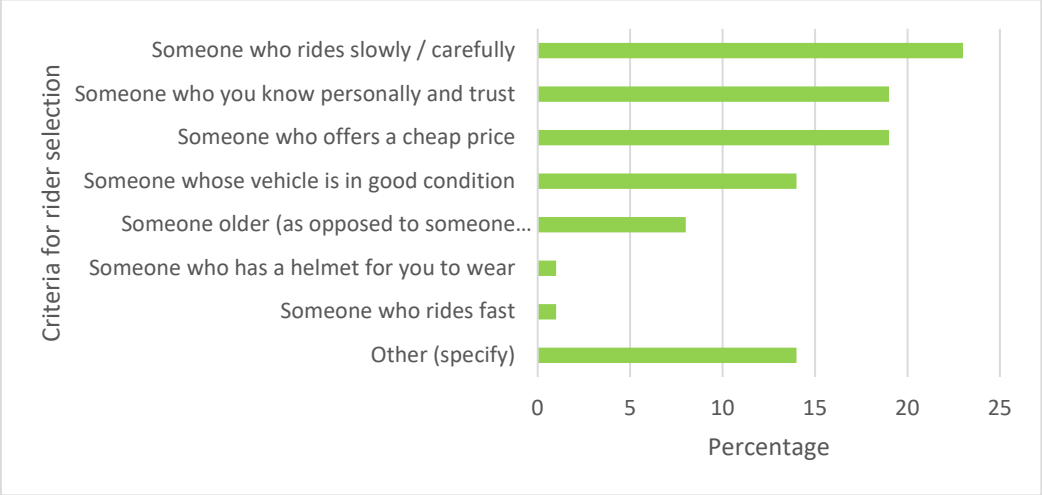


Figure 10 Criteria used by passengers when selecting a motorcycle taxi, DRC

Stopping a motorcycle/motorised three-wheeler taxi at the side of the road is the most common way for passengers to find a motorcycle taxi (67%), while 13% of passengers went to the nearest taxi stand/stage. Thirty-three percent of passengers said that they owned a mobile phone in working order, with only 33% of these phones having access to the internet, which could indicate a lack of opportunity to contact riders by telephone.

As in the first four study countries, motorcycle taxis are also used to access health facilities, with 89% of riders saying that they transport people to health facilities for non-emergency cases, and 47% of passengers interviewed saying they had used a motorcycle taxi for non-emergency access to a health facility.

Motorcycles are also used in emergencies. Figure 11 shows that 42% of passengers said either they or a member of their household had used a motorcycle taxi in an emergency. Eighty-five percent of riders reported that they have transported passengers to a health facility in an emergency. While this is rider perception and has not been verified by health staff, 88% of riders believe they had saved a life by providing transport in an emergency.

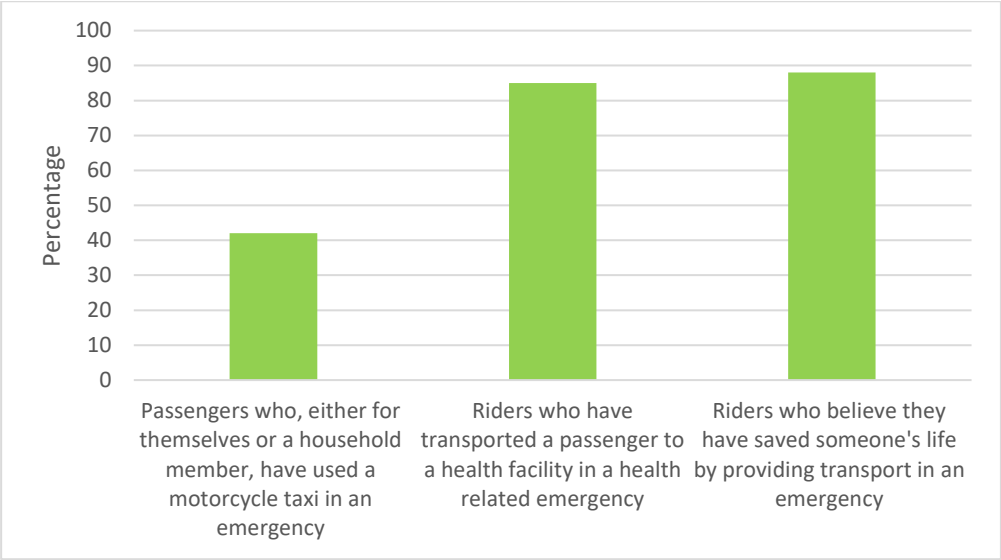


Figure 11 Use of motorcycle taxis in an emergency in DRC

As is the case in the other countries in this study, rural DRC has limited modes of emergency transport, especially linking rural communities with the nearest health centre.

This is also often the case for onward referral of patients from health facilities to hospitals. According to hospital staff, one of the most common forms of transport used to reach the hospital is the motorcycle taxi. In Kisangani, the general hospital's Head of Trauma stated that patients have been known to travel distances of up to 350 km which can take up to five days using a number of different modes of transport, especially if the roads are in a poor condition. The private tertiary hospital in Kisangani also receives the majority of its patients by motorcycle. Hospital staff explained that patients have no other choice of available transport. Hospital staff also use motorcycle taxis to travel to work.

In rural areas, it was explained by staff at the *Centres de Sante (*primary health facilities*)* and *Centres de Sante Base* that motorcycles are used to reach their facilities for non-urgent treatment, but are especially important if the onward referral to a hospital is necessary. It was also stated that motorised three-wheelers are often not accessible in rural areas.

Figure 12 The University Hospital of Kisangani seen with many motorcycles parked at the entrance

One rural *Centre de Sante* did explain that access to motorcycles locally could be limited during the day, which is when many of the motorcycle taxi riders seek business in urban and peri-urban areas. While this finding was unique to DRC, it resulted in patients having to wait several hours to find a motorcycle for transport. This problem is exacerbated by the fact that there is no mobile phone network coverage in the village.

Transport for pregnant women

A freight owner explained the experiences of pregnant women in his area:

"Even pregnant women take a motorcycle to go to the hospital. Others give birth on the motorcycle because there is no other means of transport" Male, 61 years

The survey also showed that motorcycle taxis are particularly important for female farmers and business women, with 69% of people that use motorcycles for the carriage of freight, being female. The most common items being transported by motorcycle taxi were agricultural produce (36%), items for sale in shops (24%) and cooking fuel, such as charcoal and firewood (16%).

When asked to identify the best and worst thing about motorcycles and motorised three-wheelers, users and riders reported that ease of doing business, convenience, and speed were the best aspects. Additional positive aspects included offering a means of employment, providing access where other modes of transport cannot, and their use in the case of a health emergency.

Both riders and users responded that the risk of crash or injury was the worst aspect. Additional responses included becoming the victim of a crime and finding the purchase of motorcycles or the payment of motorcycle fares expensive. Figures 13 and 14 show the breakdown of responses from users and riders.

