



**AfCAP**  
Africa Community Access Partnership



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

Inception Report



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Amend and Transaid

*RAF2114A*

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**AMEND**



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## Abstract

This Inception Report details progress during the first twelve weeks of the project ‘Enhancing understanding on safe motorcycle and three-wheeler use for rural transport and the implications for appropriate training and regulatory frameworks’.

The main purpose of the Inception Phase is to build an understanding of the existing situation in the four project countries, and to use this understanding to develop the detailed research strategies and methodologies. The understanding of the existing situation has been developed through stakeholder mapping, stakeholder engagement and a literature review.

A total of 83 stakeholders have been identified, and meetings held with those stakeholders deemed most likely to contribute to the project, to provide valuable information, or to have influence over use of the project’s findings and implementation of its recommendations. Over 110 documents have been reviewed through the literature review.

At a team planning meeting held in Kenya from 4<sup>th</sup> and 5<sup>th</sup> December 2017, the following activities were identified for the research phase, scheduled to start in January 2018:

- A survey to understand the benefits and disbenefits of motorcycles and three-wheelers in rural areas in all four project countries
- A review of motorcycle and three-wheeler taxi-related policies, legislation and training, and their implementation and enforcement in all four project countries
- Collection and analysis of existing data in Ghana (with a rural focus)
- A study of the health impacts of motorcycle and three-wheeler use in Kenya
- Investigating the operations of motorcycle taxi associations in Tanzania
- Understanding barriers to motorcycle and three-wheeler taxi use faced by some members of the community in Uganda.

## Key words

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

### **AFRICA COMMUNITY ACCESS PARTNERSHIP (AfCAP)**

#### ***Safe and sustainable transport for rural communities***

AfCAP is a research programme, funded by UK Aid, with the aim of promoting safe and sustainable transport for rural communities in Africa. The AfCAP partnership supports knowledge sharing between participating countries in order to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources. The programme follows on from the AfCAP1 programme that ran from 2008 to 2014. AfCAP is brought together with the Asia Community Access Partnership (AsCAP) under the Research for Community Access Partnership (ReCAP), managed by Cardno Emerging Markets (UK) Ltd.

**See [www.research4cap.org](http://www.research4cap.org)**

## **Acronyms, Units and Currencies**

AfCAP	Africa Community Access Partnership
AsCAP	Asia Community Access Partnership
BRRRI	Building and Road Research Institute
CSO	Civil Society Organisation
DID	Division of Infrastructure Development (Tanzania)
DVLA	Driver Vehicle and Licensing Authority (Ghana)
ESRC	Economic and Social Research Centre
GIZ	Gesellschaft für Internationale Zusammenarbeit (German development agency)
GBP	Pound sterling
Logframe	Logical framework
MRH	Ministry of Roads and Highways (Ghana)
MTRD	Materials Testing and Research Department
NGO	Non-Governmental Organisation
PMU	Project Management Unit (of ReCAP)
PORALG	President's Office for Regional Administration and Local Government (Tanzania)
ReCAP	Research for Community Access Partnership
TARURA	Tanzania Rural and Urban Roads Agency
TRL	Transport Research Laboratory
QUAG	Quality Assurance Group
UK	United Kingdom (of Great Britain and Northern Ireland)
UKAid	United Kingdom Aid (Department for International Development, UK)
UNRA	Uganda National Roads Authority
VAT	Value Added Tax
WHO	World Health Organization

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## **1 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' is being carried out in Ghana, Kenya, Tanzania and Uganda.

The use of motorcycles has increased greatly in Africa in recent years. Motorcycles are often used as taxis, with riders charging a fare to carry passengers or goods. In rural areas, motorcycle taxis play a crucial role in connecting people to services and farms to markets, and in many countries motorcycles are the most commonly found vehicle on rural roads. In some countries, the use of motorcycles to carry fare-paying passengers is banned, although these bans are not always enforced, especially in rural areas.

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

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.

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

Capacity building is an integral part of the project. The project team includes young researchers supported by highly-experienced researchers, and more than half of the team members are female and more than half are based in Africa.

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

This Inception Report details progress during the first twelve weeks of the project. The main purpose of the Inception Phase was to build an understanding of the existing situation in the project countries, and to use this understanding to develop the detailed research strategy and methodology. The understanding of the existing situation was developed through stakeholder mapping, stakeholder engagement and a literature review. A total of 83 stakeholder organisations were identified, and in-person meetings held with 23 of them. Over 110 documents were reviewed through the literature review.

Team members have interacted with each other and stakeholders through webinars and attendance at the Research for Community Access Partnership (ReCAP) Inter-Regional Implementation Meeting in Uganda. A Team Planning Meeting was held in early December, at which the research activities were agreed upon. The Research Phase of the project is now underway.

## 2 Introduction

This research project is being undertaken by a consortium which is led by Transaid and includes Amend and TRL.

The project covers four countries: Ghana, Kenya, Tanzania and Uganda, shown in the map below.



Figure 1: The project countries

In each country, the project is being supported by government through the local AfCAP partner institutions, specifically:

- The Ministry of Roads and Highways (MRH) in Ghana
- The Materials Testing and Research Department (MTRD) in Kenya
- The Tanzania Rural and Urban Roads Agency (TARURA) and the President's Office for Regional Administration and Local Government (PO-RALG) in Tanzania
- The Uganda National Roads Authority (UNRA) in Uganda

The project contract started on 18<sup>th</sup> September 2017 and runs to 31<sup>st</sup> October 2018, although as explained in Chapter 6 of this report, a three-month extension has been agreed with the ReCAP Project Management Unit (PMU).

The total budget of the project is GBP 301,445, excluding UK VAT.

The purpose of this report is to update ReCAP and the local partner institutions on progress during the project's Inception Phase.

## 3 Background

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



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

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

However, motorcycle transport in rural areas is certainly not without risk. Previous AfCAP research has found high rates of crashes and injuries among rural motorcycle taxi riders, and while many of these crashes are relatively minor single-vehicle incidents, others have been found to cause more serious injury (Amend, 2013). A serious injury to a household's primary wage earner can push a family into poverty.

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

The number of motorised three-wheelers in rural Africa is also increasing, although to nowhere near the same extent as motorcycles. As an example of rates of growth, and the comparison between the numbers of motorcycles and motorised three-wheelers, Figure 2 shows the numbers of registered motorcycles and motorised three-wheelers in Tanzania between 2003 and 2014 (Tanzania Revenue Authority, 2015).

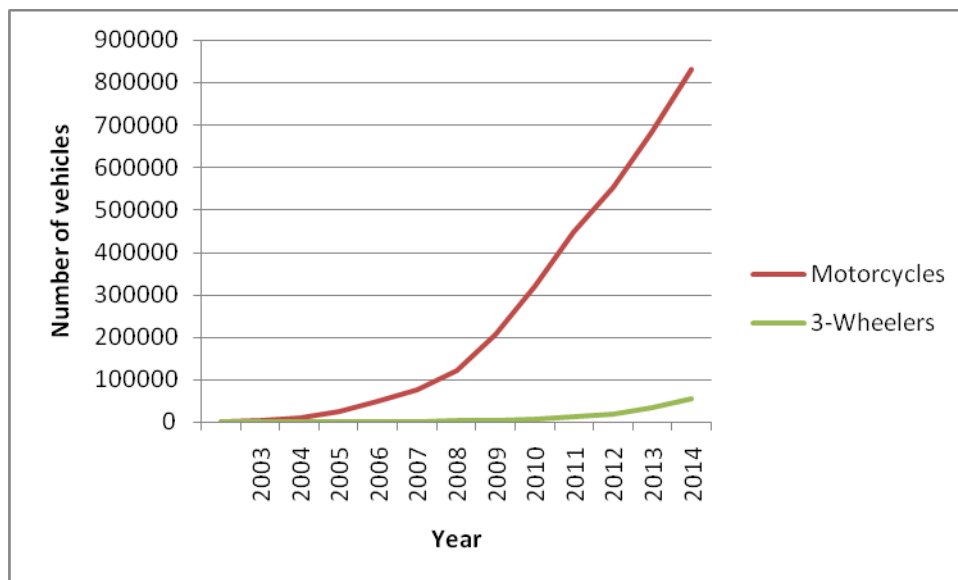


Figure 2: Number of registered motorcycles and three-wheelers in Tanzania, 2003 to 2014

The number of registered motorcycles in Tanzania grew from 1,884 in 2003 to 832,149 in 2014, while the number of registered three-wheelers grew from 59 in 2003 to 59,874 in 2014.

## **4 Approach and Methodology**

### **4.1 Research Objective**

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

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

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

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

### **4.2 Approach and Methodology**

The project is divided into the following phases and tasks:

- Phase 1: Inception
  - Task 1.1: Engage National Experts
  - Task 1.2: Understand the Existing Situation in Each Country
  - Task 1.3: Prepare for Research Phase
  - Task 1.4: Inception Report
- Phase 2: Research
  - Task 2.1: Undertake In-Country Research
  - Task 2.2: Progress Report
  - Task 2.3: Preparation of Draft Discussion Papers
- Phase 3: Uptake and Embedment
  - Task 3.1: Four-Day Team Workshop
  - Task 3.2: Revision of Draft Discussion Papers
  - Task 3.3: One-Day Country Workshops
  - Task 3.4: Draft Final Report and Draft Country Reports
  - Task 3.5: Final Report and Final Country Reports
  - Task 3.6: Dissemination of Study Findings and Recommendations

The full methodology, as was included in the project proposal, is included in Annex A of this report.

The coordinated networking approach, through which all members of the team are in regular communication, is already promoting cross-fertilisation of information and ideas between team members. This will continue throughout the project.

### **4.3 Links to ReCAP Logframe**

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

## **5 Progress during Inception Phase**

The tasks and sub-tasks of the Inception Phase are:

- Task 1.1: Engage National Experts
- Task 1.2: Understand the Existing Situation in Each Country
  - Sub-task 1.2.1: Stakeholder mapping
  - Sub-task 1.2.2: Stakeholder engagement
  - Sub-task 1.2.3: Literature review
- Task 1.3: Prepare for the Research Phase
  - Sub-task 1.3.1: Two-day Team Planning Meeting
  - Sub-task 1.3.2: Finalise research strategies
  - Sub-task 1.3.3: Prepare a detailed work plan for the Research Phase
- Task 1.4: Inception Report

Here progress to date on each of these tasks is summarised.

### **5.1 Engage National Experts**

In late September, National Experts were engaged in each of the four countries. These are:

- Ghana: Juliet Adu, supported by Francis Afukaar as Ghana Rural Transport Advisor
- Kenya: Grace Muhia
- Tanzania: Hans Mwaipopo
- Uganda: Elizabeth Kiracho

The team held a Kick-Off Webinar on 27<sup>th</sup> September to introduce the National Experts (and the Ghana Rural Transport Advisor) to the rest of the team. During this webinar, the project was introduced in detail and gave all team members the opportunity to ask questions.

### **5.2 Understand the Existing Situation in Each Country**

A detailed understanding of the existing situation in each country is essential to inform the development of the research strategies. This understanding has been gained through stakeholder mapping and stakeholder engagement and a structured literature review.

#### **5.2.1 Stakeholder mapping**

Through the team's experience of previous research into rural transport, motorcycles and three-wheelers, including numerous AfCAP projects, relevant stakeholders in each project have been identified and mapped.

**In Ghana**, nineteen different stakeholders have been identified: ten from government, four from the private sector and four from civil society.

**In Kenya**, sixteen different stakeholders have been identified: six from government, four from the private sector and six from civil society.

**In Tanzania**, thirty-one different stakeholders have been identified: thirteen from government, five from the private sector and fourteen from civil society.

**In Uganda**, seventeen different stakeholders have been identified: seven from government, two from the private sector and eight from civil society.

The stakeholder mapping exercise is ongoing and will continue into the Research Phase. All key government stakeholders in each country have been identified, but it is anticipated that more private sector and civil society stakeholders will be identified throughout the project.

A full list of all identified stakeholders is included in Annex C.

### **5.2.2 Stakeholder engagement**

As relevant stakeholders have been mapped, priority has been given to those identified as being most likely to contribute to the project, to provide valuable information on the existing situation and to have influence over the use of the project's findings and implementation of its recommendations. Face-to-face meetings have been held with the majority of these key stakeholders, during which a full introduction to the project was given, and discussions allowed the sharing of initial ideas.

**In Ghana**, the National Expert and Rural Transport Advisor arranged an introductory meeting for key government stakeholders on 17<sup>th</sup> October. Representatives of the following government bodies attended this meeting:

- Ministry of Transportation
- Ministry of Roads and Highways (the AfCAP partner institution)
- Ministry of Food and Agriculture
- Department of Feeder Roads
- Department of Urban Roads
- Driver Vehicle and Licensing Authority (DVLA)
- National Road Safety Commission
- Ghana Police Service/Motor Transport and Traffic Department

The National Expert and Rural Transport Advisor have also met with officials from the DVLA, a rural District Assembly, a rural motorcycle taxi association, and Ablin Consult.

**In Kenya**, difficulties were experienced in arranging to meet with government stakeholders to introduce the project. Throughout October and November, the instability surrounding the country's general election meant that securing meetings with the relevant government officials and other stakeholders was not possible.

However, the project was introduced in person to Eng. Kogi, the representative of the AfCAP partner institution (the Materials Testing and Research Department), during a ReCAP meeting in Uganda. He expressed a particular interest in the relationship between motorcycle crashes and the condition of rural roads. Other face-to-face meetings were held with the National Transport and Safety Authority, a company that runs a ride-hailing app (MondoRide) and the NGO HelpAge International.

**In Tanzania**, the role of the AfCAP partner institution is in the process of transitioning from the Division of Infrastructure Development (DID) (in the President's Office for Regional Administration and Local Government (PORALG)) to the Tanzania Rural and Urban Roads Agency (TARURA). TARURA was established in July 2017 and is currently assuming responsibility for the management of rural roads. However, it has not yet formally assumed the role of AfCAP partner institution.

The project has been introduced to both DID and TARURA, and a letter of introduction has been obtained from DID to assist with introductions to other stakeholders. The project has also been introduced to the Surface and Marine Transport Regulatory Authority (SUMATRA) and the Ministry of Home Affairs through in-person meetings.

**In Uganda**, face-to-face meetings have been held with the following stakeholders:

- Uganda National Roads Authority (the AfCAP partner institution)
- Uganda Police, Department of Traffic and Road Safety
- Representatives of five motorcycle taxi associations
- Representatives of the motorcycle taxi riders' workers' union
- Management of the NGO SafeBoda

Other stakeholders that have been identified as having some interest or involvement with motorcycles or three-wheelers in rural areas have been contacted either by telephone or email. A document introducing the project has been shared with them, and their input has been requested.

Four members of the team attended the ReCAP Inter-Regional Implementation Meeting in Kampala, Uganda, from 20<sup>th</sup> to 22<sup>nd</sup> November. The Kenya National Expert and Motorcycle Safety Specialist presented an introduction to the project and progress update during a plenary session at the meeting.

During the meeting, team members engaged with key contacts in the AfCAP partner institutions from Ghana, Kenya and Uganda, as well as the Senior Infrastructure Advisor, Liz Jones, from the Department for International Development. Team members did not meet with the representatives from the Tanzanian partner institutions, although it is understood that one representative from each of DID and TARURA attended the meeting.

A newsletter featuring this project was distributed during the ReCAP meeting and published on the ReCAP website.

### **5.2.3 Literature review**

A structured literature review has been undertaken to gather existing literature related to the use of motorcycles and three-wheelers for rural transport. The full literature review will be published as a standalone document; while a summary is included in this report. Annex D contains the full annotated bibliography of the literature review.

#### **5.2.3.1 Methodology**

Literature was sourced primarily using the *Web of Science* and *Google Scholar*, but also drawing on academic databases at Makerere University in Uganda and Durham University in the UK. A list of key words and phrases was developed by the project team based on the identified key themes for investigation; Access, Uptake, Road Safety and Innovation.

These documents were supplemented by additional academic literature and so-called 'grey' literature sourced by the team's National Experts, which included government statistics, conference presentations and in-country newspaper articles.

#### **5.2.3.2 Findings**

There is no single source of information for the total numbers of motorcycles and three-wheelers across all of sub-Saharan Africa, but sources from individual countries show that the number of motorcycles is far greater than the number of motorised three-wheelers. For example:

- In 2011 in Kenya, there were more than 140,000 registered motorcycles compared with 2,140 registered three-wheelers (Kenya Revenue Authority, 2012)
- In 2014 in Tanzania, there were more than 830,000 registered motorcycles compared with 53,000 registered three-wheelers (Tanzania Revenue Authority, 2015)

This is reflected in the literature, with substantially more literature available on motorcycles than on three-wheelers. The majority of the literature also focuses on urban areas rather than rural areas, possibly as the rapid uptake of motorcycles, and hence the growth of motorcycle-related issues, has been most-evident to researchers at academic institutions in urban areas.

Motorcycles and three-wheelers account for 23% of all road traffic deaths equating to more than 286,000 deaths around the world annually, and this number is rising (WHO, 2017). However, despite being seen as a problem by many in the road safety community, motorcycles in particular are a lifeline for many people. In rural areas motorcycle taxi services greatly improve access to essential services such as healthcare and education, and provide a form of employment and income-generation, although they are still unaffordable to many of the lowest income households (Starkey, 2016).

#### ***Theme: Access***

The value of motorcycles and three-wheelers in mitigating the challenges experienced by isolated communities in low- and middle-income countries in accessing healthcare, education, markets, and employment is well understood. Porter (2014) points to the ability of these vehicles to negotiate poor quality rural roads, tracks and paths inaccessible by other vehicle types, and the door-to-door service they provide, is having a transformative effect on rural areas and the lives of rural people. They serve areas where limited other forms of public transport operate.

The availability and affordability of imported Chinese and Indian manufactured models have contributed positively to youth employment (Olvera et al, 2012). Operators are largely young males, but more often than not, the motorcycles or three-wheelers are owned by a third party, as an investment to generate income (ibid).

Despite the fact that the cost to customers is often higher than more conventional forms of transport, they are generally popular with members of the public, especially in rural areas (Porter 2014).

In East Africa, present day motorcycle taxis are derived from the bicycle taxis that were popularised in the 1960s. In West Africa, motorcycle taxi use appears to have commenced in the 1970s in Nigeria, and was later fuelled by the expansion of irrigated agriculture and the subsequent increased access to cash, at which point motorcycles were being purchased specifically to provide taxi services (Porter, 2002). As their use has increased, some countries, regions and cities, among them Ghana, South Africa and Zambia, Adamawa and Borno states in Nigeria, and Dar es Salaam in Tanzania, have enacted bans on motorcycle taxis for a variety of reasons, relating to safety concerns, crime, security and general nuisance.

#### ***Theme: Uptake***

While attempts have been made to regulate motorcycle and three-wheeler taxi industries, in many African countries, this has done little to deter an unprecedented increase in their numbers. The most recent figures published by the World Health Organization (WHO) show high numbers of registered motorcycles and three-wheelers in all of the countries targeted by this study for which data is available: Ghana (around 350,000 in 2012), Kenya (around 740,000 in 2013) and Tanzania (around 810,000 in 2014) (WHO, 2015). To further illustrate the scale of uptake, in Tanzania, motorcycles

constitute up to 54% of the total vehicle fleet (ibid). The WHO did not publish data for Uganda, but newspaper reports suggest there up to one million operating countrywide (The Daily Monitor, 15<sup>th</sup> September 2016).

Operators are predominantly male, which in many places is driven by cultural constraints imposed on women, such as lack of access to cash and resistance to the changing role of females in rural areas (Olvera et al, 2012). As passengers, females also face cultural constraints that persist in conservative societies, such as the proximity they sit to male motorcycle riders. However, the benefits that motorcycles offer women, such as reducing the time taken for daily tasks, and reducing the requirement for head loading, are positive developments (Porter, 2011). In fact, females have embraced this mode of transport. In rural Sierra Leone and Liberia women make up approximately 50% of passengers. In Douala, Cameroon, more women than men are passengers (Olvera et al, 2012). ReCAP is currently supporting a cluster of research projects looking at gender in rural transport, which includes a study in Liberia and Sierra Leone entitled 'Enabling women to become Motorcycle Taxi Operators: Opportunities and Obstacles' (ReCAP reference RAF2044K).

The needs of passengers with limited mobility, such as the elderly, expectant mothers and those with short term illnesses and long term disabilities, have not always been considered by motorcycle operators, and therefore this form of transport has limited uptake by these groups. Externally-funded integrated health programmes have sought to increase access to maternal health services through available and affordable transport, such as the development of emergency transport schemes amongst participating motorcycle taxi riders (Transaid, 2015a).

### ***Theme: Road Safety***

The literature review identified many studies related to the safety of motorcycle taxis. Most of the existing road safety-related literature identified during the searches relates to the behaviour of motorcycle riders. This is perhaps not surprising as rider behaviour is commonly identified as the primary cause of motorcycle crashes in Africa (Amend, 2014).

However, while attempts to improve safety will undoubtedly need to target rider behaviour, other contributory factors such as road design and condition and behaviour of other road users, will also need to be considered (Amend, 2014). The WHO's 2017 Powered Two- and Three-Wheeler Manual is notable as an excellent resource for policy makers and practitioners alike, providing broad-based guidance on improving safety.

Almost a quarter of all road fatalities globally involve two- or three-wheelers. Injuries sustained by motorcycle and three-wheeler riders tend to be more serious than those sustained by car occupants, with common serious injuries including head injuries and injury to the lower extremities including the pelvic region (WHO, 2017).

The WHO (2015) highlights weaknesses of official data on motorcycle and three-wheeler crashes in Africa, although numerous studies have found high rates of road traffic injuries among motorcycle riders and passengers.

Use of protective equipment to prevent crashes or reduce the severity of injuries is low in many African countries. This includes low rates of use of motorcycle helmets, despite most countries having legislation in place requiring riders to wear helmets. For example, in one recent study in Ghana, 42% of riders and only 17% of passengers were observed wearing helmets (Afukaar, Peters and Damsere-Derry, 2017). Excessive loading of passengers and freight is common practice despite legislation being in place to prevent this in the majority of countries (Starkey, 2016). There is a clear need to strengthen legislation in some countries, and this must be backed up by strong enforcement of the law.



Rider training is rarely a requirement by law, and indeed the lack of comprehensive training provision is indicative of low demand for such training. In 2015, Tanzania's transport regulatory authority, SUMATRA, commissioned the development of a standardised motorcycle and three-wheeler training curriculum (Transaid, 2015b), but this is yet to be fully rolled out.

The contribution that appropriate post-crash care would have on saving the lives of crash victims is immeasurable. Transportation in an emergency is a challenge and many destination health centres and hospitals do not have the facilities or the expertise to effectively deal with emergency trauma cases (WHO, 2017).

***Theme: Innovation***

The use of motorcycles and three-wheelers as a means of public transportation was in itself an innovation as providers sought to fill the gaps left by declining public transport systems and to take advantage of limited regulation. With no price controls, operators are generally free to set their own prices (Olvera et al, 2012). As such, affordability is seen as a key area where innovation is needed to improve the service to passengers.

Mobile phone ownership has allowed operators to expand their customer base, with riders able to store clients' numbers for future business (Porter et al, 2013). This is the case in both urban and rural areas.

While smart phone ownership in rural areas remains relatively low, ride hailing software applications ('apps') have been developed for use primarily in urban areas. These apps also provide customers with a means to pay for services via their mobile phones, reducing the need to carry cash, and therefore offering the potential to improve personal security. This applies also to the operators themselves who in some areas in Uganda have resorted to travelling in small groups after dark in response to the threat of violence or theft (Transaid, 2015a).

To date, most innovative practice within the rural motorcycle and three-wheeler taxi sector has been limited to donor-funded programmes aimed at reducing exploitative pricing which can act as a barrier to use. Transaid sought to reduce this practice in Uganda through building motorcycle taxi riders' customer bases as an incentive to reduce prices for pregnant women travelling to health centres. As a result, prices were consistently reduced for pregnant women by up to 41.6% (Transaid, 2015).

Innovative initiatives have also sought to address problems with uptake – particularly an issue for elderly and infirm individuals. Locally-based manufacturers in Zambia and Uganda have designed and developed ambulance trailers which are designed to attach to motorcycles and give passengers privacy and increased comfort during their journey.

Ownership of a motorcycle, rather than renting, increases profitability. Hire-purchase schemes in Uganda and Kenya seek to offer people the chance to purchase their own motorcycles through making a series of loan repayments while generating income from operating taxi services. While these schemes carry with them a level of risk, particularly in rural areas where incomes are minimal, initiatives such as these offer the potential for riders to increase their income.

**5.2.3.3 Conclusion**

While numerous studies have documented the benefits of motorcycles and motorcycle taxis in Africa, a greater number have focused on their negative aspects, mostly in terms of road safety risks. However, while being a motorcycle taxi rider or passenger is undoubtedly risky, the sheer numbers



and scale of uptake in many countries in recent years demonstrate that many people believe the benefits outweigh the risks.

The urban focus of much of the literature and information available highlights gaps of knowledge in rural areas. For example, official government statistics on road traffic crashes often do not provide sufficient detail on their exact locations, meaning that understanding of crashes on rural roads is limited.

No study has made a direct comparison of the severity of motorcycle-related injuries sustained in crashes on urban roads with those sustained in crashes on rural roads. However, the literature would seem to suggest that severity tends to be lower on rural roads, with many of the crashes involving no other vehicle.

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

The literature highlights examples of safety initiatives that may be appropriate for researching further to understand their effectiveness and appropriateness.

There is very little literature related to three-wheelers. This is reflective of the fact that, while their numbers are increasing, they are far less common than motorcycles.

### **5.3 Brief Summary of the Existing Situation in the Project Countries**

A brief summary of the existing situation in each of the four project countries is presented based on the activities of the Inception Phase.

#### **5.3.1 Ghana**

The number of motorcycles in Ghana grew rapidly from the early 2000s until 2012. WHO data shows that by 2012, there were approximately 350,000 registered motorcycles and three-wheelers in the country (WHO, 2015).

They were originally used for private purposes but later became commonly used as taxis, known locally as 'okada', a term that has spread across Anglophone West Africa from Nigeria.

In 2012, the Road Traffic Regulations (LI 2180) came into force banning the use of motorcycles for commercial activities, mainly on safety grounds. Since then, the number of motorcycles being registered each year has fallen steadily.

However, strict enforcement of the ban is a challenge due to limited resources available to enforcement agencies. Although registration of motorcycles in the country does not disaggregate private use from commercial use, it has been observed that, in spite of the ban, there is growth in the use of motorcycles as taxis. Okada provide several benefits, including filling a much-needed transport gap and providing employment and income generation, especially for young men.

Okada are found in both urban areas and in most rural areas, especially in the southern part of the country. In the northern part of the country, however, motorcycles are mostly privately owned, with their use as taxis being far less prevalent than in the south. Three-wheelers are also commonly found in rural areas, used to transport agricultural produce as well as passengers.

Outside the large cities, okada are found mostly at junctions and villages along the main roads, providing feeder services to the hinterlands. In many rural areas, they are the main means of transport, and they are very popular with the rural population. The authorities in rural areas often turn a blind-eye to the use of motorcycles and three-wheelers for commercial purposes due to the obvious benefits to the local communities. The result of this is that there is also very limited enforcement of other regulations, such as on helmet use, vehicle overloading, insurance and rider under-age limit, particularly on low volume roads.

There is currently a movement to review the legislative instrument that bans the use of motorcycles as taxis to reflect the current transport needs, especially in the rural areas.

Helmet use by both motorcycle riders and passengers is mandatory by law, but usage rates tend to be low on low volume rural roads. On highways and in urban areas where vehicle volumes are much higher, helmet use is greater partly due to riders' awareness of safety implications and also due partly to enforcement by the police. Levels of formal training and licensing of riders are also low.

Official crash data gives the location of road traffic crashes only as either 'urban' or 'non-urban', with non-urban including highways as well as low volume roads in rural areas. As such it is not easy to ascertain the number of crashes on rural roads.

### *5.3.2 Kenya*

The use of motorcycles as taxis was first noted in Kenya in the 1990s. They are known locally as 'boda boda', a term that has spread across East Africa from Uganda. WHO data shows that by 2013, there were around 738,000 motorcycles and three-wheelers registered in Kenya (WHO, 2015).

Motorcycle taxis are popular in both urban and rural areas. In rural areas, they are the most commonly available form of motorised transport, and are closely associated with agriculture, being used to transport produce to markets.

The government regulates the commercial use of motorcycles and three-wheelers, seeing it as a form of revenue through fees and taxes. The government also recognises them as an important form of employment in rural areas.

Reliable data on rural motorcycle and three-wheeler crashes is unavailable, although various small studies have found high crash and injury rates among motorcycle riders. Several studies have found human error to be the main cause of crashes.

A national standard for helmets has been drafted but not yet implemented. This is for reasons including very limited availability of helmets that meet the standard.

Studies have found quite high levels of helmet use among riders, but very low among passengers.

Levels of formal training and licensing are low.

The use of mobile phone technology is starting to influence the use of motorcycle taxis, although the focus of this is on urban areas.

### *5.3.3 Tanzania*

In Tanzania, as in Kenya, motorcycle taxis are known as 'boda boda'. WHO data shows that by 2014, there were almost 810,000 registered motorcycles and three-wheelers in the country (WHO, 2015).

Boda boda are common in both urban and rural areas. In some parts of Dar es Salaam, Tanzania's largest city, motorcycles have been banned from operating as taxis. In rural areas, studies have shown that over 90% of motorised vehicles on rural roads are motorcycles. Three-wheelers are mainly found in urban areas.

Boda boda are strongly associated with crime, both in urban and rural areas. They have been used as 'getaways' in thefts or snatches, and there have been reports of riders being attacked by passengers, and vice-versa. Boda boda riders are commonly perceived to misuse alcohol and illegal drugs.

Attempts to regulate the commercial use of motorcycles and three-wheelers have largely been unsuccessful. A Memorandum of Agreement between the public transport regulatory authority and local councils to issue business licences, encourage motorcycle taxi operators to form associations and generate revenue for road safety campaigns has seen low levels of uptake. Alternatives are currently being investigated.

Reliable crash data is difficult to come by, but numerous small studies have found high crash and injury rates among motorcycle riders. Many of these crashes have been found to involve no other vehicle, and the most common cause is rider error (Amend, 2014).

Studies have also found the design and condition of rural roads are contributory factors in crashes. The Ministry of Work's Low Volume Roads Design Manual advises District Engineers to take into consideration motorcycle safety when planning, designing and maintaining rural roads

A motorcycle rider training curriculum has been developed but its uptake by training institutions is limited. Some training is provided by the Traffic Police and through projects funded by donors, but the quality of training is generally low – there is a dearth of qualified motorcycle rider trainers in Tanzania.

There are a number of initiatives to improve the use of motorcycles. Ride-hailing apps are currently limited to urban areas. There are initiatives to train boda boda riders to be first responders in road crashes. There is also an initiative to train women to be motorcycle technicians – which is novel given the fact that the vast majority of motorcycle taxi operators are male.

#### *5.3.4 Uganda*

Uganda was the first country in East Africa in which motorcycles were used as taxis, first 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.

While the WHO does not have data on the numbers of registered motorcycles and three-wheelers in Uganda, local newspaper reports suggest that there are over one million in the country (The Daily Monitor, 15<sup>th</sup> September 2016). They are very common in rural areas, where they are often the most common form of motorised transport.