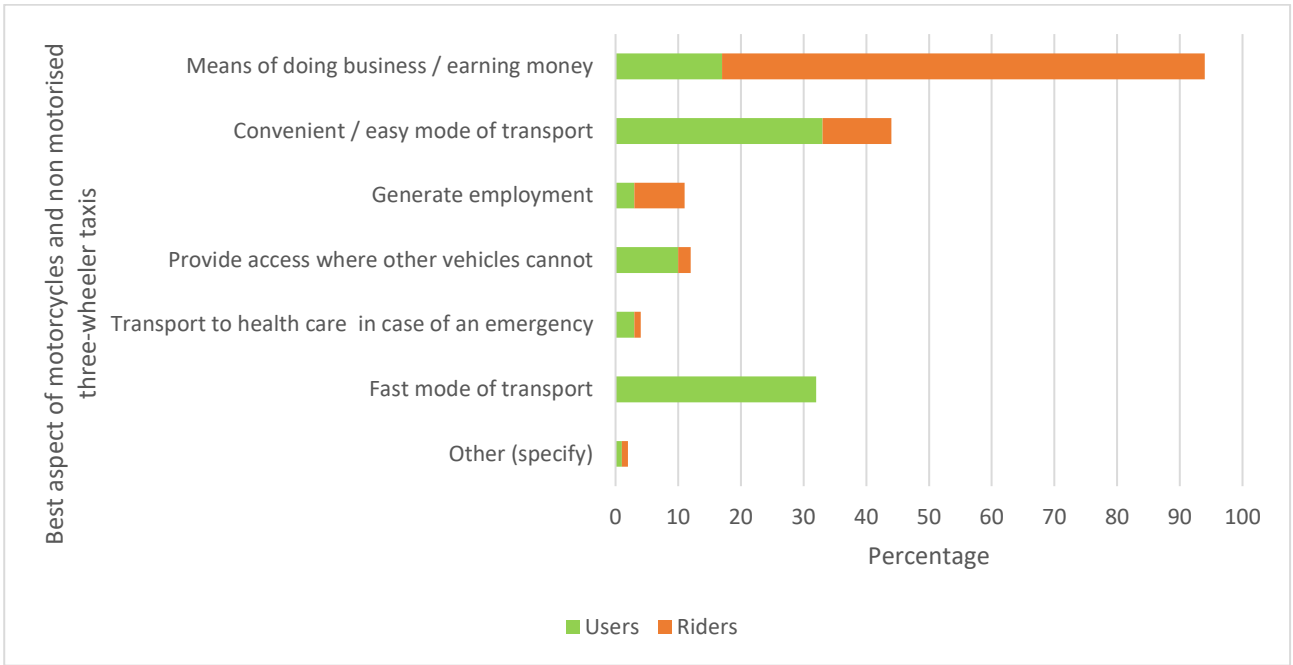


Figure 13 Best aspect of motorcycle and motorised three-wheeler taxis in DRC

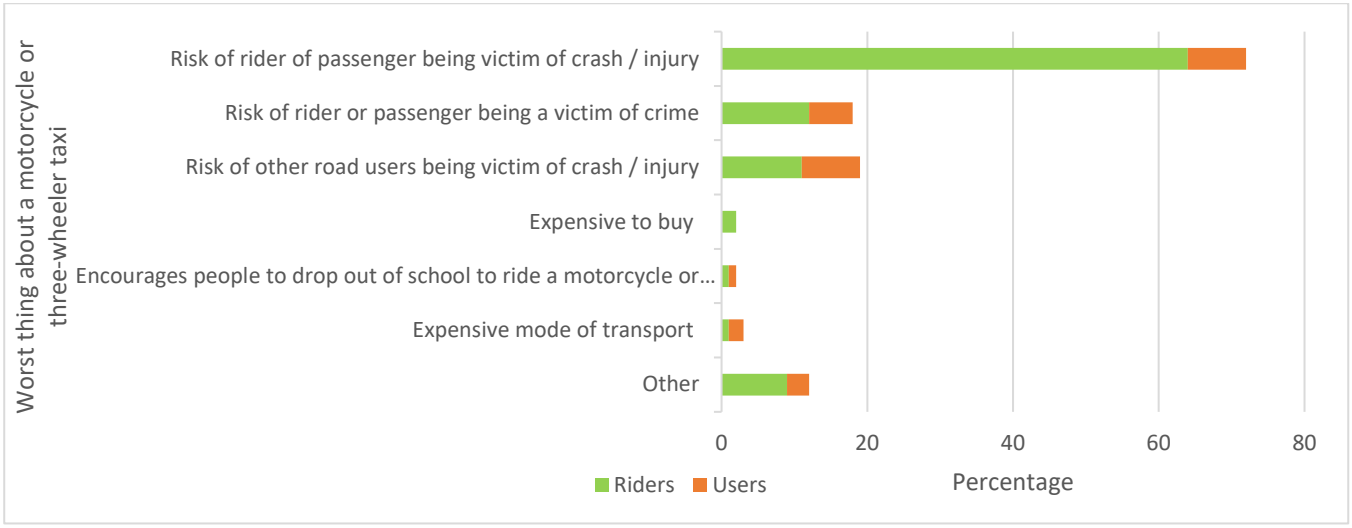


Figure 14 Worst aspect of motorcycle and motorised three-wheeler taxis in DRC

Among the people who said that they do not use motorcycle taxis, 42% said that the main reason is linked to safety and the fear of death and injury as a result of a crash. In addition, 12% said they are physically unable to use them, 12% said they are too expensive, and 12% said that they are afraid for their personal security. Figure 15 shows the reasons why non-users stated that they do not ride motorcycle or motorised three-wheeler taxis.

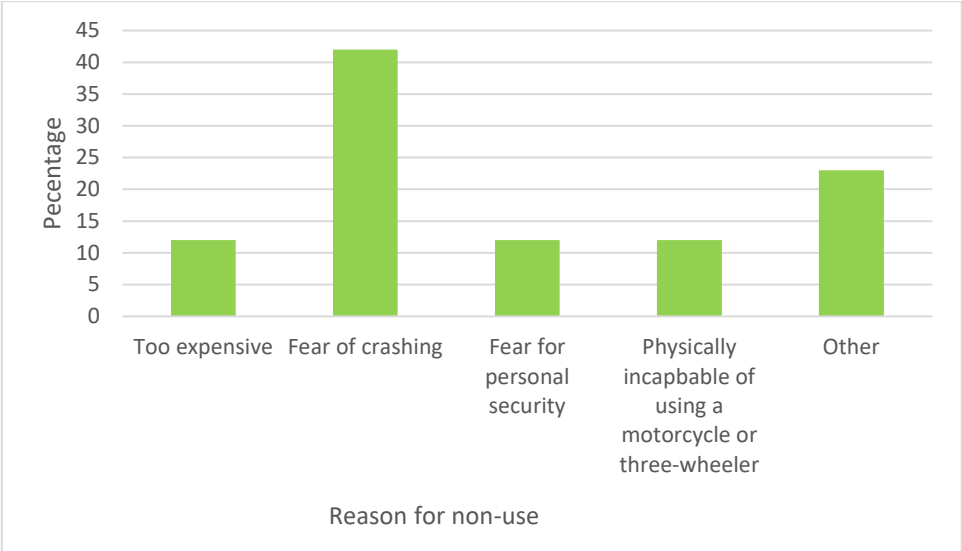


Figure 15 Reasons why non-users do not ride motorcycle or motorised three-wheeler taxis in DRC

2.5.4 Economics and Finance

Motorcycle taxis generate income for both riders and owners in rural areas. As shown in Figure 13, the majority of riders (85%) reported that the 'best thing about motorcycle taxis' was their use in earning money or generating employment.