Public perception of boda boda has been tainted by the reckless driving that often leads to crashes and the strong link between motorcycles and crime, with them being used as getaways in thefts. Riders often complain that they are ignored by government, that they are treated badly by drivers of four-wheeled vehicles, and that they are at risk of attack.

Reliable crash data is hard to come by, but various small studies have found high rates of injury. However, numerous studies have found high rates of crashes and injuries. Crashes are commonly attributed to rider error and the condition of roads.

Attempts to regulate the sector have largely been unsuccessful. This is in part due to the link between boda boda associations and politics. For example, measures taken to mandate boda boda riders to carry two helmets and reflective jackets were reversed in the face of opposition from riders and owners. The government is now reluctant to challenge the associations.

The associations provide motorcycle taxi riders with a sense of belonging, often assisting in times of trouble such as in the event of a crash, or sickness. However, these associations are commonly mismanaged and are subject to take-over and collapse.

As in the other countries in this study, the vast majority of motorcycle taxi riders are male. However, in northern Uganda, there are areas where women operate motorcycle taxis.

Motorcycle rider training tends to be implemented as part of privately-funded projects, rather than being instituted. As such, levels of training, and also of licensing, are low. Licences are commonly obtained through fraudulent means. The use of motorcycle helmets is also low.

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, even in emergencies. In 2015, a project piloted an emergency transport scheme based on the participation of rural based motorcycle taxi riders.

## **5.4 Preparation for Research Phase**

### **5.4.1 Two-Day Team Planning Meeting**

Preparation for the Research Phase was delayed due to the need to postpone the Team Planning Meeting. The planning meeting, the purpose of which was to bring the team together to debate and agree on the research strategies and methodologies, was initially scheduled to be held on 30<sup>th</sup> and 31<sup>st</sup> October in Nairobi. However, due to political instability caused by the annulment of Kenya's general election, it became necessary to postpone the meeting.

Discussions about the research strategies and methodologies began in November, with a team webinar held on 10<sup>th</sup> November. National Experts and Key Experts were asked to think about the focus areas for the Research Phase.

The rescheduled Team Planning Meeting was held in Nairobi between 4<sup>th</sup> and 5<sup>th</sup> December. It was attended by the following people:

- Team Leader, Tom Bishop
- Chair of the Quality Assurance Group, Caroline Barber
- Motorcycle Safety Specialist / Trainer, Neil Rettie
- All National Experts, Juliet Adu, Grace Muhia, Hans Mwaipopo and Elizabeth Kiracho
- Communications and Knowledge Manager, Aggie Krasnolucka-Hickman
- ReCAP's Deputy Team Leader for Transport Services, Annabel Bradbury
- ReCAP Regional Technical Manager for East and Southern Africa, Henry Nkwanga

The Technical Review Expert (Darren Divall), the Road Safety Research / Data Compilation Expert (Suzy Charman) and the Gender and Social Inclusion Expert (Gina Porter) called in during a key session on the development of the methodologies on the second day of the meeting.

As well as brainstorming and detailed discussions, the meeting also involved a site visit to Limuru, an agricultural area to the north-west of Nairobi, to speak to motorcycle taxi riders and other stakeholders, thereby prompting ideas and discussion among the team members.

The conclusion of the Team Planning Meeting was agreement among the team on the specific research activities. Based on a detailed understanding of the existing situation in the four case study countries, these activities directly address specific in-country needs, and hence buy-in from relevant stakeholders can be ensured.

It was agreed that two main activities will span all four project countries, and other country-specific activities will also be undertaken in each individual country. These activities are directly aligned with the project's Terms of Reference, and will provide a detailed understanding of the situation related to the use of motorcycles and three-wheelers in rural areas.

All research activities will take into account gender, through the collection of gender disaggregated data, in order to understand specific issues faced by women and girls. However, gender is not anticipated to be the main focus of any single piece of research within this study. ReCAP is currently supporting a cluster of projects specifically researching gender issues in rural transport, for example a study in Liberia and Sierra Leone entitled 'Enabling women to become Motorcycle Taxi Operators: Opportunities and Obstacles'. The results of the gender cluster are of great interest to this project and will be carefully reviewed and, where appropriate, incorporated into the research design.

#### **5.4.2 Cross-cutting research activities**

##### **5.4.2.1 Survey of the benefits and disbenefits of motorcycles and three-wheelers**

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.

A survey will be undertaken across all four countries to obtain information on the benefits and disbenefits. Key aspects of the survey will be as follows:

- Data will be collected from motorcycle riders, users (including passengers and owners of cargo) and owners, as well as individuals who do not use motorcycle taxis, to identify factors that prevent people from using these services.
- In each country, the survey will be carried out in two different agro-ecological zones (such as coastal and highland), and within each agro-ecological zone data will be collected from two different locations – one very remote and one less remote – to enable strong comparative analysis.
- The design of the survey will involve careful deliberation to ensure that the most pertinent questions are included. Pre-survey qualitative work (such as in-depth interviews and focus group discussions) will shape the questionnaire before piloting of the draft survey in each country.
- Topics covered by the survey are likely to include:

- Economics and finances
  - Access and mobility
  - Injuries and health conditions
  - Crime and personal security
  - Access to motorcycle-related services and protective equipment
- The majority of data collected will be amenable to quantitative analysis, to enable comparison across the four countries, as well as between different geographical locations and demographic groups within each country. Qualitative data will also be collected, not merely to enable validation of the quantitative analysis through triangulation, but also to enable full elaboration and understanding of key findings emerging.
  - The target number of completed questionnaires will be calculated during the detailed design. Efforts will be made to ensure the sample of motorcycle riders and passengers interviewed in each country will be sufficiently large to enable the analysis to be statistically robust. A total sample of 600 surveys will be targeted (150 in each country) but this figure may change as the detailed survey design is finalised.
  - Survey data will be entered into SPSS for statistical analysis.
  - Data will be disaggregated by gender and age group.
  - The findings will be presented from a range of perspectives, including a cost-benefit analysis comparing the use of motorcycles with other modes of transport.
  - The methodology for quantifying the benefits and disbenefits is likely to be appropriate for use in future studies.
  - The National Experts will manage the implementation of the survey, leading teams of research assistants. The National Experts will be given full support to ensure they are able and confident to implement the survey.
  - Research clearance will be obtained from the appropriate government body in each of the four countries and once the research protocol and the survey is drafted these will be submitted for ethical approval. Contact has already been made with the appropriate bodies.

The output 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 on the benefits and disbenefits of motorcycles and three-wheelers for rural access.

#### **5.4.2.2 Review of motorcycle and three-wheeler taxi-related policies and legislation**

Government policy and legislation related to motorcycle taxis in African countries has often failed to keep pace with the rapid growth of their use. Similarly, the implementation and enforcement of policy and legislation has also presented challenges to governments.

##### ***Policy and legislation***

A critical review will be conducted for each of the four countries, looking at all available policy and legislation which relates to motorcycles, three-wheelers and their commercial use as taxis. The primary documents for review will be the main National Transport Policy and Road Traffic Act

(nomenclature will differ from country to country) and their subsequent amendments. Relevant regulations derived from these documents will also be reviewed with regard to training, testing and licensing of motorcycle riders and three-wheeler drivers, their commercial operation, loading of passengers and cargo, use of personal protective equipment (helmets, in particular) and any other relevant references.

In addition to the national transport policies and road traffic acts, other relevant policies and legislation will be identified through discussion with appropriate government bodies and other stakeholders in each country. Consideration will also be given to any reviews currently underway in each country which may lead to amendments specifically affecting motorcycle and three-wheeler use.

### ***Implementation and Enforcement***

Implementation and enforcement of policies and legislation will be explored through targeted interviews with the authorities responsible for their application. These interviews will take place at the national level, district level and at local level. This activity will reveal any disparities between the knowledge and expectations of senior managers in government ministries, and the effectiveness of implementation and enforcement as applied in rural areas.

The team's National Experts will conduct the interviews with government officials at national, district and local levels, while research assistants, overseen by the National Experts, will conduct interviews with owners, riders and passengers.

Research assistants will also gather primary data on compliance in rural areas, such as training, testing, licensing, helmet use, and number of passengers carried.

A table will be developed which will allow the four countries' policies and legislation, and their implementation and enforcement, to be compared and contrasted. From this it will be possible to identify recommendations to specific countries based on experience from other project countries.

## ***5.4.3 Country-specific research activities***

### ***5.4.3.1 Ghana: Collection and analysis of existing data, with a rural focus***

The Ghanaian government is currently undertaking a review of the law that bans the use of motorcycles to carry passengers for a fare, with some decision-makers recognising that it has been ineffective in preventing their use, and so considering legalisation and regulation. All of the activities in Ghana will look to build the body of knowledge that supports this review.

The Building and Road Research Institute (BRRl) will be the primary source of existing crash data. Currently, the crash data has been coded and disaggregated into urban and non-urban locations using a Micro Accident Analysis Package (MAAP). The data shall be re-coded and disaggregated into *urban location*, *rural highway location* and *rural low volume road location*. This shall bring into focus the rural low volume setting for comparison. The latest 3-5 year national crash data sets, based on regional distribution, shall be utilised.

Any available relevant traffic data will be requested from the Department of Feeder Roads. If rural traffic data is not available, then a quick snapshot field traffic survey will be undertaken.

Any available relevant data on vehicle registrations will be requested from the Driver and Vehicle Licensing Authority (DVLA). Also, a snapshot survey of rural motorcycle riders will be carried out to establish the prevalence of vehicle registration compliance.



Other sources of data will also be investigated, such as the National Road Safety Commission, the Ministry of Transport, the Ministry of Roads and Highways, Ghana Health Service and the National Ambulance Service, among others.

This activity will be carried out in coordination with the survey of benefits and disbenefits, in the same geographical locations.

The output of this activity will help decision-makers to consider how the decision on whether or not to lift the ban will impact rural communities. It may also enable recommendations to be made on the future use of data.

#### **5.4.3.2 Kenya: A study of the health impacts of motorcycle and three-wheeler use**

Kenya's Ministry of Health has recently been allocated budgets to work with motorcycle taxi associations, primarily to address issues related to road traffic injury.

Through investigations into the existing situation in Kenya, including the team's site visit to Limuru, it has been found that as well as suffering injuries in crashes, motorcycle taxi riders complain about other health problems. Painful hands, knees, feet and backs, as well as respiratory problems and eye infections, are blamed by riders on environmental factors including wind, bumpy roads and dust. Anecdotally, the team learnt that these health problems can sometimes lead to loss of control of the motorcycle, occasionally causing crashes.

Quantitative data on health and injuries will be collected through the four-country survey of benefits and disbenefits. In Kenya, this topic will be explored further by gathering qualitative information through key informant interviews and focus groups with riders and passengers, to understand the crash risks related to injuries and ailments acquired through riding motorcycles. Rural health facilities will also be engaged in an attempt to understand the burden that motorcycle taxis place on the rural health system.

This activity will be carried out in coordination with the survey of benefits and disbenefits, in the same geographical locations.

The information obtained through this activity will help decision-makers to understand the health impacts of motorcycle and three-wheeler use. It will also add to the body of knowledge on the health impacts of motorcycle use in Africa.

#### **5.4.3.3 Tanzania: Improving the operations of motorcycle taxi associations**

Motorcycle taxi associations are common in Tanzania. The government has attempted to regulate the motorcycle taxi industry by requiring riders to belong to a registered association. In rural areas, enforcement of this has been largely ineffective, and while some rural associations do exist, and provide important social services to members, most are unregistered and their potential is not being maximised.

Previous AfCAP research has looked at the role of transport operators' associations and the potential of motorcycle taxi associations to improve road safety (Transaid, 2014; Amend, 2015). Through this project, investigations will be carried out to understand associations' broader potential. Areas of potential that are likely to be investigated include:

- Management structure
- Finances
- Training and mentoring



- Self-regulation
- Optimisation of operating costs
- Small loans
- Entrepreneurship
- Vehicle maintenance
- Access to services such as licensing and insurance
- Sourcing of protective equipment, spare parts and other materials
- Customer care
- Health and hygiene

Investigations will be carried out through in-depth interviews and focus group discussions with associations' leaders and members, as well as with non-members and relevant government officials.

The output will be a form of 'operating manual' for rural motorcycle taxi associations in Tanzania.

This activity will be carried out in coordination with the survey of benefits and disbenefits, in the same geographical locations.

#### **5.4.3.4 Uganda: Understanding barriers to motorcycle and three-wheeler taxi use**

Motorcycle taxis are widespread throughout rural Uganda. However, they are not accessible to all members of the community for reasons that are believed to include cost, personal security, physical difficulties, and cultural issues related to gender, age and religion.

Quantitative data will be collected from non-users of motorcycles and three-wheeler taxis through the four-country survey of benefits and disbenefits. In Uganda, this topic will be explored further by gathering additional qualitative information through in-depth interviews and focus group discussions with rural household members that currently do not use motorcycle taxi services.

This activity will be carried out in coordination with the survey of benefits and disbenefits, in the same geographical locations.

The information obtained through this activity will help decision-makers to understand how they can help improve the mobility of the most-disadvantaged people in rural communities, as well as adding to the overall body of knowledge on this subject.

#### **5.4.4 Additional activities**

Three other potential research areas have been identified as optional activities for the project, pending the availability of time and suitable budget remaining. These are outlined next.

##### **5.4.4.1 Investigations into new technologies**

New technologies are currently emerging within the motorcycle taxi industry in urban areas of Africa, most notably mobile phone applications for ride-hailing. Other technologies are being applied to motorcycles in other developing countries, such as in India where anti-lock braking systems will be mandatory for all motorcycles over 125cc from April 2018.

If resources are available within the project budget, new technologies with the potential to improve motorcycle and three-wheeler taxi services in rural areas of Africa will be investigated.

##### **5.4.4.2 Tanzania: Engagement with regulatory authorities on a mobile licensing service**

Tanzania's Surface and Marine Transport Regulatory Authority (SUMATRA) is intending to pilot the use of a mobile licensing service, comprising a van that will issue road service licences (the licence

required to operate commercially) to motorcycle taxi riders in rural areas. However, under the authority's own regulations, only riders who have a valid driving licence and insurance, among other requirements, will be issued with a road service licence.

Currently the services required for riders to obtain a driving licence and insurance are only available in urban areas, with access from rural areas often being difficult.

If resources are available, and if SUMATRA makes progress on developing the pilot during the life of this project, discussions will be held on how to address these issues and to ensure that efforts to issue road service licences in rural areas are coordinated with efforts to improve access to rider training, testing, insurance provision and other services.

#### **5.4.4.3 Tanzania: Review of uptake of a motorcycle and three-wheeler training curriculum**

In 2016, SUMATRA launched a training curriculum targeted primarily at motorcycle taxi riders, the development of which was funded by AfCAP and undertaken by Transaid (2015b).

If resources are available, progress on the uptake of this curriculum among training institutions will be reviewed, and an understanding of the barriers to implementation will be developed.

## **6 Revised Workplan**

The timetable of work contained in the project proposal showed the Research Phase beginning in November 2017, following the scheduled Team Planning Meeting in October. However, due to the postponement of the Team Planning Meeting, preparation for the Research Phase was delayed. The Research Phase began in January 2018. Due to the delay in beginning the Research Phase, a three-month extension to the project contract has been agreed with the ReCAP PMU.

### **6.1 Survey of Benefits and Disbenefits, and Kenya, Tanzania and Uganda activities**

Detailed design of the methodology for the survey of benefits and disbenefits began in December, and will continue into February. In late February, applications will be submitted to the relevant government body for research clearance in each of the four project countries. It is anticipated that it will take between one and three months in each country for ethical approval to be granted.

During this time, preparation for the data collection activities will continue, including the training of National Experts to manage the survey, and the recruitment and training of research assistants to undertake the data collection. It is anticipated that the field work of carrying out the survey will begin in early June at the latest.

The country-specific activities in Kenya, Tanzania and Uganda will be carried out in coordination with the piloting and data collection phases of the survey of benefits and disbenefits, and so are anticipated to begin in February.

### **6.2 Review of policy and legislation, and Ghana activities**

The four-country review of policy, legislation, implementation and enforcement, and the analysis of existing data in Ghana, do not require research clearance and are not dependent on other activities, so began in January and are currently underway.

### **6.3 Additional activities**

The other possible research areas that were identified have been discussed with the ReCAP PMU. A costed proposal is being prepared to cover these.

#### **6.4 Budget, deliverables and milestones**

The three-month extension to the project contract will not have any impact on the overall budget, which remains at GBP 301,445 (exc. UK VAT). However, the extension will result in changes to the timing of deliverables, and therefore also to the milestones. Proposed new milestones are:

- Deliverable 2, Progress Report. Deadline: 26<sup>th</sup> March 2018
- Deliverable 3, Country Discussion Paper #1. Deadline: 30<sup>th</sup> July 2018
- Deliverable 4, Country Discussion Papers #2-4. Deadline: 27<sup>th</sup> August 2018
- Deliverable 5, Draft Final Report (and four national one-day workshops held). Deadline: 24<sup>th</sup> September 2018
- Deliverable 6, Final Report with final country reports. Deadline: 22<sup>nd</sup> October 2018
- Deliverable 7, Policy briefs and academic papers prepared. Deadline: 19<sup>th</sup> November 2018

The milestones for Deliverables 3 to 7 are proposed based on the applications for research clearance taking three months in each of the four countries. Should research clearance be granted in less than three months for any of the countries, the up-country fieldwork will begin sooner. In such cases, it is anticipated that deliverables will be submitted well before the proposed new milestones.

Should the costed proposal for the additional activities be approved, a contract amendment will be required as the project budget will be increased.

#### **6.5 Workplan for Research Phase**

The detailed workplan for the Research Phase is shown next, and the workplan for the full project is shown in Annex E.

			2018								
Task	Activity	Sub-activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
2.1: Undertake In-Country Research	Survey of benefits and disbenefits	Detailed design	█	█							
		Piloting		█							
		Submissions for research clearance		█							
		Training of National Experts and Research Assistants			█						
		Data collection					█	█	█	█	
		Data entry and analysis							█	█	
		Review of policy, legislation, implementation and enforcement	Gather relevant documents	█	█						
			Review policy and legislation		█	█					
			Gather information on implementation and enforcement					█	█		
		Ghana: Analysis of existing data with rural focus	Obtaining existing data	█	█						
	Data analysis				█	█					
	Kenya: Study of health impacts	Detailed design	█	█							
		Data collection					█	█	█	█	
		Data analysis						█	█	█	
	Tanzania: Improving operations of associations	Interviews with government officials		█							
		Obtain in-depth understanding of associations' operations			█	█	█	█	█	█	
		Develop Operating Manual						█	█	█	
	Uganda: Understanding barriers to motorcycle taxi use	Detailed design	█	█							
		Data collection					█	█	█	█	
		Data analysis						█	█	█	
Other possible activities	Prepare proposal for contract amendment	█	█								
	Implement			█	█	█	█	█	█		
2.2: Progress Report					★						
2.3: Preparation of Draft Discussion Papers									★	★	

Deliverables and Milestones ★

## **6.6 Extension to include Liberia and Sierra Leone**

As per the Terms of Reference, an extension to the project to include Liberia and Sierra Leone will be considered later in the project. The project consortium is interested in this extension and is intending to present a budget to ReCAP in early 2018. In light of this, initial efforts are being made to understand the existing situation in these two countries.

In August 2017, as part of a separate assignment, Transaid met a number of road safety stakeholders in Sierra Leone. One of these individuals was Tamba Amara from the Sierra Leone Roads Authority, and the national coordinator for AfCAP/ReCAP. He explained that in rural areas of the country, motorcycle taxis (known locally as 'okada') are highly prevalent and have a monopoly on transport services. He estimates that okada provide around 98% of transport services in rural areas. For example in Kono and Kabala districts there are no taxis at all, so 'okada' is the only means of motorised travel.

In terms of safety there are many crashes that involve motorcycles and motorcycle taxis in both urban and rural areas. Riders are supposed to wear a helmet and carry a helmet for a passenger, although it was suggested that it is very unlikely that passengers would use such helmets. Riders reportedly use poor quality helmets and do not use the chin strap. Rider footwear is also apparently an issue with many horrific lower limb/foot injuries reported.

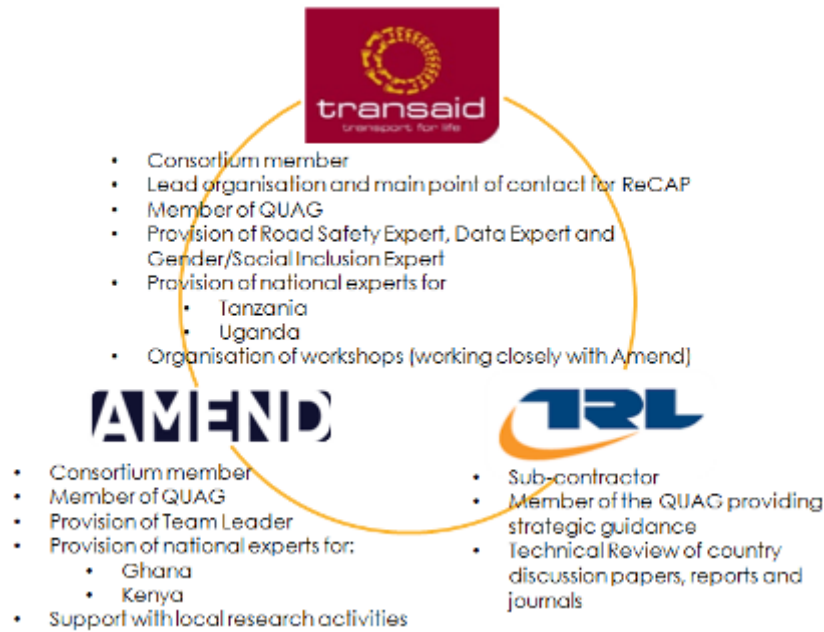
Motorcycle taxi regulation is currently very light, especially in rural areas. Mr Amara suggested that even the lightest training for okada riders could have a positive impact. In rural areas training would be best exercised in cooperation with unions as they are quite strong.

During the ReCAP Inter-Regional Implementation Meeting in Uganda, interesting research from Liberia was shared during the session 'Diagnosing rural access challenges and measuring the impact of transport service solutions that are low-cost and sustainable'. It was advised that usage of motorcycle taxis in Liberia was first noticed on the Guinea border and then introduced further inland in Liberia around ten years ago. Since then motorcycle taxis have been transforming people's ability to travel, becoming more popular and currently around 75% of annual passenger journeys are conducted on motorcycle taxis. A recent survey conducted in six hospitals and clinics revealed that 59% of people travelled by motorcycle taxi to reach the facility. This shows the dependence on them as a means of transport.

Motorcycle taxis in Liberia are operated by young men who are often risk-takers and usually lack even basic driver training. Key safety issues include overloading of the vehicle, low use of helmets and lack of insurance. To improve access to remote villages in Liberia a trial network of motorcycle trails (25 km) was constructed with help of GIZ funding in 2017. An evaluation of the project, and its impacts on rural communities is being undertaken by Swansea University in 2018, funded by the Economic and Social Research Council (ESRC).

## **7 Management Approach**

The project is being delivered by a consortium comprising of Transaid and Amend, with the additional support of TRL as a sub-contractor. The roles of each are shown in the following diagram.



The three partners are brought together regularly through the Quality Assurance Group (QUAG). The QUAG provides support to the Team Leader, offering technical and strategic guidance and identifying and assessing risks.

In Ghana, Francis Afukaar has been appointed as Rural Transport Advisor to support the National Expert, Juliet Adu.

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

## 8 Technical Inputs and Budget

The following table shows the team members, their roles, and total days allocated to the project.

Role	Name	Total Project Days
Team Leader	Tom Bishop	89
Chair of Quality Assurance Group	Caroline Barber	18
Technical Review and Quality Assurance Group	Darren Divall	14
Motorcycle Safety Specialist / Trainer	Neil Rettie	42
Road Safety Research / Data Compilation Expert	Suzy Charman	25
Gender and Social Inclusion Expert	Gina Porter	11
Ghana National Expert	Juliet Adu	62
Ghana Rural Transport Advisor	Francis Afukaar	20

Kenya National Expert	Grace Wahome	74
Tanzania National Expert	Hans Mwaipopo	74
Uganda National Expert	Elizabeth Kiracho	74
Local Researchers		300
Communications and Knowledge Management	Aggie Krasnolucka-Hickman	4
Finance Officer	Julia Tinkov	4

There are no proposed changes to the budget as provided in the proposal. The budget stands at GBP 301,445 (exc. UK VAT).

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## Annex A: Project Methodology

As per project proposal:

### **Phase 1: Project Inception**

#### **Task 1.1: Engage National Experts**

Before beginning any country-specific tasks, we will engage National Experts for each of the four project countries. We will do so from our already-identified pool of experts.

#### **Task 1.2: Understand the Existing Situation in Each Country**

##### *Sub-Task 1.2.1: Stakeholder mapping*

At the outset, Transaid, Amend and TRL will compare and collate their existing stakeholder maps, developed through working on previous motorcycle-related and /or rural access projects in the four countries. We will also reach out to our partners to make sure this mapping is thorough.

These stakeholder maps will then be shared with the National Experts to provide their input, including verifying that the information is up-to-date.

##### *Sub-Task 1.2.2: Stakeholder engagement*

The National Experts will engage each of the identified stakeholders in their country, to explain to them the project and to understand the latest developments in their specific area of interest related to motorcycles and three-wheelers, and to obtain any relevant documents and data.

Significant effort will be put into engaging and developing a strong working relationship with the AFCAP partner institution in each country. We will request that each AFCAP partner institution appoints a coordinator for this project, who will be our key point of contact throughout.

##### *Sub-Task 1.2.3: Literature review*

With the support of the Key Experts, the Team Leader and National Experts will undertake a literature review of relevant available material relating to motorcycles and three-wheelers in the project countries and more widely across Africa. The review will cover relevant legislation, regulations, policies, data, training curricula, examples of best practice, published research and so-called 'grey' literature. This information will be obtained from our local and international contacts, academic and other databases to which our team has access, Google Scholar and a general internet search.

#### **Task 1.3: Prepare for Research Phase**

##### *Sub-Task 1.3.1: Two-Day Team Planning Meeting*

We will organise a two-day Team Planning Meeting in one of the project countries. This meeting will bring together the Team Leader, at least one member of the QUAG, the Key Experts and the National Experts.

The overall aim of the planning meeting will be to agree on the overall research strategy and methodologies. This will ensure that the research strategies and methodologies will be similar in each country, but will meet local requirements.

To achieve this aim, meeting activities will include:

- Presentations by the National Experts of the existing situation in each country, including explanations of the research priorities identified through Task 1.2
- A field visit to a relevant location and/or motorcycle or three-wheeler initiative, to provide an example of the issues that this study will address

- Sharing of initial ideas for research strategies
- Identification of similarities and differences between the research needs of the different countries, and agreement on how to address these
- Initial identification of any existing initiatives that may be applicable for evaluation or for piloting in other countries
- Working sessions to develop the research strategies and high level methodologies
- Identification of areas in which National Experts will need additional support, and development of specific approaches for how the Key Experts can provide that support

*Sub-Task 1.3.2: Finalise research strategies*

The Key Experts will lead on finalising the research strategies, based on the input from the two-day Team Planning Meeting, and working closely with the National Experts.

The strategies to be used will depend on the existing situations in the project countries, but are likely to include the collection of data and information through a combination of the following methods:

- i) In-depth interviews, questionnaires and discussions with stakeholders
- ii) Detailed interrogation of existing data
- iii) Collection of primary data where gaps are found in existing data
- iv) Evaluation of existing initiatives aimed at improving motorcycle and three-wheeler services and access
- v) Piloting of new or improved initiatives

*Sub-Task 1.3.3: Prepare a detailed work plan for Research Phase*

Having finalised the research strategies and detailed methodology for the data collection activities, we will prepare a detailed work plan for the Research Phase.

**Task 1.4: Inception Report**

Our Inception Report will provide a concise review of the existing situation in each of the project countries, and will detail the programme, methodology and work plan for the subsequent Research Phase.

As well as being submitted to the client, we would recommend that the Inception Report be shared with the AFCAP partners and other key stakeholders, for comment prior to commencement of the Research Phase.

**Phase 2: Research in Four Countries**

The research will be carried out primarily by the National Experts, with on-the-ground support early on in the Research Phase from either the Team Leader or one of the Key Experts, as appropriate. As and when required, we will recruit and train teams of Research Assistants from our existing pools of researchers in each country.

Throughout the Research Phase, the National Experts will receive one-on-one support from the Key Experts, in line with the support approaches designed during the Team Planning Meeting. We will also initiate monthly conference calls between the National Experts to share their findings and ideas. When necessary, any one or more of the Key Experts will be invited to join this call.

We will maximise use of social media such as a 'Whatsapp' group to ensure that the National Experts, Key Experts and Team Leader can share updates and learning.

## **Task 2.1: Undertake In-Country Research**

In each country, the research is likely – although not guaranteed, as the research methodology will be developed to meet needs identified during the Inception Phase – to include combinations of the following tasks.

### *Task 2.1.1: In-Depth Interviews, Questionnaires and Discussions with Stakeholders*

In-depth interviews, questionnaires and discussions with stakeholders will be carried out in each country.

The aims of these activities will include identifying, for example, how any existing initiatives aimed at improving motorcycle and three-wheeler services and access could be improved, and how synergies between different initiatives can be exploited to maximise the benefits.

### *Task 2.1.2: Detailed Interrogation of Existing Data*

We will obtain and interrogate any relevant existing data. Such data may include data related to the registration of motorcycles, training of drivers, issuing of licences, road traffic injury statistics, and penalty notifications for infringements of laws. Having a presence in the focus countries means that we have the relationships to support this task and the gathering of data where it exists.

We will be careful to disaggregate between data that can be classified as ‘rural’, and other data that may be from urban, peri-urban or highway locations.

### *Task 2.1.3: Collection of Primary Data*

From our experience, it is known that in at least some – and possibly all – of the project countries, the availability of data related to motorcycles and three-wheelers in rural areas is limited.

Therefore, in order to understand key issues, it will be necessary to undertake some primary data collection, for example through roadside surveys or community surveys. Such surveys could collect data related to, for example, fares, costs, purpose of journey, linkage to other modes, training and licensing of drivers, use of safety equipment, crash rates, user perceptions of safety, and more.

The design of the surveys will allow for disaggregation by variables including gender and age, in order to identify any specific issues related to certain groups of society.

### *Task 2.1.4: Evaluation of Existing Initiatives*

We expect that during the exercise to understand the existing situation in each country, we will identify certain initiatives currently being undertaken to improve aspects of motorcycle and three-wheeler services.

For example, we are already aware of programmes to train motorcycle taxi drivers to be first responders in Tanzania, programmes to bring motorcycle taxi drivers together into a collective to strengthen rural access for pregnant women in Uganda, and programmes using technology that are changing patterns of access in Kenya.

As appropriate, we will critically evaluate these – looking at both process and impact – to identify any that might be suitable for scaling up and/or initiating in other countries.

### *Task 2.1.5: Piloting of New or Improved Initiatives*

We will aim to identify new initiatives or improvements to existing initiatives. Where practicable and appropriate, we will undertake small pilots and evaluations of these.

For example in Uganda a new professional driver training centre is being established with funding from GIZ. There is scope to explore collaboration and the piloting of motorcycle taxi safety initiatives.