The survey found that after paying all expenses related to operating the motorcycle taxi, the average rider's net income for the last seven days – according to the riders themselves – was CDF 46,309 (GBP 22.54). This compared to an average weekly net income of GBP 19.25 that the riders reported earning in their previous jobs. Figure 16 shows a comparison of the net income earned while riding compared to riders' most recent employment.

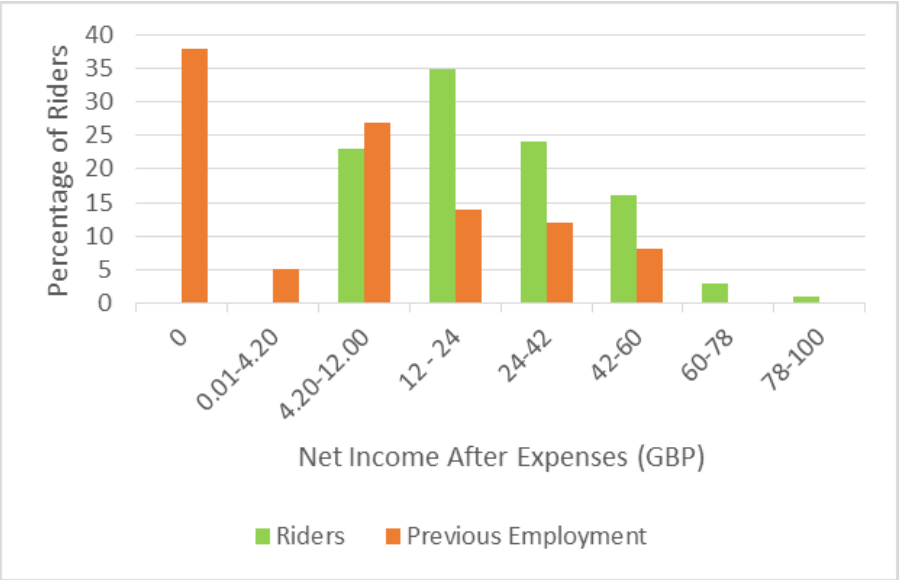


Figure 16 Profit of riders after expenses in the last seven days compared to profit generated during their previous employment in DRC

Using the latest Gross National Income figures from the World Bank, the average gross annual income in DRC in 2018 was around GBP 317.00, or GBP 6.10 per week – although it should be noted that this includes both rural and urban populations (World Bank, 2019). At GBP 22.54 for riders, the survey found that their weekly net income profits were more than three times the national average of gross income.

Of the 62% of riders who said that they belonged to a motorcycle taxi association, the vast majority (almost 88%) paid a one-off joining fee averaging around GBP 9.72. Sixty-six percent of riders paid a monthly fee, averaging GBP 1.08. Members of associations were found to have earned higher average profits (after expenses) (14%) in the last seven days: around GBP 22.80 after paying all expenses related to operating the motorcycle taxi, compared to non-members with an average profit in the last seven days of GBP 19.70. This is shown in Figure 17.

Figure 17 Rider profit in last seven days in DRC

Only 14% of motorcycle taxi riders said they owned the motorcycle that they ride. Fifty-six percent were owned by a business person (not a friend or family member), 19% were owned by a family member and for the remainder there was another arrangement in place.

The average purchase price of the motorcycle was around GBP 733, and 53% of riders who owned the vehicle themselves had bought it as a one-off, lump-sum purchase. For those riders who hired the motorcycle from a third party, the daily hire charge was GBP 8.92 and the weekly average hire charge was GBP 30.75. Some riders explained that they worked as a motorcycle taxi rider only three to four days in a week. Others may negotiate favourable rates if hiring a motorcycle on a weekly basis.

Riders said they pay less in bribes and 'dashes' to police or other government officials (daily average of GBP 0.24) than they do in official fines (daily average of GBP 0.60). However, during the survey there was some uncertainty from riders as to the difference between an official and unofficial payments.

Overall, the average cost of a trip for passengers and freight showed a correlation to the distance travelled. Table 6 shows the average cost of a trip as indicated by passengers and freight owners. However, both passenger and freight travel showed outliers within the data. When asked about their perception of the affordability of motorcycles, 62% of passengers claimed that they could not afford a motorcycle without sharing the fare with other passengers.

Table 6: Average cost of trip for passengers and freight owners

	Passengers		Freight owners	
Length of trip	CDF	GBP	CDF	GBP
Less than 2 km	1,500	0.73	500	0.245
2 to 4.9 km	4,357	2.13	1,000	0.49
5 to 9.9 km	1,733	0.84	5,143	2.52
10 to 19.9 km	2,313	1.13	4,250	2.08
20 km or more	5,953	2.91	15,413	7.55

The average cost of night-time travel nearly doubles when compared to daytime travel. This is most likely due to riders' concerns about crime. While passengers claimed that the fare also increases during rainy conditions, the data was not conclusive about this.

2.5.5 Injuries

Sixty-four percent of riders and 80% of passengers said that 'the worst thing about motorcycle taxis' was the risk of being a victim of a crash or suffering an injury as a result of the crash.

In the study, data was collected only on injuries which respondents said occurred while they were using a motorcycle taxi on a rural road, and which resulted in a loss of earnings, requiring medical attention, or affecting their family life.

Figure 18 shows the frequency of injuries suffered by motorcycle taxi riders participating in this study.

The chart shows that 40% of motorcycle taxi riders said that they had suffered an injury ever. Of these, 45% had suffered more than one injury, and 18% had suffered an injury within the last one month.

Figure 18 Frequency of motorcycle taxi rider injuries in DRC

Four passengers had also suffered an injury in the last month related to riding a motorcycle taxi.

In the case of the worst injury suffered by riders within the last three years, 43% of riders said that the most severely injured part of their body was their legs, feet or pelvis and 34% was their head, face or neck. Fifty-two percent of all injuries were described by the rider as 'moderate', with 31% as 'severe' and 17% as 'minor'.

Looking only at the worst injury suffered by riders within the last three years, 78% of riders missed at least one day of normal activity as a result of the injury. Of these, the average number of days of normal activity missed was 18, with the maximum stated days lost being 100.