## **Task 2.2: Progress Report**

Midway through the Research Phase, we will prepare a Progress Report, detailing the findings of the project up to that point.

## **Task 2.3: Preparation of Draft Discussion Papers**

We will review, analyse and consolidate all of the information obtained during the Research Phase, and prepare a separate draft Discussion Paper for each of the four countries. These papers will provide specific recommendations for changes to policy and practice to improve rural motorcycle services, which will be discussed during the subsequent workshops.

## **Phase 3: Building on Lessons and Influencing Uptake and Embedment**

Efforts to maximise the chances of uptake and embedment of the recommendations of this study will begin right from the start of the project, through early engagement of stakeholders, in particular the AFCAP partner institutions.

It should be noted that in some of the project countries – and possibly all – the scope of this study is broader than the remit of the partner institution. As such, in order for the countries to maximise the benefits of this project, the AFCAP partner institutions will need to cooperate with other government bodies. This applies both during, and beyond, the project duration. For example, a government body responsible for local government may need to cooperate with a government body responsible for transport regulation.

We will make this clear to the AFCAP partner institutions, and to other stakeholders, from the very beginning of the project.

Beyond this, following the Research Phase, in order to ensure uptake and embedment, we will undertake the following tasks.

### **Task 3.1: Four-Day Team Workshop**

At the start of the Uptake and Embedment Phase, we will organise a four-day Team Workshop in one of the project countries. This workshop will involve the full project team, including at least one representative from the AFCAP partner institutions in each country, and representatives from the AFCAP PMU.

The aims of the workshop will be to discuss the findings of the research in each country as detailed in the Draft Discussion Papers, and to identify examples of best practice from each country – and from other countries – and discuss how these could be adopted, supported and promoted in the project countries beyond the end of the study.

Workshop activities will include:

- Detailed presentations of research findings by the National Experts and Key Experts
- A one-day field visit to an identified example of best practice
- In-depth discussions and working sessions, in particular for the representatives of the AFCAP partner institutions and other stakeholders to gain a detailed understanding of the workings of examples of best practice

### **Task 3.2: Revision of Draft Discussion Papers**

Based on the feedback from the four-day Team Workshop, we will revise the draft Discussion Papers.

**Task 3.3: One-Day Country Workshops**

We will organise a one-day Country Workshop in each country, involving all relevant national stakeholders. At these workshops, we will present and summarise the findings from the research, the draft Discussion Papers, and the progress on any pilots initiated.

We will discuss in detail the specific recommendations for changes to policy and practice to improve motorcycle services. We will aim to come to multi-stakeholder agreement, and outline a roadmap for implementation of these recommendations.

**Task 3.4: Draft Final Report and Draft Country Reports**

Following the one-day Country Workshops, we will prepare the first draft of the Final Report. And based on the discussions at the one-day Country Workshops, we will make revisions to the draft Discussion Papers to produce draft Country Reports. We will circulate these to all stakeholders for comment.

**Task 3.5: Final Report and Final Country Reports**

Following feedback from stakeholders, we will produce the Final Report and Final Country Reports.

**Task 3.6: Dissemination of Study Findings and Recommendations**

We will disseminate the findings and recommendations of the study through the most appropriate channels. This will include the preparation of international policy papers and journal papers, and will also include dissemination through media such as websites, blogs and social media.

## Annex B: Contribution to ReCAP Log Frame

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

It should be noted that as key outputs will be delivered towards the end of the project, changes to policy, regulation and practice, citations, presentations at conferences are expected beyond the end of the project contract. To demonstrate this, targets for achievements with one year and within two years of the end of the project have been added.

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Sep 2017	Target: End of Project, Oct 2018	Target: Within One Year of End of Project, Oct 2019	Target: Within Two Years of End of Project, Oct 2020	Assumptions
<p>Outcome:</p> <p>Sustained increase in evidence base for more cost effective and reliable low volume rural road and transport services, promoted and influencing policy and practice in Africa and Asia</p>	<p>1. SUSTAINABILITY: Partner Government and other financiers co-funding research with ReCAP.</p> <p>Contributions in kind (K) and Core Contributions (C)</p>	<p>In kind support will be fully documented in line with the AFCAP guidelines</p>					<p>It is anticipated that in kind (K) contributions will be leveraged during the life of the project. This may take the form of additional Amend/Transaid staff time (beyond the contractual days) or securing funding in-country from government or private sector to support certain activities such as training, workshops or piloting an initiative. UK private sector support will also be investigated through Transaid’s corporate partners.</p> <p>We will be able to report more fully on this once the research methodologies have been fully defined and agreed by all parties.</p>

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Sep 2017	Target: End of Project, Oct 2018	Target: Within One Year of End of Project, Oct 2019	Target: Within Two Years of End of Project, Oct 2020	Assumptions
	2. Concrete examples of change (applied or formally adopted), influenced by ReCAP research that will be applied to #km of road in focus countries.	N/A	N/A	N/A	N/A	N/A	N/A
	3. Number of citations in academic articles of ReCAP peer reviewed articles and/or working papers, conference papers, etc.	Conference proceedings Google Scholar and similar sources	0		3	5	Within one year of the end of the project, it is expected that this research will be cited in conference papers.  Within two years, it is expected that this research will be cited in other research papers.
Output 1: RESEARCH and UPTAKE: Generation, validation and updating of evidence for effective policies and practices to achieve safe, all-season, climate-resilient, equitable and affordable LVRR and transport services in African and Asian countries.  (Low Volume Rural Roads)	1.1 LVRR: Number of peer reviewed papers generated from ReCAP supported or related LVRR research projects made available in open access format.	N/A	N/A	N/A	N/A	N/A	N/A
	1.2. TS: Number of peer reviewed papers generated from ReCAP supported or related TS research projects made available in open access format.	Two academically – orientated research papers produced	0	A minimum of two academically-orientated research papers submitted for	A minimum of two academically-orientated research papers published.		These will be submitted for consideration before the end of the project. They are expected to be published within one year of the end of the project.

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Sep 2017	Target: End of Project, Oct 2018	Target: Within One Year of End of Project, Oct 2019	Target: Within Two Years of End of Project, Oct 2020	Assumptions
: LVRR / TS – Transport Services)				consideration.			
	1.3 Engineering Research: National policies, manuals, guidelines and/or research outputs that have been fully incorporated into Government/Ministerial requirements, specifications and recommended good practice as a result of ReCAP engineering research (including climate change adaptation and AfCAP and SEACAP adaptations).  To include introduction of new policies and modification to existing policies.	N/A	N/A	N/A	N/A	N/A	N/A
	1.4 TRANSPORT SERVICES Research: National policies, regulations and/or practices for rural	New policies and practices will be fully documented in line with the	0	0	4 (uptaken)	4 (embedded)	Within one year of the end of the project, it is expected that one concrete example of change will be adopted in each of the four project



Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Sep 2017	Target: End of Project, Oct 2018	Target: Within One Year of End of Project, Oct 2019	Target: Within Two Years of End of Project, Oct 2020	Assumptions
	<p>transport services modified or introduced as a result of ReCAP research (including road safety and gender and AFCAP and SEACAP research )</p> <p>To include introduction of new policies and modification to existing policies.</p>	AFCAP guidelines					<p>countries.</p> <p>Within two years, it is expected that those concrete examples of change will be embedded within policy or practice.</p>
	<p>1.6. LVRR and TS information generated for dissemination, and disseminated, that is not peer reviewed. Total to include research papers, final research reports, workshop reports, manuals and guidelines.</p>	ReCAP PMU	0	<p>Final Report and four Final Country Reports accepted.</p> <p>A minimum of two international policy briefs published.</p>			
<p>Output 2: CAPACITY BUILDING: The building of sustainable capacity to carry out research on low volume rural roads, and rural</p>	<p>2.1. African / Asian experts or institutions taking lead roles in ReCAP Research Projects.</p>	Final Report / ReCAP PMU	0	5			<p>National Experts from each of the four countries, and the Ghana Rural Transport Advisor, are expected to successfully complete the project.</p>

Intervention Logic	Indicator	Source of Verification	Baseline: Start of Project, Sep 2017	Target: End of Project, Oct 2018	Target: Within One Year of End of Project, Oct 2019	Target: Within Two Years of End of Project, Oct 2020	Assumptions
transport services in African and Asian countries.	2.3. Research projects with female researcher inputs at senior technical level.	Final Report / ReCAP PMU	0	6			The Chair of QUAG, Road Safety Research Expert, Gender and Social Inclusion Expert, and Ghana, Kenya and Uganda National Experts are all expected to successfully complete the project.
Output 3: KNOWLEDGE: Generated evidence base of LVRR and transport services knowledge is widely disseminated and easily accessible by policy makers and practitioners (including education and training institutions).	3.2. ReCAP generated knowledge presented and discussed at high level international development debates and conferences	Proceedings of high level international development debates and conferences			1	2	It is expected that members of the project team will present the results of the project at least once per year during the two years following the end of the project.
	3.3.ReCAP generated knowledge disseminated through significant workshops and dedicated training, virtually or physically, that are rated by participants as effective.	Reports of Four-Day Team Workshop and One-Day Country Workshops	0	All workshops rated by a minimum of 90% of participants as 'effective'			

## Annex C: Identified Stakeholders

### Ghana

Government Stakeholders	Private Sector Stakeholders	Civil Society Stakeholders
Ministry of Transport	High Grade Driving Centre	Ghana Institution of Engineers
Ministry of Roads and Highways	Delin Consult	Ghana Institution of Planners
Department of Feeder Roads	Vision Consult	The Chartered Institute of Transport and Logistics
National Road Safety Commission	Ablin Consult	Motorcycle taxi riders' associations
Driver and Vehicle Licensing Authority		Amend
Building and Road Research Institute		
The Ghana Police Service, Motor Traffic and Transport Department		
District Assemblies		
National Health Service		
National Ambulance Service		

### Kenya

Government Stakeholders	Private Sector Stakeholders	Civil Society Stakeholders
Materials Testing and Research Department, Ministry of Roads	Private driver training schools	Boda Boda Safety Association of Kenya and other motorcycle taxi associations
National Transport and Safety Authority	Clad Light	International Forum for Rural Transport and Development
Kenya Roads Board	Mondo	Automobile Association of

		Kenya
Kenya National Highways Authority	Mantle Africa Limited	Handicap International
Traffic Police		Red Cross
Ministry of Transport, Infrastructure, Housing and Development		HelpAge International

### Tanzania

Government Stakeholders	Private Sector Stakeholders	Civil Society Stakeholders
Tanzania Rural and Urban Roads Agency	Private driver training schools	Motorcycle taxi riders' associations
President's Office for Regional Administration and Local Government (Division of Infrastructure Development)	British Gas	Amend
Surface and Marine Transport Regulatory Authority	Puma Energy	Pikilily
Ministry of Home Affairs (Police, including Traffic Police)	Ifakara Health Institute	TrekMedics
Tanzania Revenue Authority		Twende Tigo
Ministry of Works, Transport and Communication (Department of Safety and Environment)		Tanzania Rural Health Movement
Ministry of Health (including Tanzania Injury Control Centre)		HelpAge International
National Institute of Transport		International Forum for Rural Transport and Development

Vocational Education and Training Authority		Road Safety Ambassadors
National Institute of Medical Research		Tanzania Women's Lawyers Association
National Road Safety Council		Bloomberg Philanthropies
District councils		Automobile Association Tanzania
Tanzania Bureau of Standards		Helmet Vaccine Initiative - Tanzania
		International Road Federation

### Uganda

Government Stakeholders	Private Sector Stakeholders	Civil Society Stakeholders
Uganda National Roads Authority	Private driver training schools	Automobile Association of Uganda
The Transport Licensing Board	Makerere University School of Public Health	The Uganda National Boda Boda Association and other motorcycle taxi associations
Ministry of Works and Transport		SafeBoda
National Road Safety Council		Safe Way Right Way
Uganda Police Force		Road Sense
Uganda Revenue Authority		Uganda Injury Control Centre
Local government		Uganda Driving Standard Agency
		Uganda Passengers' and Pedestrians' Association

## Annex D: Annotated Bibliography for Literature Review

### Motorcycle Access

Reference	Abstract
Guyer, J. 1997 An African niche economy: farming to feed Ibadan 1968-88. Edinburgh: Edinburgh University Press.	Field studies were carried out in 1968 and 1988, to describe the production and market changes in the small farming community of Ibarapa in the supply hinterlands of Ibadan, Nigeria. The transport revolution of the 1970s lasted until the late 1980s and brought the whole farming area into the accessible hinterland. New configurations are mobilised by different social categories within the producer population who are struggling to establish viable footholds in the commercial economy, their members shifting and sorting themselves across the spectrum of possibilities for specialisation: part-timing as the subsistence option, side-lining as the commercial option in complementarity to other income sources, narrow spectrum "cassava-plus" farming on an individuated or localised collective model, and broad-spectrum commercial engagement. It is argued that the level of consumer demand, rather than bottlenecks in production per se, will create the future of the niche economy. In 1988, inadequacy of demand accounts for severe limits, because of the inaccessibility by the ordinary market dynamics of a differentiated society, of the enclave created by the rich.
Rural access, health and disability in sub-Saharan Africa; lessons for transport policy and practice from recent transport services research  World Transport Policy and Practice 19,2: 3-6 [March 2013].	Transport, health and disability are interlinked on many levels, with transport availability directly and indirectly influencing health, and health status influencing transport options. This is especially the case in rural locations of sub-Saharan Africa, where transport services are typically not only high cost, but also less frequent and less reliable than in urban areas. This special issue presents papers concerned with three different aspects of the transport/health/disability nexus – firstly the linkages between access to transport and obstetric emergencies, secondly those between disability, access to transport and service access (including health service access), and thirdly the linkages between transport and disability associated with road traffic injury.
Porter, G. 2002. Improving mobility and access for the off-road rural poor through Intermediate Means of Transport. World Transport Policy and Practice 8 (4), 6-19	This paper is concerned with the potential of Intermediate Means of Transport (IMTs) for improving mobility and alleviating access problems in off-road areas in Sub-Saharan Africa. Off-road rural populations appear to be disadvantaged and vulnerable in many respects. They characteristically appear markedly poorer in income terms, in health and in life chances than those in comparable roadside locations in the same region, though, obviously, not all off-road people are disadvantaged to the same degree by their location: women and children in Sub-Saharan Africa suffer much of the burden of off-road transport, for instance. In the first section I briefly review the range of difficulties commonly faced by men, women and children resident in off-road locations as a result of restricted mobility and poor access. The second section of the paper focuses on the potential of Intermediate Means of Transport for alleviating access/mobility problems in off-road areas. Constraints on IMT use among different sectors of the off-road rural poor are examined through presentation of a case study from coastal Ghana, while recent evidence from the Jos Plateau, Nigeria, is used to illustrate the enormous potential of IMTs, in favourable circumstances, for improving access and reducing isolation.
Starkey, P. 2000 Local transport solutions: people, paradoxes and progress	This publication is based on the key note paper presented by the author at the experts Meeting on Intermediate Means of Transport (IMT) which took place in Nairobi, Kenya from 15 to 18, June 1999. Some 50 participants from twelve African countries including Burkina Faso, Cameroon, Cote d'Ivoire, Eritrea, Ghana, Kenya, Madagascar, Malawi, Tanzania, Uganda, Zambia and Zimbabwe attended. Participants also included experts from the Netherlands, Sri Lanka, United Kingdom and the World Bank. The principal objective of the meeting was to examine (i) factors accounting for the observed low use of intermediate means of transport in Sub-Saharan Africa compared with the rest of the world, especially Asia and (ii) to evolve strategies for addressing identified shortcomings. Apart from their key note paper, additional papers were presented by experts from within and outside of Africa. It was

	<p>the first gathering of international experts devoted to the subject of intermediate means of transport use in Sub-Saharan Africa and was the result of exhaustive consultations with stakeholders by the Rural Travel and Transport Program on the need for a holistic approach to the promotion of the enhanced use of intermediate means of transport given the nature and character of the factors accounting for their low use in SSA. Despite investment in roads, inadequate transport and accessibility constrain rural development. In Sub-Saharan Africa, most village transport still involves people (mainly women) walking and head loading. Between walking/carrying and large motorised transport there is a wide range of intermediate means of transport (IMTs). These increase transport capacity and reduce drudgery at relatively low cost, solving local transport problems. Local transport solutions include wheelbarrows, hand carts, bicycles, tricycles, animal-powered transport, motorcycles and power tiller trailers. The promotion of intermediate means of transport has had varied results. Examples (e.g., Mauritania, Sri Lanka, Tanzania and Zambia) show both the effectiveness and the lack of success of promotion by projects, nongovernmental organizations, the private sector (formal and informal) and person-to-person exchanges. Most Asian transport technologies have been promoted by the private sector. Bicycles and donkeys have mainly spread in Africa through private sector and user-to-user promotion. Informal diffusion can be rapid and effective, but the existing patchy distribution of transport technologies illustrates its unreliability.</p>
<p>Bryceson, D., Mbara, T.C, Maunder, D. 2003 Livelihoods, daily mobility and poverty in sub-Saharan Africa. <i>Transport Reviews</i> 23, 2: 177-196.</p>	<p>Based on research funded by the UK Department for International Development, this paper investigates the utility of a livelihoods approach in identifying the mobility and accessibility needs of the poor. Mobility patterns and livelihoods of stratified samples of households in urban-to-rural corridors originating in the national capital cities of Zimbabwe and Uganda are compared, with emphasis on the poor's position relative to higher income groups. It is found that livelihood work was the most frequent purpose of short-distance travel for all income groups and localities, amounting to 38% of trip purposes in Uganda and 46% in Zimbabwe. On average, Zimbabweans were more mobile making more daily trips over longer distances reflective of greater reliance on motorised transport in the country. Nonetheless, walking dominates modal journeys in both countries. Ugandans display heavier dependence on bicycle and motorcycle transport primarily through taxi hire compared with Zimbabweans' private care and public kombi bus transport. Survey evidence suggests that Uganda's poor and middle-incomed urban and rural residents benefit from more widely available multimodal public transport.</p>
<p>Porter, G. 2014. <i>Transport Services and Their Impact on Poverty and Growth in Rural Sub-Saharan Africa: A Review of Recent Research and Future Research Needs.</i> <i>Transport Reviews</i>, 34, 1: 25-45.</p>	<p>This paper reviews recent transport services research in rural sub-Saharan Africa, with reference to the crucial significance of transport services for reducing poverty and encouraging growth. It focuses on issues key to improved well-being: generation of direct employment, broader economic effects on agricultural and off-farm activities, and social effects regarding health and education. Throughout, the emphasis is on implications for vulnerable groups. Attention is drawn to the potential of recent developments, notably connectivities associated with motorcycle taxis and the rapid expansion of mobile phones. Significant knowledge gaps in the transport services arena are identified, from impacts of climate change, conflict and pedestrian portorage to the economic valuation of transport, village transport operations and road safety. Suggestions are made regarding the type of studies and methods which could help to reduce some of these gaps</p>
<p>Porter, G., Tewodros, A., Bifandimu, F., Gorman, M., Heslop, A., Sibale, E. Awadh, A., Kiswaga, L. 2013. <i>Transport and mobility constraints in an aging population: health and livelihood implications in rural Tanzania</i></p>	<p>This paper offers a rare examination of older people's mobility in a developing country context. It presents findings from a recent mixed-methods study of the transport and mobility constraints faced by older people in 10 settlements in Kibaha district Tanzania and is concerned, in particular, with the interconnections between transport, health and livelihoods. The study demonstrates the diverse ways in which older people's health, livelihoods and access to transport are interconnected, the growing importance of motorcycle-taxi services for rural connectivity, and how the relationality between older people and younger generations contributes to the shaping of mobility patterns.</p>
<p>Howe, J. and Davis, A. 2002 <i>Boda</i></p>	<p>Bicycle and motorcycle-based boda boda are a Ugandan innovation that extends the</p>

<p>boda – Uganda’s rural and urban low-capacity transport services. Urban Mobility for All, Codatu X Conference, Togo, November 2002.</p>	<p>range of transport services found in most of Africa. They provide a short distance low capacity service able to serve a low- density demands, and those where access is physically restricted and cannot be met by conventional public transport. Because of low incomes and high unit cost of the services the poor benefit mainly through employment in the industry.</p>
<p>Olvera, L.D., Plat, D., Pochet, P and Maidadi, S. 2012 Motorbike taxis in the ‘transport crisis’ of West and Central African cities. EchoGeo 20: 1-15.</p>	<p>While the urban motorbike taxi is a relative newcomer, its rural ancestor, the bicycle taxi already existed as far back as the 1930s in the Senegalese city of Kaolack (Morice, 1981) and the 1960s in Kenya, Uganda and Benin where it was used to carry both people and goods (Malmberg-Calvo, 1994; Tossou, 1993). Motorbike taxis appeared in Nigeria in the 1970s (Oyesiku, 2001) but their true rise seems to have started in the mid-1980s in Niger, Cameroon, Togo, Benin, Uganda and Kenya<sup>2</sup> as a development from the bicycle taxi (Agossou, 2004; Howe, Maunder, 2004; Mutiso, Behrens, 2011). While the motorbike taxi is very popular in Uganda and Kenya under the name of boda-boda, its use has above all developed in West and Central Africa under a variety of different local names: zemidjan in Benin and Togo, bendskin in Cameroon, kabu-kabu in Niger, okada or alalok in Nigeria, oleyia in Togo (Agossou, 2004; Guézéré, 2008; Ngabmen et al., 2000; Dille, 2002; Mahlstein, 2009; Oyesiku, 2001; Malmberg-Calvo, 1994; Segbor, 1998).</p>
<p>Guezere, A. 2015 The reconstitution of shared taxis as rural transport due to the competition of motorbike taxis in Togo secondary cities. World Conference on Transport Research v.3, 2: 253-63.</p>	<p>Motorbike taxis have transformed the Togolese transport system over the past 20 years. In the capital, Lomé, and in all of the country's secondary towns, the advent of motorbike taxis heralded a real threat to the livelihood of shared taxi drivers. In this article we analyse the relationship between shared taxis and motorbike taxis within the urban and suburban areas of Togo using data from three secondary towns. We will show how drivers of shared taxis have been forced to offer bush taxi services – serving small towns and surrounding villages – due to the dominance of the motorbike taxi network in urban areas. After describing the urban areas, this analysis shows how motorbike taxis took over the available space as soon as they began appearing and have now become completely dominant in urban areas. We illustrate the organisation and functional logic of the bush taxi network and its importance in terms of urban-rural connections.</p>
<p>Naybor, D., Poon, J P H., Casasz, I. 2016 Mobility Disadvantage and Livelihood Opportunities of Marginalised Widowed Women in Rural Uganda. Annals of the American Association of Geographers, 106, 2: 404-412.</p>	<p>The adverse effect of mobility restrictions on the livelihood of economically marginalised women in rural Africa is considerable. This study investigates the space–time paths of twenty-seven widowed women in rural Uganda through methodological pluralism that integrates multiple sources of quantitative and qualitative data collected from Global Positioning System tracking, in-depth interviews, and participant observation. Geographic information systems mapping of activity space suggests that mobility patterns are characterised by frequent short repetitive trips and less flexible space–time budgets. In turn, this reduces opportunities to pursue diversified sources of income that enhance livelihood. Statistical regressions and qualitative interviews also show, however, that access to use of motorised vehicles such as cars and motorcycle taxis significantly strengthens livelihood by reducing time poverty, rendering time as a resource for pursuing income opportunities.</p>
<p><sup>1</sup> Kaumbutho, P., Njenga, P., Sieber, N., Mbathi, M. 2013 Agricultural value chains: an illustrated booklet. AFCAP, May 2013</p>	<p>The general purpose of this research was to develop a methodology of how rural transport services for high value agricultural goods can be planned and implemented with due concern for household livelihood systems. This project contributes to the overall goal of improving the incomes and livelihoods of smallholder farmers through increased marketing of high value products.</p> <p>This booklet presents the main findings of the project in an easy-to-read manner. It is meant for researchers, policy makers and practitioners in the field of agricultural logistics, marketing of agricultural produce, planning and maintenance of rural infrastructures and financing of rural investments. It refers not only to planners in the public sector, but as well to private enterprises wishing to develop new logistic chains.</p> <p>The Booklet is based on a study looking at the organisation of logistical chain in the</p>



	potatoes, onions, bananas and French beans sub-sectors in Kenya. The study examined the organisation of the logistical operations, from the 1st mile (from farm to collection point) through the various intermediate logistical stages leading up to national and international markets.
Gillen, J. 2016 Streets of fire: motorbike mobilities in Vietnam. Area 48,1: 64-69.	This paper explores the relationship between travelling on a motorbike and the fieldwork experience in Vietnam. In doing so it adds to the literature on mobilities and fieldwork in the Global South by showcasing an aspect of research that has thus far been underexplored in geography: what role does moving through the field site have on researcher-participant relationships? Through two sections outlining driving and 'passengering' on a motorbike, I encourage more spatially contingent understandings of fieldwork mobilities.
Porter, G., 1995: The impact of road construction on women's trade in rural Nigeria. Journal of Transport Geography 3(1): 3-14.	This paper explores the impact of road construction and consequent reorganisation of the periodic market system on rural traders in two regions of northern Nigeria: the Jos Plateau and Borno. It focuses primarily on the fortunes of women traders in off-road communities. The decline of off-road markets appears to be particularly disadvantageous to women in Borno. The study emphasises the significance of road construction and maintenance programmes for rural women, shows the importance of an appreciation of the specificities of cultural context, and makes tentative policy recommendations.
Adamu, F.L. 2008 Gender, hisba and the enforcement of morality in northern Nigeria. Africa 78, 1: 136-152	Vigilantism is a term often used to describe any form of policing and ordering that is non-state, and under analysis 'vigilantism' has often emerged as negative, associated with violence and violation of individual rights. However, a closer examination of the origin, practice, function and structure of some of the groups often referred to as vigilantes in Nigeria has revealed that not all of them fit into our understanding of vigilantes as gangs of youths that mete out violence and jungle justice to their victims. Some of these vigilantes have their roots in the community and are a preferred form of policing in Nigeria. Many such groups exist across the <i>shari'a</i> states of northern Nigeria, drawing their legitimacy from different and sometimes competing sources: the <i>Yan'bunga</i> from the Hausa traditional and communal establishment, the <i>hisba</i> from the religious establishment and the <i>Yan'achaba</i> from the political establishment. What can we say about the operation, structure and function of these various 'vigilantes'? How is the politicking and struggle between religio-political and Hausa traditionalist elites shaping and reforming these three forms? What impact does this struggle have on women and the vulnerable? This article has two aims. One is to question the over-generalisation associated with vigilantism in Nigeria by analysing one form of vigilantism – <i>hisba</i> – within the context of informal policing in Zamfara and Kano states. The other is to situate the issue of vigilantes within the northern Nigerian political context rather than within a simple moral framework that casts vigilantes as violent criminals.
Burge, M. 2011 Riding the Narrow Tracks of Moral Life: Commercial Motorbike Riders in Makeni, Sierra Leone. Africa Today 58, 2: 58-95;	Contrary to the post-war paradigm of demobilisation and reintegration of ex-combatants and ideals of coming-of-age under elders' guidance, some Sierra Leonean ex-combatants and other young men took another way: by remobilising and providing transportation on motorbikes, they nowadays enhance the physical and social mobility of others and themselves. Depicted nevertheless as transgressing local morals, they try to find ways to conjoin the expectations of others with their own aspirations. Oscillating between avoidance and compliance with claimed norms, negotiating and extending them, they fill ruptures and gaps within society while they broaden and open fissures further. This article is about those men's ethical mobility and the obstacles to it: congestion, denied mobility, and difficulties of avoiding potholes and not losing the right track while navigating a constantly transforming social landscape.
Jenkins, J.T. and Peters, K. 2016 Rural connectivity in Africa: motorcycle track construction. Proceedings of the Institution of Civil Engineers – transport. 169, 6: 378-386.	Motorcycle transportation has burgeoned in war-affected West Africa over the past decade. The penetration of motorcycle taxis deep into isolated rural communities has spread spontaneously and created direct and indirect employment opportunities for low-skilled youth, a category most susceptible to militia recruitment. Equally important, it has significantly contributed to lifting smallholder farmers out of poverty by reducing the costs of moving produce to markets, with motorcycles able

	<p>to visit villages connected to feeder roads solely by footpaths. Nevertheless, state actors and international donors remain reluctant to allocate funds to rural track building/upgrading, preferring to stick to more conventional, but expensive, construction/rehabilitation of rural roads accessible to four-wheeled vehicles. Through a case study of Liberia – still recovering from two civil wars and an Ebola health crisis – this paper argues that the impact of bringing community access through track construction/footpath upgrading is significant, particularly because track construction lends itself par excellence to the involvement of the rural communities themselves.</p>
<p>Peters, K. and Mokuwa, E. 2017 Gender mainstreaming in the motorcycle taxi sector in rural Sierra Leone and Liberia. Inception report. AFCAP February 2017</p>	<p>The below report provides details about the various research methods that will be used for a study which seeks to establish the main barriers and challenges women experience in becoming motorcycle taxi riders in rural settings in Sierra Leone and Liberia. The overwhelming majority of motorcycle operators in both countries are males, serving what is perhaps a majority female clientele. Data will also be gathered on the gendered impact of the availability of motorcycle taxis in the rural areas of both countries. The data collection tools are listed and discussed, and the methodology explained. The annexes include the various questionnaires that we will use to collect data and which will help us to answer our research questions.</p>
<p>Kwamusi, P. 2002 Gender and safety in rural transport, in P. Fernando and G. Porter (eds) Balancing the load: women, gender and transport. Zed books, London, pp57-64.</p>	<p>This book includes 19 case studies (10 from Africa and 9 from Asia) that aim to support the dialogue between transport and gender professionals. Mainly they are about poor women in rural and urban communities, and how transport and transport interventions (or lack of them) affect their lives. Through these case studies, one can develop insights into how gender relations and the gender division of labour influence women and men's transport needs and patterns and their access to and use of transport infrastructure and technologies. This book is indexed.</p>
<p>Nyanzi, S, Nyanzi, A., Kalina, B, Pool, R. 2004 Mobility, sexual networks and exchange among boda bodamen in southwest Uganda. Culture, Health &amp; Sexuality 6, 3: 239-254.</p>	<p>In order to examine the sexual behaviour of a highly mobile social group, qualitative data and quantitative data were elicited from 212 private motorbike taxi-men, locally called <i>boda bodamen</i>, from two study sites in Masaka, Uganda. Selection criteria were availability and willingness to participate in the study. Research techniques employed were a questionnaire, focus group discussions, in-depth interviews and case studies. Findings indicate that <i>boda bodamen</i> are a highly mobile group who engage in frequent seasonal rural-urban migration. Consequent to this, <i>boda bodamen</i> have a wide network of both occasional and regular sexual partnerships. Both serial and concurrent multiple partnerships are with adults, youths, widows, students, sugar-mummies, barmaids, commercial sex workers, tailors. Exchange plays a significant role in sexual negotiations but the act of giving to a sexual partner is ambivalent in its social interpretation. Since <i>boda bodamen</i> have regular access to cash, they have higher bargaining power for sex. Implications for HIV/AIDS prevention are discussed.</p>
<p>Hofman,J.J. Dzimadzi, C., Lungu, K., Ratsma, E., Hussein, J. 2008 Motorcycle ambulances for referral of obstetric emergencies in rural Malawi: Do they reduce delay and what do they cost? International Journal of Gynecology and Obstetrics 102, 2: 191-197.</p>	<p>The objectives of this study was to assess whether motorcycle ambulances placed at rural health centres are a more effective method of reducing referral delay for obstetric emergencies than a car ambulance at the district hospital, and to compare investment and operating costs with those of a 4 wheel drive car ambulance at the district hospital. The methodology involved motorcycle ambulances being placed at 3 remote rural health centres in Malawi. Data was collected over a 1-year period, from October 2001 to September 2002, using logbooks, cashbooks, referral forms, and maternity registers. The results showed, depending on the site, median referral delay was reduced by 2–4.5 hours (35%–76%). Purchase price of a motorcycle ambulance was 19 times cheaper than for a car ambulance. Annual operating costs were US \$508, which was almost 24 times cheaper than for a car ambulance. In conclusion, resource-poor countries motorcycle ambulances at rural health centres are a useful means of referral for emergency obstetric care and a relatively cheap option for the health sector.</p>
<p>Dennis, R. 2013 Improving Access to Emergency Health Facilities in Rural Areas: AFCAP Project AFCAP/GEN/060/A. Final report,</p>	<p>Developing Technologies (DT is implementing a project within AFCAP to promote affordable access to emergency health services in rural areas. The project is running trials of a low-cost ambulance, a motorcycle ambulance-trailer (MAT), to determine its effectiveness in providing an emergency transport service. The project is being</p>