Figure 19 Riders being interviewed who suffered an injury from a crash

According to a hospital in Kisangani, which receives most of the severe rural cases of injury, there is a high prevalence of motorcycle crash victims who suffer head injuries, injuries to limbs, concussion and paralysis. Some of the patients die from their injuries, and the hospital regularly receives cases where there have been multiple causalities from one crash. Furthermore, another tertiary hospital expressed their opinion that the condition and design of the roads has contributed to the number of road crashes. Further challenges include a lack of wearing helmets, the time it takes to receive post-crash care and the difficulty that patients often have in being able to pay for their treatment.

In rural areas where there is significantly less traffic, the *Centres de Sante* and *Centres de Sante Base* indicated that they see significantly fewer road crashes involving motorcycles and few or no deaths indicating that the severity of crashes in rural areas could be deemed to be lower than in urban areas.

Forty-three percent of riders said that they are still suffering some physical impact as a result of the injury, 12% said they are still suffering some psychological impact, and 17% said that they are still suffering some economic impact. Figure 20 shows rider responses to ongoing impacts from an incident.

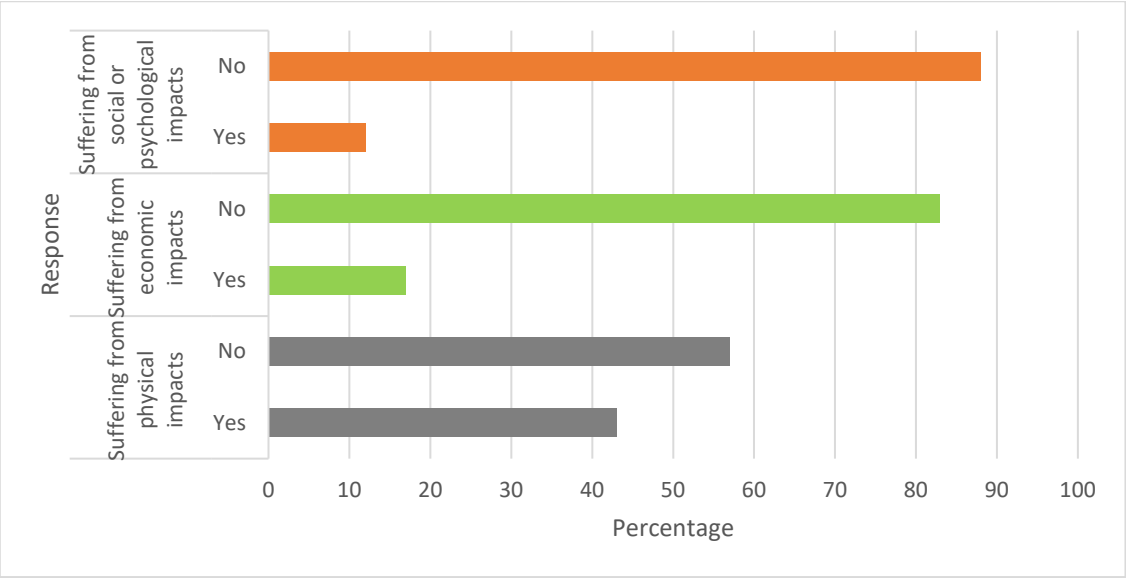


Figure 20 Riders who still suffer an impact from a crash or incident in DRC

Of the riders who had suffered an injury, 79% had been carrying a passenger at the time of the crash that resulted in the injury, this was the highest of the five project countries.

Figure 21 shows the most common causes of incidents that resulted in an injury or the loss of income, as reported by riders. 'Rider error' (41%) was stated as the most common cause of the incident. On average, riders advised they were travelling at 33 kph when the accident occurred. Thirty-three percent of riders said that they had been travelling at over 50 kph at the time of the crash, and seven percent had been travelling at over 80 kph. Sixty-two percent of accidents were reported to have taken place on unpaved roads. Seventy-six percent of crashes were reported to have taken place during the day, while 10% took place at dawn, 10% at night and 5% at dusk.

Figure 21 Cause of incident that resulted in an injury or the loss of income as reported by riders in DRC

Twenty-nine percent of riders said they were wearing a helmet at the time of the incident.

Seventeen percent of passengers reported that while travelling on a motorcycle taxi in a rural area they had suffered an injury that either resulted in them losing money, requiring medical attention or affecting their family life. This was the highest of the five countries involved in the study. Passengers judged 'rider error' (60%) to be the most common cause of crashes.

2.5.6 Health Issues

Forty-two percent of riders said that they have suffered from health issues that they attribute to riding a motorcycle, the highest of the five project countries. The most common health issue reported was general pain (57%), often specified as back pain.

During interviews, health centres reported that they have seen an increased number of hernias in male patients who work as motorcycle 'taxi-men', inflamed testicles, as well as back pain and problems with their vision.

2.5.7 Crime and Personal Security

Twelve percent of riders said that they think the risk of being a victim of crime is the worst thing about motorcycle taxis.

Fifty-nine percent of riders said that they have been a victim of crime, verbal abuse or threats, which again is the highest of the five countries. Of those riders, 33% have been victims of either theft (without force), robbery (using force) or assault (without taking property). Eighty-four percent of riders had been victim of verbal abuse. Crimes took place most commonly during the day (75%), and money was the item most commonly stolen. Figure 22 shows the total number of riders having experienced a crime and the type of crime that they experienced.

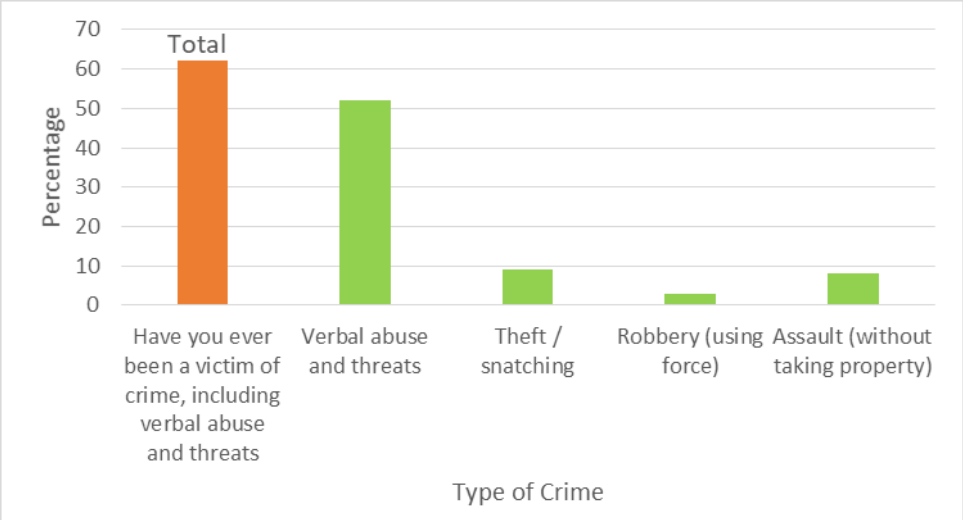


Figure 22 Total riders who have been a victim of crime and the type of crime they experienced in DRC

When questioned, 72% of passengers did not feel comfortable using a motorcycle taxi at night.

Ten percent of passengers said they had been a victim of crime, verbal abuse or threats while using a motorcycle taxi, which is the highest number of the five countries. The majority had experienced verbal abuse.

2.5.8 Access to Services and Protective Equipment

None of the riders interviewed had ever undertaken a formal training course. The vast majority of riders interviewed said they had either been taught by friends or family, or were self-taught. According to riders, the reasons for not following a formal training programme was due to there not being any offered in their area (54%), no perceived need for formal training (33%), affordability (4%), and other reasons (9%). Other reasons given included a lack of means, no available training, no motorcycle training centres nearby and no reason. This, together with the lack of demand experienced at driving schools, shows that there is a low demand for rider training, as well as a lack of accessibility of riding courses.

Figure 23 shows reasons why riders claimed to have not followed a formal training course.

Figure 23 Reasons for riders not being formally trained in DRC

Only 15% of riders interviewed had a driving licence, 12% had a motorcycle taxi operator's licence, or business licence, and only one percent (one rider) had insurance.

Only five percent of riders reported that they 'always' wear a helmet – the lowest of the five countries in this study. Only 52% of riders who wear a helmet said that they own their own helmet. Fifty-three percent of riders said they sometimes wear a helmet and 36% said they never wear a helmet. Riders said that helmets are uncomfortable, hot and restrict their hearing and vision. Fourteen percent of riders said there was no need to wear a helmet. Figure 24 shows the percentage of riders who wear a helmet and reasons for not wearing a helmet.

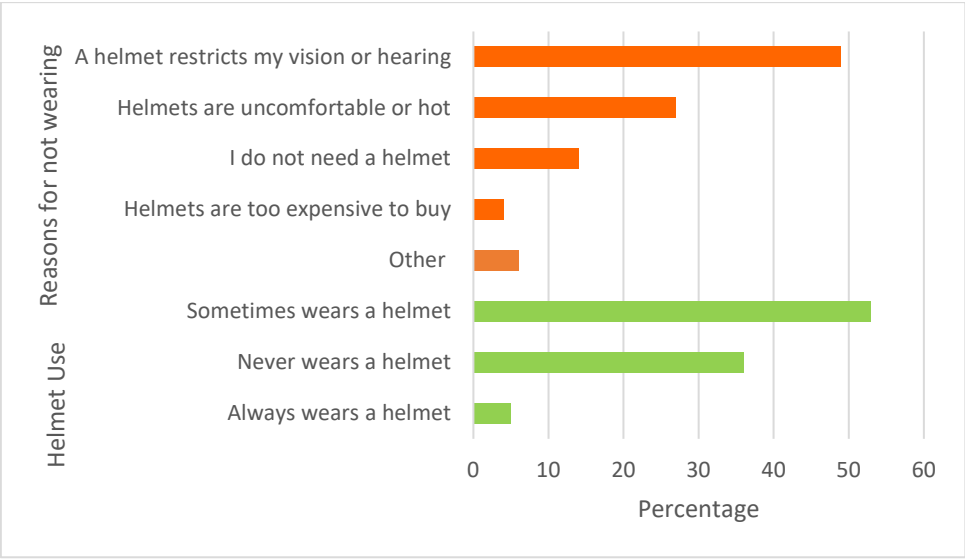


Figure 24 Percentage of riders who wear helmets and reasons for not wearing helmets in DRC

Ninety-two percent of passengers never wear a helmet, of which 80% reported that this was due to riders not providing a helmet for them. Sixty-two percent of riders said that passengers never ask for a helmet.

According to staff at two hospitals in Kisangani, the lack of helmets significantly contributes to the problem and this should be more strongly enforced.

2.5.9 Women's Participation

This project found that 0% of riders and 3% of vehicle owners were women, while women were found to be common users of motorcycle and three-wheeler taxis, either as passengers or freight transporters. In DRC, 69% of the freight owners interviewed were women, who commonly used three-wheelers to transport agricultural produce from the farm to the market.

Despite that, women were frequent users of motorcycles and three-wheeler taxis, and unlike in the first phase of the study, no direct initiatives concerning women and motorcycles and three-wheelers were identified in DRC.

2.6 Investigations into Barriers to Motorcycle and Three-Wheeler Taxi Use

2.6.1 Non-user Interviewees

Fifty-four percent of the twenty-six non-users interviewed were observed by the interviewers as being below average in terms of relative wealth status in the area where they live, based on their home environment and clothing. Only one of the interviewees was disabled. Eight percent of the interviewees were aged over 70 years; 19% were below 30 years old; and the remainder were between 30 and 50 years old. Forty-two percent of non-users were female.

2.6.2 Barriers to Motorcycle Taxi Use

For individuals who were able-bodied but very rarely or never used motorcycle taxis, the most common reason given was fear of a crash (42%). All but one of these respondents had either been involved in or witnessed a motorcycle crash. Other listed constraints included motorcycle taxi fares being too expensive (12%), fear for personal security (12%) and physical inability to use a motorcycle taxi (12%).

Three people stated their physical ability as being one reason for not using motorcycle taxis, one specifying the condition of asthma.

Several respondents commented on the poor skills of some motorcycle taxi riders and the frequent crashes involving these motorcycles. Much of the criticism was aimed at younger riders who were said to lack both training and the maturity to act responsibly. However, several respondents believed they would take a motorcycle if they had to, especially to reach somewhere quickly.

Quote: Concerns about younger, less-experienced riders

"The disadvantage is that we let 13 year olds be the drivers of motorcycles" Female, 46 years

Lack of affordability was also cited as a barrier to motorcycle taxi use as a regular means of transport, and also in some cases for emergencies.

Quotes: Lack of affordability of motorcycle taxis

"Even in the case of an emergency I do not have the means to pay for a motorcycle." Female, 42 years

"I can use the bike in case of an emergency if another person pays the cost, but I cannot do it due to a lack of (financial) means" Female, 49 years

2.6.3 Impact of not using motorcycle taxis on day-to-day lives and livelihoods

All of the non-users interviewed recognised that motorcycle taxis have many benefits. The most common benefits mentioned include:

- Being a fast mode of transport
- Providing access where other vehicles do not
- Offering a means of doing business or earning money
- Generating employment

Figure 25 An example of a path in a village in Wanie Rukula. One benefit of motorcycle taxis was stated as providing access where other vehicles do not.

This finding is significant in that it shows that even those who do not prefer to use motorcycle or three-wheeler taxis still recognise their importance within their community. Although this was not discussed in the survey, it hints that if motorcycles and three-wheeler taxis were safe, affordable and easily accessible, they may also be used by this current group of non-users.

3 Stakeholder Workshop

3.1 Purpose of One-Day DRC Workshop

The one-day DRC workshop was held on Thursday 17th October, in Kinshasa.

The workshop allowed the project team to present the initial findings of the different research activities, including the legislation and regulation review and the survey of benefits and disbenefits. It also provided the opportunity for questions to be asked, ideas to be shared and a set of priority activities to be agreed. A list of attendees of this workshop is included in Annex 1, and results of the workshop evaluation are provided in Annex 2.

The topics presented in Sections 3.1.1 to 3.3.4 summarise discussions that took place during the workshop.