<p>May 2013.</p>	<p>implemented in Lundazi District in the Eastern Province of Zambia by DT's partner, the Disacare Wheelchair Centre (DWC) in collaboration with the Lundazi Health Authority (LHA). Two MAT are being tested – MAT 1 based at Mwase Lundazi clinic and MAT 2 based at Kanyanga clinic. The project started in June 2011 and an inception report on setting it up was submitted in January 2012. This social study on peoples' attitudes to attendance at health facilities and use of emergency transport was carried out in June/July 2012 by Miriam Orcutt, an M Sc student in medical anthropology at Durham University. The study comprised group and individual interviews in 6 villages in the Lundazi district with both women and men. A summary of the very useful findings from the report which mainly relate to maternity patients is given in Table 1 and below. The full report is attached to this summary.</p>
<p>Nishitateno, S. and Burke, P.J. 2014 The motorcycle Kuznets curve. Journal of Transport Geography 36: 116-123.</p>	<p>The evolution of motorcycle ownership is a crucial issue for road safety, as motorcyclists are highly vulnerable road users. Analyzing a panel of 153 countries for the period 1963–2010, we document a motorcycle Kuznets curve which sees motorcycle dependence increase and then decrease as economies develop. Upswings in motorcycle ownership are particularly pronounced in densely populated countries. We also present macro-level evidence on the additional road fatalities associated with motorcycles. Our results indicate that many low-income countries face the prospect of an increasing number of motorcycle-related deaths over coming years unless adequate safety initiatives are implemented.</p>

### Motorcycle Taxi Uptake and Use

Reference	Abstract
<p>Porter, G. 2007. Youth, mobility and rural livelihoods in sub-Saharan Africa : perspectives from Ghana and Nigeria : poverty, development and livelihoods</p>	<p>There has been little work done on the linkages between youth daily mobility and livelihood patterns and potential. Drawing on field studies conducted in Ghana and Nigeria, this article examines youth transport and mobility issues from a livelihoods perspective. Mobility affects livelihoods directly, in terms of access to jobs, and indirectly in terms of accessing education, health care and strong social networks on which future job opportunities may depend. The factors that help determine youth access to transport and mobility are considered, and the role of transport itself as a livelihood strategy (girls as porters, boys as transport operators) is examined.</p>
<p>Porter, G. 2002. Living in a Walking World: Rural Mobility and Social Equity Issues in Sub-Saharan Africa</p>	<p>Accessibility and mobility are embedded in the development nexus in far-reaching ways. Field studies of mobility among women and men in rural settlements with poor road access illustrate the frustrations and costs of living off-road. They are frequently marginalised and invisible, even to local administrations. State decentralisation appears to have had little positive impact in reducing "tarmac bias" and improving rural service delivery. A range of potential interventions, from Intermediate Means of Transport to electronic communications is reviewed, and opportunities for building social capital in off-road areas through nurturing improvements in state-civil society relations are considered.</p>
<p>Porter, G. 2008. Increasing children's participation in African transport planning: reflections on methodological issues in a child-centred research project</p>	<p>This paper examines the potential for applying child-centred research methodologies which involve children doing their own research (with adult facilitators) within a transport and mobility context in West Africa. Relatively little attention has been paid to the transport needs of the poor and powerless within African transport policy and planning: the specifics of children and young people's transport and mobility needs are essentially unknown and unconsidered. Using evidence from a small pilot study in Ghana, we reflect on both the opportunities and the challenges of work in this field. Although the paper is focused on the specific issues raised by child-centred research, it raises broader questions regarding the potential for research partnerships with vulnerable groups and, more specifically, the challenges of developing more collaborative research processes within transport studies, where technical priorities still regularly triumph over social concerns.</p>
<p>Porter, G. 2007. Presentation Paper. Transport, (im)mobility and spatial poverty traps: issues for rural women and girl children in sub-Saharan Africa</p>	<p>This paper reflects on the experiences of women and girl children resident in rural areas of sub-Saharan Africa with poor physical accessibility (to services and markets) because of poor roads and inadequate transport (in terms of regularity, reliability and cost). Examples from field research conducted in diverse agro-ecological and cultural contexts in western and southern Africa are used to explore the impacts of relative immobility and poor access to services on women and girls. Three themes are</p>

	examined in some detail: access to education, access to health services and access to markets.
Chen, G. 2010. Road traffic safety in African countries – status, trend, contributing factors, countermeasures and challenges	Road traffic crashes and injuries constitute a major health, economic and developmental challenge for many African countries. With only 4% of the world's motor vehicles, African roads witness more than 10% of the world total collision fatalities. With further motorisation, the number of road traffic crashes, injuries and fatalities are expected to grow. This study updates on the status, trends, causes, countermeasures and issues in traffic safety in African countries by reviewing studies published in the past 12 years. The study found that traffic fatalities continued its upward trend in recent years. Similar to those in motorised countries, the study identified that human behaviour and incapacitation account for more than 85% of the contributing factors reported by police in Africa. Unlike in developed countries, the victims of traffic casualties are primarily vulnerable road users. Pedestrians alone account for more than 40% of the total fatalities on African roads. Limited countermeasures were reported in the literature. The outcomes of these programmes are mixed and the research methods have inconsistent validity. Investigation in the feasibility of transferring proven programmes from motorised countries is suggested as an efficient measure for traffic safety improvement.
Zimmerman, K. 2014. Road Traffic Injury on Rural Roads in Tanzania: Measuring the Effectiveness of a Road Safety Program	Road traffic injuries (RTIs) are a major public health burden, especially in low- and middle-income countries. There is limited data on RTIs in low-volume, rural African settings. This study attempted to survey all individuals living in households within 200 m of two low-volume rural roads in Tanzania and to collect data on RTIs.
Sumner, S. 2014. Effect of free distribution of safety equipment on usage among motorcycle–taxi drivers in Tanzania—A cluster randomised controlled trial	Deaths due to road traffic injuries, particularly motorcycle crashes, have increased rapidly in many African nations and context-specific strategies to improve preventative behaviours are needed. Although adhering to conspicuity measures by wearing reflective safety vests is a highly effective crash prevention strategy and mandated by law among motorcycle–taxi drivers in some African countries, actual use is currently low. We aimed to test whether eliminating cost-barriers through the provision of free reflective, fluorescent motorcycle safety vests would lead to increased utilisation among a high-risk population of motorcycle–taxi drivers in Tanzania.
Roehler, D. 2014. Using baseline and formative evaluation data to inform the Uganda Helmet Vaccine Initiative	Motorcycles are an important form of transportation in Uganda, and are involved in more road traffic injuries than any other vehicle. The majority of motorcycles in Uganda are used as motorcycle taxis, better known locally as boda boda. Research shows that a motorcycle helmet is effective at reducing a rider's risk of death and head injury. As part of the Uganda Helmet Vaccine Initiative (UHVI), researchers collected baseline and formative evaluation data on boda boda operators' helmet attitudes, beliefs, and behaviours to inform UHVI activities. Researchers collected data on motorcycle helmet-related attitudes and beliefs through focus group discussions and structured roadside interviews, and researchers conducted roadside observations to collect data on helmet-wearing behaviours. Of the 12,189 motorcycle operators and passengers observed during roadside observations, 30.8% of drivers and <1% of passengers were wearing helmets. The most commonly reported helmet-wearing barriers from the focus group discussions and structured roadside interviews were: (1) 'Helmet is uncomfortable', (2) 'Helmet is too hot', (3) 'Helmet is too expensive', and (4) 'Helmet is of low quality'. Researchers incorporated findings from the formative research into the UHVI campaign to increase motorcycle helmet use. Radio messages addressing helmet comfort and cost were widely aired throughout Kampala, Uganda. In addition, campaign staff held nine boda boda operator workshops, covering approximately 900 operators, in which the facilitator addressed barriers and facilitators to helmet use. Each workshop participant received a high-quality tropical motorcycle helmet. UHVI will continue to use a data-driven approach to future campaign activities.
Chalya, P. 2014. Injury outcome among helmeted and non-helmeted motorcycle riders and passengers at a tertiary care hospital in north-western Tanzania	Motorcycle helmets have been reported to reduce the risk of death and head injuries following motorcycle accidents. The aim of this descriptive prospective study was to determine the injury outcome among helmeted and non-helmeted motorcyclists and passengers at a tertiary hospital in north-western Tanzania. A total of 654 patients involved in the motorcycle accident were studied. Of these, 468 (71.6%) were motorcyclists (riders) and the remaining 186 (28.4%) were passengers. The median age of patients at presentation was 26 years. Male outnumbered females by a ratio of 4.5: 1. Helmet use was reported in 312 (47.7%) patients. Non-helmeted patients were young compared with helmeted patients and this was statistically significant

	<p>(<math>p=0.021</math>). The rate of helmet use was significantly higher among motorcyclists than among passengers (<math>p=0.004</math>). History of alcohol consumption prior to the accident was reported in 212 (32.4%) patients. The rate of helmet use was significantly low among alcohol consumers compared with non-alcohol consumers (<math>p=0.011</math>). Lack of helmet use was significantly associated with abnormal head Computed Tomography scans, admission to the Intensive care unit, severe trauma, and worse traumatic brain injury severity (<math>p&lt;0.001</math>). Helmet use was significantly associated with shorter period of hospitalisation and reduced mortality rate (<math>p&lt;0.001</math>). Motorcycle helmet use is still low in this part of Tanzania and this poses a great impact on injury outcome among motorcycle injury patients. This observation calls for action to implement more widespread injury prevention and helmet safety education and advocacy.</p>
<p>NKEDE NJIE, L. 2014. Master's Thesis. The socio-cultural impact of the introduction of motorbike taxis in the rural community of Tombel, South West region, Cameroon</p>	<p>"The socio-cultural impact of the introduction of motorbike taxis in the rural community of Tombel, South West region, Cameroon" seeks to bring out the impact of commercial motorbike taxis on the lifestyle of the Bakossi. The principal objective of this research is to show how the introduction of motorbike taxis has modified the lifestyle of the Tombel population. This anthropological research defines the profile of a motorbike taxi rider, his role in society, the perception of the population towards this activity and the impact of this activity on the lifestyle of the rural population of Tombel. This study reveals that motorbike taxi riders are essentially made up of youths from all works of life who earn a living by riding a motorbike taxi on a daily bases for commercial purposes. The revenue earn here goes a long way to sustain the livelihood of the rider and his entourage, becoming an ascension tool into the social ladder. The activity is very dangerous not only for the riders but also for the passengers because of the risks involved in riding for most of the riders do not have the basic knowledge of the road code. This research also reveals that motorbike taxi has become the preferred means of public transport of most inhabitants of Tombel to the point of monopolising certain destinations. The population of Tombel perceives this activity as an instrument of change that has brought development and progress. But this activity also constitutes a social ill because of the prevalent sexual promiscuity encouraged by the riders. This activity has also gotten a cultural impact on the society, changing perceptions and being involve in rituals. Motorbike taxis have become a force to reckon with in the organisation of the community. They are a "response from below" to the transport crises in Cameroon.</p>
<p>Doherty, J. 2017. Life (and limb) in the fast-lane: disposable people as infrastructure in Kampala's boda boda industry</p>	<p>Motorcycle taxis, dubbed boda boda, constitute a vital aspect of Kampala's transportation infrastructure, yet the industry is perpetually precarious, threatened with wholesale eviction. Moreover, drivers' lives and bodies are continually put at risk by the city's traffic. Through a relational approach to ontology, this article asks how the boda boda industry comes into being and endures, what forms of vulnerability it entails, and what experiences, relations, and forms of urban life it produces. It argues that three forms disposability structure and arise from the industry – structural unemployment, embodied vulnerability, and infrastructural displacement. Infrastructural violence, it is argued, must be considered when describing and theorising people as infrastructure. The article examines how boda boda drivers' shared condition of insecurity and disposability generates intense forms of sociality, solidarity, mutual obligation, recognition, and urban vitality.</p>
<p>Uteng, Tanu Priya. 2012. Gender and Mobility in the Developing World</p>	<p>'Access' is primarily a gendered phenomenon in the developing countries, pertaining to all the subsets of access, i.e. access to information, rights, land, money, education, skills, political participation and voice. It thus becomes incumbent upon the policy makers and development practitioners to shred down the details of these 'constrained accesses' to truly empower women. This study highlights the ways in which constrained (daily) mobility i.e. the element of physical access to different facilities bears upon the issue of women empowerment. Rather than being a singular function of transport provision, the daily mobility of women in developing countries is guided by a set of complex hierarchies. This study contends that the following elements, though not exhaustive in nature, are highly influential in gendering of mobility in the present times: prevalent social/cultural norms, transport infrastructure, physical/area planning, effects of globalisation, governance (women's presence and participation in informal sector and micro-credit schemes), pre and post disaster/conflict rehabilitation process and access to information and communication technologies (ICTs). Although the study is primarily a review of recent academic and policy-oriented literature, the core idea has been to salvage the theme of 'women and transport' from the narrow confines of transport-related</p>



	understanding and highlight that 'mobility' is a multi-faceted phenomenon and bears significant impact on the overarching aim of women empowerment.
NASONG'O, W. 2015. Master's Thesis MOTORCYCLE PUBLIC TRANSPORT SERVICES IN KENYA:A study of their Compliance with Road Safety Regulations in Kitale Municipality	The study was conducted in Kitale Municipality to determine the level of compliance with road safety regulations among public motorcycle transport operators. The research study had three objectives. The first objective was to find out the characteristics of public motorcycle operators second, determine their level of awareness of government policy and regulations and the third to examine their level of compliance to road safety regulations. The study was informed by two theories namely; rational choice theory and systems theory. The study was conducted using descriptive survey, employing both quantitative and qualitative approaches to source, process and analyze data. Data was collected using a set of questionnaire for public motorcycle operators and interview guide for key informants (see annexes I, II & III).Quantitative data was analyzed using statistical package for social sciences (SPSS) while qualitative data was analyzed using thematic categorisation and narrations.
RUGUT, J. 2015. Determinants influencing performance of alternative public transport in Kenya: a case of motor cycle transport, Nakuru county	Alternative means of transport referred to as boda boda has been widely adopted in the developing countries as an alternative to the conventional buses and minibuses and as development from the non-motorised two wheeler bicycles. In Kenya the industry thrived significantly after the zero rating of motorcycles below 150cc by the government in 2007. The broad objectives were to enhance transport and provide employment to the youth through the creation of transport enterprises. However, developments in the industry have revealed a myriad of negative incidences of fatal accidents leading to loss of lives and property including the motorcycles themselves which raises questions on the economic viability of the venture. This study therefore was designed to establish the determinants of successful implementation of motorcycle transport business. The specific objectives of the study were: to establish the effect of education and training on the performance of motorcycle transport business; to determine the effects of compliance to government regulations on performance of motorcycle transport business; to establish the effects of access to business support services on performance of motorcycle transport business and to find out the effects of entrepreneurial orientation on performance of motorcycle transport business. The study was conducted in Bahati Town among boda boda operators. The study adopted descriptive design to explain the interaction between the determinant variables and performance of motorcycle transport businesses. A sample of 77 motorcycle boda boda operators was selected from the population in Bahati Town using systematic random sampling technique. The study relied on primary data obtained from boda boda operators using questionnaires. After all the data was collected, the researcher conducted coding and data cleaning and analyzed using descriptive statistics such as frequency counts, percentages, mean, mode and standard deviation. Multiple regression analysis was then used to determine the relation between predictor variables (determinant factors) and the dependent variable (performance of motorcycle boda boda businesses). The analysis showed that training and entrepreneurial orientation had the positive (Pearson correlation coefficient =.471 and .419) and significantly influenced performance of alternative public transport. In addition, compliance with government regulations and enterprise transport support services (Pearson correlation coefficient =.098 and .419) did not significantly influence performance of alternative public transport. The study revealed that the two most significant determinants of performance of boda boda businesses were the training and the entrepreneurial orientation. Therefore the study recommends for training and increase support services for boda boda operators should not only focus on the technical and business management skills of operators but also on developing their entrepreneurial orientation as a strategy to enhance best practice, performance and growth in the sector.
Karema, F. 2017. Role of commercial motorcycles in promoting agricultural production in Kenya: a case study of Laikipia east sub-county.	In the rural areas of many developing countries, intermediate means of transport (ITMs) such as motorcycles play a leading role in agricultural production. The main objective of this study was: to examine the contribution of commercial motorcycles in agricultural production in Laikipia East Sub-County in Kenya. The hypothesis tested was "there is no significant difference between adoption of motorcycles and agricultural production in Laikipia East Sub-County". Questionnaire survey was administered to 66 respondents. Thorough literature search and review as well as field observations were used. Data was analysed using both descriptive and inferential statistics. Descriptive analysis included frequency counts, tables, bar