3.2 Site Selection

DRC is a geographically large (905,409 square miles) and topographically diverse country with varying levels of accessibility. There were some reservations expressed during the workshop about the ability to compare the province of Tshopo and the province of Kinshasa considering that Kinshasa City is a large urban centre with a unique infrastructure[5]. It was also noted that it is difficult to represent the entire country by

[5]The research was completed in a rural area with poor accessibility outside of the urban centre of Kinshasa.

targeting just two research sites. During the workshop it was explained that the site selection was not intended to be representative of the whole country, and was based on:

- Recommendations by partner organisations including a USAID funded project (the Maternal and Child Health Survival program) and the University of Kinshasa. The University of Kinshasa has experience in this region, which also helped with local knowledge and the recruitment of interviewers
- Safe for travel for the research team (considering both security and the Ebola outbreak)
- Representation of two different geographical, topographical and climatic areas
- Accessible for the project team

3.3 Discussion

3.3.1 Regulation

It was a common opinion amongst the stakeholders in the workshop that the regulation needs to be revisited in line with the current situation/reality in DRC. Laws that were previously intended to be implemented nationally are now decentralised to individual provinces; laws should therefore reflect the situation in individual provinces.

The survey results indicate that motorcycles and motorised three-wheeler taxis are largely unregulated. Participants agreed during the workshop that certain aspects appear to be "missing", such as rider training, effective licensing, and helmet use. This led to a discussion on how best to professionalise the sector. A popular suggestion was for associations to self-regulate the sector through enforcing compliance among their members.

It was generally agreed during the workshop that there is currently little cooperation or communication between the government and motorcycle associations. This was seen as a challenge, and it was advised that cooperation between the government and associations will be essential to overcoming challenges in the sector. With improved stakeholder collaboration, specifically with associations, the participants believed improved regulations can be developed and implemented. These include:

- Regulation around working hours to avoid rider fatigue
- Number of passengers limited to two for motorcycle taxis (excluding the driver) and to the number of seats in three-wheelers
- Regulation of which type of motorcycles can be used as a taxi
- Use of helmets and high visibility jackets
- Ensuring maximum weight limits for the carriage of goods (dimensions regarding height and length could also be regulated)

A major obstacle to improving regulation cited during the workshop was riders not seeing the value of following the regulation due to "not receiving the services they have paid for in the past" – for example paying for licence plates but not receiving them. Other challenges that were discussed included low levels of awareness or understanding of risks related to motorcycles and motorised three-wheelers and a lack of enforcement of the *Code de la Route*.

Since the decentralisation of the provinces in 2013, a process which required motorcycle owners to obtain new licence plates, association members claimed that there had been several cases where no licence plates were provided even though they were paid for.

There were also complaints that the cost of documents, such as licences and licence plates, can be increased by the government without warning.

3.3.2 Passenger and Rider Behaviour

The potential for riders to earn more than the national average was considered a strong motivation for becoming a motorcycle taxi rider. However, some participants were concerned that the data showed that passengers cannot afford to hire a motorcycle taxi as a single passenger, and therefore choose to ride with other passengers, potentially increasing the risk to riders and passengers. There were also concerns about young children using motorcycle taxis.

The lack of helmet use and improper helmet use was also deemed an issue. Factors that were believed to contribute to this included poor quality of helmets available, the heat and discomfort of wearing helmets, and a fear for personal hygiene arising from sharing helmets. In the survey, riders also claimed that helmets inhibit their vision and hearing while riding. One of the workshop participants had visited Tanzania and was involved in an exercise interviewing the motorcycle taxi riders close to Arusha and noted that there were similar barriers around quality helmets, heat and hygiene[6]. However, he noted that in some rural areas in Tanzania, helmet use was higher than DRC and that there could be lessons learned from Tanzania.

There were also safety concerns around pregnant women using motorcycle taxis, however there were no identified recommendations during the workshop as it was understood that in rural areas there are limited alternatives.

The workshop participants felt that as the majority of the population is using motorcycle taxis, issues relating to rider behaviour should be addressed as a priority.

3.3.3 Training and Sensitisation

The project team presented the findings of the review of training as well as high level findings from the survey. Clear laws are in place on training requirements for existing and new riders. New riders must pass both a practical and theoretical exam, whilst riders with an existing licence must undertake refresher training to ensure they meet the national standards. Within the new licensing system in Kinshasa Province, new riders must follow the training at a recognised driving school.

Despite these laws, it was clear from the survey results that there is a lack of formal training of riders. A common question discussed at the workshop was ‘How do we get riders to attend training?’ One workshop participant remarked in response: ‘[Training] is absent in our sector’. It was agreed that training motorcyclists would reduce the danger on the roads and help make them ‘a more positive influence in society’.

The general opinion was that while training schools do exist in DRC, they are few in number and there are none available in rural areas. Cost appeared to be a barrier to training according to participants, however this was not strongly apparent in the survey where limited availability of training and a lack of need for training were cited as major barriers by riders. There is also a lack of awareness from riders on the need for training. A major challenge seen by the workshop participants was thus teaching motorcycle riders how to ride safely and to follow the Code de la Route.

When participants were asked to consider the relative advantages of working with training schools or associations to improve training and sensitisation, it was felt that associations had more influence. This was based on the fact that associations have the structure to reach a lot of riders and carry influence with their membership base. However, the workshop participants were clear that it is essential that the Ministry of Transport and Channels of Communication is involved and is able to support associations. Although associations currently do not offer training, they are considered well placed to help self-regulate the sector,

[6] The AfCAP research also showed that Tanzania had the highest levels of helmet use from all five countries. Further information about helmet use in Tanzania can be found at the Helmet Vaccine Initiative.

provide sensitisation, and potentially offer training in rural areas. One potential challenge in this approach was how to identify “true” association members.

Several workshop participants cited the existence of the refresher training that was available for riders. However, it was also of popular opinion that there is a need for training curriculum or standards at a national level.

3.3.4 Associations

Overall, workshop participants advised that associations are well placed to professionalise the motorcycle sector. Associations appear to have a strong influence over their members, specifically through their presidents. One participant stated that ‘associations can really change behaviour’. The group believed that working with associations could really change rider behaviour and mobilise large numbers.

The current relationship between the associations and the government appeared to be strained. One association present during the workshop claimed that the government has ‘turned its back’ on the associations. They claim that there is a lack of ability for the government to provide things like licence plates due to a stock out of materials, even after they have been paid for. Prices have also been reported to rise without warning. The government expects the mobilisation or collection of money from riders through the payment of taxes, however the government apparently does not organise this well. Associations also request subsidies from the government, however it seemed that the government is not ready to subsidise associations. The government claims that the associations do not do their part to encourage riders to respect the laws. Associations have also not accepted the responsibility to mobilise their members around improved adherence to legal regulations.

When asked during the workshop what both parties can offer and contribute towards improving safety and operating standards, the associations offered to ensure that their members respect the law, but they advised they require financial support to implement this. The Ministry representatives said that they would prefer to facilitate with actions rather than provide direct financing. The government would also like to see a more structured approach from associations, such as having the required documents in place.

The associations also claimed that there was a lack of access to materials such as the Code de la Route for riders, and that this contributes to the lack of knowledge.

4 Recommendations

4.1 Increase Stakeholder Collaboration

There is a need for formal collaboration between the government (both at a national and provincial level) and legitimate associations in order to successfully enforce motorcycle regulation and improve the safety of riders and users. Improved collaboration would help unite a fragmented sector and allow for a more aligned approach and shared strategy. Increased collaboration between other stakeholders such as the Traffic Police and training schools is also recommended.

Improved collaboration with the government would offer associations the ability to receive support in organising sensitisation and training, if this is desired and feasible. For example, an association would be able to contact ministerial bodies or experts such as CNPR for support in access to/designing sensitisation activities or materials.

The project therefore recommends that an operational task force should be established between the different ministries working in the sector and ensure that the associations are also part of this task force. In order to increase the efficiency of the group, one representative of each body who has both technical skills and sufficient influence should be included in the taskforce.

The objectives of the group would include raising awareness around the current status of regulation, enforcement and crashes of motorcycles and motorised three-wheelers, identifying priority activities, developing opportunities and strategies for collaboration, and raising awareness of activities being carried out by task force members. Representatives could be motorcycle associations, MTCC, Cellule Infrastructure, the Ministry of Interior/Road Traffic Police, and CNPR. It is envisaged that this task force would be at a national level at the beginning, with the scope for provincial task forces to also be developed to help ensure that initiatives are implemented at a provincial level and that the rural areas are reached. A pilot task force could be established in Kisangani.

In order to maintain progress, it is recommended to develop a Terms of Reference (ToR) for a defined period of two years and implement regular meetings monthly or bi-monthly.

4.2 Sensitise Riders through Associations

Association membership among riders is high in DRC and associations appear to have a strong influence over their members. Associations appear to provide opportunities to improve the management of the motorcycle taxi sector. The fact that association members have been seen in all five countries to earn more profit than non-members can be promoted by regulators and local governments to encourage riders to join associations. The operations manual developed for associations during the first phase of this research can assist in maximising the potential benefits of associations.

This relationship should be leveraged in order to sensitise riders about safe riding and essential guidance in the Code de la Route. This can be done by radio, social media and meetings with their members. Motorcycle stage (or rank) presidents specifically have access to a large group of riders. For example, in Kinshasa, one association has 670 stages and a reach of up to 200,000 members, with a president and vice-president managing each stage. The project therefore recommends a pilot project to train the president or vice president of a number of stands in a training of trainers (ToT) approach in order to sensitise their riders. Sensitisation should be given in short modules (based on key risk factors) to maximise the availability of riders while they are at the stands. There are also section presidents who are responsible for 30 stages each who could be considered to give such training. The development of appropriate materials and messages for such sensitisation is recommended.

As there are formal training schools available who have the mandate to train new riders, this should continue to be promoted. To strengthen this, strategies are required to enable riders to access their training services at affordable prices.

Associations are also well placed to promote the wearing of helmets and high visibility jackets and could be engaged in sensitising their members to respect the laws and regulations established by the government. Associations have the ability to impose rules within their organisation that will enforce the Code de la Route. For example, a rider may lose their privileges (such as the right to use a specific stage) if they do not wear a helmet.

The structure of the associations will need to be better studied in order to best collaborate with them.

4.3 Strengthen Efforts to Enhance Accessibility and Enforcement of Training for Riders

There are currently recognised schools in both Tshopo and Kinshasa Province, however it is recommended that their capacity and materials are reviewed. The Code de la Route has been recently updated (2018) and refresher training materials have been developed by the government. The utilisation of these materials should be reinforced. Additional training curricula and accompanying materials should be developed together with the government in order to ensure alignment. The capability of instructors should be assessed. It is recommended that a Training of Trainers approach is considered in order to build the capacity of trainers where it is needed.

As effective training is likely to be unaffordable to the vast majority of riders from rural areas, governments should support innovative efforts to minimise the costs to riders. This could include ring-fencing revenue

from the sector and the provision of bursaries to competent training schools, for example through the provision of local government bursaries, as was seen in Kenya during the first phase of this research. Incentives should be provided to encourage private driving schools to operate in rural areas and including, for example, satellite schools in district centres. The structure of training programmes should recognise that trainees may need to continue to earn money during the course of the programme, which may require, for example, the training to take place in off-peak hours, allowing riders to work during the busiest times.

4.4 Implement Measures to Improve Helmet Use for Riders and Passengers

Improving the uptake of helmet use for both riders and passengers is essential. There do not appear to be any high quality and environmentally adapted (tropical) helmets available in Kinshasa or Tshopo Province. In response to this, the import standards should be reviewed and potentially modified to improve helmet quality but this must be done carefully so that it does not limit helmet availability and rather ensures a supply of affordable helmets. Quality helmets can also be subsidised by the government in order to motivate their purchase and wear. Models from other countries could be reviewed, including those that have encouraged local production but to international standards. Mandating the provision of a helmet (or preferably two helmets) with the sale of a motorcycle (both new and used) could also increase access to helmets by both riders and passengers. For those that are worried about hygiene, helmet liners can be offered as an option to passengers who are required to share helmets.

4.5 Increase Enforcement on Number of Passengers Allowed on Motorcycles and Three-Wheeler Taxis

During the research it was evident that motorcycles often carry several passengers, commonly three to four passengers at a time, many of which are small children. Section 33 subsection 3 of the Code de la Route states that motorcyclists are not allowed to carry more passengers than there are seats on their motorcycles, while an ordinance introduced in 2010[7] states that it is forbidden for a motorcyclist to have 'more than one person per motorcycle and more than three people per tricycle'. Despite this, controls on the number of passengers riding motorcycle taxis do not appear to be enforced. Workshop participants also discussed this trend and the influence that this problem has on the frequency of road crashes and the implications for passenger safety.

Participants considered the effective enforcement by the road traffic police of numbers of passengers to be crucial, limiting the number of passengers to a maximum of two. In regards to three-wheelers, it was discussed that the maximum number of passengers should aligned with the number of seats available in the vehicle. The sensitisation of riders related to the importance of limiting the number of passengers is also recommended to improve compliance.

It should be noted that workshop participants were aware that the national law limits the number of passengers on a motorcycle to one, however, this would be challenging from an enforcement point of view. During the survey, it was also found that a majority of passengers did not feel that they could afford a motorcycle taxi if they did not share the fare with another passenger.

4.6 Consider Motorcycles Use in Road Design and Maintenance

Road design and condition are critical factors in motorcycle safety. Having only two wheels in contact with the ground makes motorcycles more susceptible to loss of control and puts their drivers and passengers at risk of serious injury in the event of a crash.

Road authorities should therefore design, build and maintain roads with specific consideration of motorcycles.

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[7] Ordinance SC/148 / BGV/MIN.TTCA/PLS/2010

A road's geometric design, in particular its width, is critical for motorcycle safety. Roads should be sufficiently wide to allow a motorcycle and a four-wheeled vehicle to pass each other safely. A shoulder should also be provided that is safe for use, at-grade with the carriageway and clear of vegetation and loose material, by motorcycles.

Horizontal alignment is also important as sharp bends create the risk of run-off-road crashes and collisions with other vehicles.

In regards to road surface, safe operation is reliant on regular maintenance and safe design. On earth and gravel roads, regular maintenance is required to prevent potholes, corrugation and rutting, and to remove any large stones from the carriageway – all of which present risk to safe motorcycle operation. Steep camber should be avoided, as these pose risks to motorcycles – especially those carrying heavy loads.

On paved roads, smooth surfaces should be avoided, as these will be slippery when wet. Concrete surfaces can be deliberately roughened to provide skid resistance – although surfaces should not be overly rough as this can cause vibrations and possibly loss of control. The point where two different surface types meet – for example, where a paved surface meets a gravel surface – should also be well maintained.

Roadsides should be forgiving, with large trees, rocks, buildings and other potential hazards not directly adjacent to the road. Deep and steep side drains should be avoided. Guardrails may be provided in hazardous locations.

4.7 Support Initiatives into Additional Research

This research has identified the causes of crashes as perceived by riders and passengers, however an additional study investigating the cause and localisation of motorcycles and motorised three-wheeler crashes is considered desirable to shed more light on these findings. These findings can be used to identify specific needs such as the reinforcement of road signs or the reinforcement or training of riders.

There is also a general need for more reliable data. Of all African countries, Ghana is often cited as an example of best practice in the management of crash data. However, all five study countries, and all other countries in sub-Saharan Africa (with the exception of South Africa), are classified by the WHO as 'countries without eligible death registration data' (WHO, 2018). While official statistics in DRC report the number of road deaths in 2015 around 385, the WHO estimates the actual number to be around 26,529 (WHO, 2018). The situation is similar for Kenya, Ghana, Tanzania and Uganda, although the discrepancy between the recorded and the estimated number of crashes was most significant in DRC.

5 Conclusion

In DRC, motorcycle taxis are highly popular, readily available and profitable to the riders. Multiple groups appear to be benefitting from the existence of motorcycle taxis, including riders, passengers, freight owners and motorcycle owners. Overall, the opinion of motorcycle taxis is positive in that they offer a fast and easily accessible mode of transport, access to areas otherwise not accessible by other vehicles, and a mode of employment and income. However, the research also showed that motorcycle taxis are a common cause of road crashes, few riders have a driving licence or insurance, and that several negative consequences are associated with the use of motorcycle taxis. It was also a widespread opinion that riders do not respect the Code de la Route.

Overall, motorcycle and three-wheeler taxis bring considerable opportunity to DRC and appear to improve access for rural and peri-urban communities, as well as improved employment opportunities. However, deliberate and concerted efforts by a number of stakeholders are required to ensure motorcycle and three-wheeler taxi safety, the enforcement of regulation, rider training, and to address health concerns to maximise their impact and potential.

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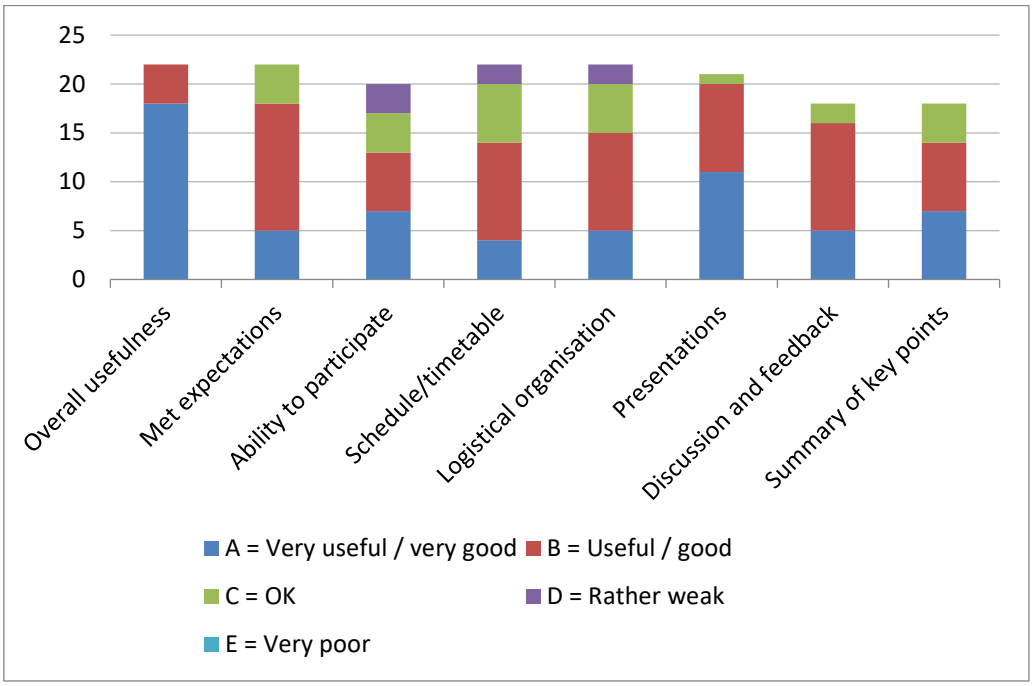
Annex 1 DRC 1-Day Workshop Attendees

	Name	Organisation
1	Kim van der Weijde	Transaid
2	Caroline Barber	Transaid
3	Billy Tshibambe	Cellule Infrastructure
4	Chris Super	Cellule Infrastructure
5	Paul Mansiangi	University of Kinshasa
6	Yves Tshisungu	University of Kinshasa
7	Soleil Muzinga	University of Kinshasa
8	Seraphin Manda Malaba	Ministry of ITPR
9	Mako M Miavin	Auto Ecole de la Ville
10	Zico Mukayer	ANIPTMC
11	Mathias Diongo	ANIPTMC
12	Vale Manga Wilma	GET - Group d'etudes des transports
13	Esperanee Kahambu	Ministry of ITPR
14	Botuli Nedo	Min Transport Voie Communication
15	Mola Ekola Nigo	Min Transport Voie Communication
16	Daniel Lunga	DVDA
17	Leon Mwamba	JICA
18	Chimwemwe Chalmera	UKAID DFID
19	Theodore Ngambila	Cellule Infrastructure / ITP
20	Robert Matalatala	CNPR
21	Nganga Manzima Jean Remy	CNPR
22	Daniela Socaciu	BCAC / EU
23	Makengo Lukoki	Jury of theoretical testing
24	Michel Veleva Kusungama	Cellule Infrastructure / ITP
25	Mbambo Balonga	DUTC
26	Ngodie Kadet	Division of Urban Transport

Annex 2 DRC 1-Day Workshop Evaluation

This chart shows the responses to the evaluation form completed by the participants in the one-day workshop.



All participants (100%) rated the overall usefulness of the workshop as 'Very useful' or 'Useful'. It should be noted that not all participants answered all questions in the evaluation form.