	<p>graphs, pie-charts and percentages. The major findings were: (i) there was a statistical significance in the difference between promotion of agriculture and commercial motorcycles' trips in Laikipia East Sub-County. Since the calculated value of <math>\chi^2</math> was greater than the critical <math>\chi^2</math>, the null hypothesis was rejected and therefore a conclusion was made that promotion of agriculture was dependent on commercial motorcycles' trips in Laikipia East Sub-County; (ii) the study also found out that commercial motorcycle contributes 10% towards agricultural production in Laikipia East Sub-County, and that key activities which had come up as a result of commercial motorcycle operation generated gainful employment. The study recommended that the county government should construct feederroads in order to encourage the introduction and operation of more motorcycles.</p>
<p>Obey, J. (N.D) Establishing possible risk factors associated with motorcycle use and safety between Baraton and Chepterit, Nandi County, Kenya</p>	<p>Risk factors associated with motorcycle (boda-boda) safety is significant in contributing to the health risks of disease in Kenya. These risk factors are important to the health status of the drivers and passengers and families of both as well as to the society at large. The aim of this study is to determine some factors associated with road safety use by motorcyclists between Baraton and Chepterit, Nandi County, Kenya. The data obtained from this study was collected by observational studies at Baraton and Chepterit locations of Nandi County, Kenya. It focused on the use of helmets and reflective clothing by motorcyclists and passengers. Some other factors were established as possible risks to the safety of motorcycle users in the study area. It was observed during the study period that overall, 80% of motorcyclists wore helmets and 21% wore reflective clothing. Only 1.33% of the passengers wore helmets. No passenger was observed to wear reflective clothing during the study. Results also showed that 82% of the motorcycle drivers had no licence or public service (PSV) insurance coverage. Promotion of helmet and reflective clothing use between Baraton and Chepterit will decrease the risk of head injuries, disease, and death obtained from motorcycle crash. The study proposes that there be education for local motorcycle users on the safe use of roads. It also suggests that the laws governing the use of helmets and reflective clothing by motorcyclists be enforced and given more focus.</p>
<p>Chepngetich, E. 2016. Determinants of boda boda accidents in Bomet county. A social determinant perspective.</p>	<p>Road traffic injuries have become a major problem to public health not only in developing countries but in the world at large. Increase in motorcycle and related accidents in the recent years are attributed to joblessness since most youths venture into motorcycle business due to lack of white collar jobs. Despite government intervention in setting and enforcing laws to govern motorcycle riding in Kenya the rate of motorcycle accidents is still alarming. The objective of the study was to establish the social determinants of motorcycle accidents. The data was collected in three places in Bomet County where questionnaires were administered to commercial motorcycle riders who were selected by simple random sampling. The study found out that majority of the riders were youths who have just completed high school. 59.1% of the riders were aged 25 years and below and 59.65% had their highest level of education being secondary education. The study found out that majority of the riders lacked formal training. Only 23.39% went for authorised training institutions. Those who were trained by friends and relatives were 51.46% and 23.98% respectively. Majority of the operators involved in accidents have less than two years of experience on the road. Only 35.09% have been on the road for more than two years, the rest 64.91% have less than 2 years of experience. The results showed a significant statistical relationship (<math>p &lt; 0.05</math>) between road structure and accidents in Bomet County. Accidents mostly occur in footpaths and murrum roads which have not been constructed well. There was also a significant statistical relationship (<math>p &lt; 0.05</math>) between speed and road accidents in Bomet County. The results showed that most accidents which happen in the county are due to lack of training, experience, over speeding and bad roads. The government should organise continuous training for the new entrants and the experienced riders to constantly keep them informed of the current road safety measures. The government should also deploy disciplined and trained officers on road safety to help curb the vices of motorcycle riders on the road</p>
<p>Diaz Olvera, L. 2010. Presentation Paper. Motorised Two-Wheelers in Sub-Saharan African Cities: Public and Private Use</p>	<p>In a number of Sub-Saharan African cities, motorised two-wheelers, which are traditionally intended for private use, have been appropriated for a commercial activity, the motorbike taxi. The aim of this paper is twofold: first, to determine the conditions which have made it possible for motorised two-wheelers to become a major public transport mode; second, to highlight the roles of motorised two-</p>

	<p>wheelers in daily travel, whether they are used as a personal or public transport mode. Our analysis is based on empirical material gathered in quantitative and qualitative surveys in Niamey and Douala. The commercial use of motorised two-wheelers can be explained by the combination of three factors: shortage of transport supply, availability of factors of production and deficiencies in the regulatory framework and the enforcement of regulations. Whether used as a private vehicle or a taxi, motorbikes widen access to motorised modes, in terms of both users and travel. In Niamey, the users of private motorbikes are mainly young male middle-income earners, while in Douala the clientele of motorbike taxis consists of young working poor. The boom in the use of motorbike taxis is also due to the fact that they meet travel needs not satisfied by the other public transport modes, i.e. trips or segments of trips that are simultaneously too long to be made on foot and too short to represent a profitable market for other public transport modes. In both cities, attitudes towards personal and commercial motorbikes vacillate between prizing the flexibility of usage and rejecting its dangers. The most pressing needs for research into motorbikes, particularly taxis, relate to environmental, social and public health issues, with a view to improving regulation of the activity.</p>
<p>Ezeibe, C. Work on wheels: collective organising of motorcycle taxis in Nigerian cities</p>	<p>This article examines the political economy of collective organising in the motorcycle taxi economy of Nigerian cities. Using the mixed-methods approach, this study demonstrates the nature and problems of collective organising in the motorcycle taxi economy. It notes that implementation of a neo-liberal development policy in Nigeria in the 1980s gave rise to job losses and catalysed the creation of a motorcycle taxi sub-system as a livelihood. While collective organising in the motorcycle taxi sub-system is sometimes exploited to advance the ambition of some politicians, the informal economy is often paradoxically victimised through the initiation and implementation of hostile urban policies, such as banning motorcycle taxis, soon after electoral mandates are secured. This paper, however, argues that despite the challenges, collective organising represents a struggle to influence urban policy and could present an opportunity for a new form of engagement between the state and the informal economy in development policy and urban governance.</p>
<p>Porter, G. 2014. Transport Services and Their Impact on Poverty and Growth in Rural Sub-Saharan Africa: A Review of Recent Research and Future Research Needs</p>	<p>This paper reviews recent transport services research in rural sub-Saharan Africa, with reference to the crucial significance of transport services for reducing poverty and encouraging growth. It focuses on issues key to improved well-being: generation of direct employment, broader economic effects on agricultural and off-farm activities, and social effects regarding health and education. Throughout, the emphasis is on implications for vulnerable groups. Attention is drawn to the potential of recent developments, notably connectivities associated with motorcycle taxis and the rapid expansion of mobile phones. Significant knowledge gaps in the transport services arena are identified, from impacts of climate change, conflict and pedestrian portage to the economic valuation of transport, village transport operations and road safety. Suggestions are made regarding the type of studies and methods which could help to reduce some of these gaps.</p>
<p>Diaz Olvera, L. 2013. The motorbike taxis in Lomé: Who earns what?</p>	<p>Motorbike taxis have become a major public transport mode in a number of cities in Sub-Saharan Africa. This paper examines the economic performance of motorbike taxi operators with data from a motorbike drivers survey conducted in Lomé (Togo) in 2012. According to their status in relation to the vehicle ownership, there are four main groups: drivers who own the motorbike, “work and pay” drivers, drivers who rent the motorbike from someone else and motorbike owners who do not operate the vehicle themselves and contract it to drivers in a “work and pay” scheme or a simple rental agreement. To undertake our analyses we estimate revenues, the main operating costs, the added value and cash flows. Results show that the amount of added value depends on the operating characteristics (e.g. night-time activity, number of working hours, another professional activity) and the length of service as motorbike taxi operator. The results of this empirical research provide useful inputs for policymakers for the assessment of the economic functioning of motorbike taxis systems in Sub-Saharan Africa.</p>
<p>Taruwera, Y. 2015. Determinants of Passenger Capacity Compliance among Commercial Motorcyclists in Kwara State Nigeria</p>	<p>Commercial motorcyclists often violate road traffic regulations where they operate. The traffic offences they commit include, but are not limited to carrying more than one passenger per trip, which is above the passenger capacity of a motorcycle as provided by law. The objective of this study is to examine the determinants of passenger capacity compliance among commercial motorcyclists in Kwara State, Nigeria. This study studied 1,178 randomly selected motorcyclists across the rural-</p>



	<p>urban divide of Kwara State. Logistic regression models were used as the tool for data analysis. Statistics showed that 62.19 percent of the motorcyclists operate on full-time basis while the rest operate on part-time basis. About 68 percent of the motorcyclists operate without a valid driver's licence. It was found that only 25 percent of the motorcyclists comply with the regulation of carrying one passenger per trip.. The rate of compliance with the passenger capacity regulation stood at 38.3 percent for the urban areas while that of rural areas was estimated at 13.8 percent. The regression results revealed that licence holding, operation mode, age, location, education, and earnings are factors that determine compliance with the passenger capacity regulation among commercial motorcyclists in Kwara State. The study recommends that traffic law enforcement agents should educate commercial motorcyclists on road safety issues and also enforce compliance.</p>
<p>Venter, C. 2014. Supply and pricing strategies of informal rural transport providers</p>	<p>Informal paratransit operators using a range of vehicle types (including pickup trucks, small buses, and motorcycles) are a major provider of mobility in rural areas of the developing world. The paper describes a mixed method approach used to examine such operators' decisions about vehicle deployment, route frequency, network organisation, and pricing in three rural districts in South Africa. New evidence is presented showing that the condition of rural roads (both paved and unpaved) affects the quantity and quality of public transport services provided, as well as the fares charged to passengers. This strengthens the case for judicious infrastructure investment as a way of improving rural access and livelihoods, and suggests how this might happen by way of leveraging better private sector responses. We also describe the emergence of a differentiated service hierarchy involving a variety of vehicle types suited to different operating conditions, and based on intentional coordination among operators of minibus and pickup truck ('bakkie') services. We argue that governments should promote such coordination and innovation in rural transport markets.</p>
<p>Starkey, P. 2010. AFCAP PRACTITIONERS CONFERENCE. Improving sustainable rural transport services: constraints, opportunities and research needs</p>	<p>Roads are not enough. People need rural transport services to access services and livelihoods. Governments are not adequately stimulating passenger and freight service development in rural areas. Services include buses, minibuses, trucks, pickups and intermediate means of transport (bicycles, motorcycles, three wheelers and animal power). Communities need safe, reliable, predictable and affordable transport services. Transport appraisal studies highlighted problems of low fleet investment, unreliable services and poor governance, with clear gender implications.</p> <p>Intermediate means of transport are increasingly important with new roles for motorcycles and three wheelers but challenging times for animal power. Climate change will affect services. New indicators are needed to measure the impact of road improvement and recommended initiatives on rural transport services.</p>
<p>NYACHIEO, G. 2015. Socio-cultural and economic determinants of boda boda Motorcycle transport safety in Kisumu County, Kenya.</p>	<p>Road safety remains one of the main societal concerns despite extensive research and interventions. It is a serious challenge in Kenya and the world over. The emergence of boda boda motorcycles as a means of transport in the village paths, the highways and city streets has brought a new dimension to road safety in Kenya. Motorcycle transport, though the most dangerous mode of transport, is still preferred by many because of its availability and flexibility. Although motorcycle safety has been a concern; only a few sociological studies have been conducted in Kenya to address the challenge. Motorcycle accidents pose a threat to the structure and functioning of the society. The study was conducted in Kisumu East sub-county in Kisumu county and sought to examine the socio-cultural and economic determinants of motorcycle transport safety. Specifically, the study sought to gather information on the demographic characteristics of riders in Kisumu East sub-county; to establish the levels of formal rider training among boda boda riders; to determine the levels of safety knowledge among boda boda riders; to determine boda boda motorcycle accidents rates in Kisumu East sub-county, to evaluate the attitudes and behaviour of boda boda motorcycle riders in Kisumu East sub-county; to establish whether pillion sitting style on boda boda influenced motorcycle safety and to establish whether there was a relationship between motorcycle ownership and boda boda safety.</p>
<p>Okebiro, G. 2016. Motorcycle (Boda-Boda) as Emerging Business for the Poor in Transport Industry and Sustainable Development in Modern Kenya</p>	<p>Motorcycle business known as "Boda-boda" eased transportation problem of connecting urban and rural areas in Kenya. "Boda-boda" originated early 1990s from Uganda through Busia town in western Kenya and spread to adjacent towns, subsequently other towns and all towns currently are crowded with Boda-boda in Kenya. Initially bicycles were used as means of transportation in plains but as the</p>

	<p>introduction of motorcycle had afforded prices, businessmen shifted and used them and are easy to maintain. It is booming, since it is readily available in urban and rural areas and people always transport goods to and fro and uses paths instead of roads given that feeder roads in Kenya are impassable during rainy seasons. The problems of Boda-boda riders cause accidents in Kenya highways and traffic jams in towns, yet it is a source of livelihood for the unemployed graduates and sustainable development. The objective is to investigate whether motorcycle riders acquire licence through training before transporting goods and people, and study the strategy to be used to minimise frequency of accidents without affecting the business. Interview method will be used to collect data from riders in five towns in Kenya through purposive random sample to represent the forty seven towns in the counties. Analyzed data will be presented through graphs and tables. The key finding is although Boda-boda cause accidents, it is a key source of employment today, leading to socio-economic, structural and human resource sustainability, as a consequence of national development in Kenya. It is recommended traffic laws be enforced to enable it flourish.</p>
<p>Kakembo, E. 2010. Makerere University. The boda boda transport system and the welfare of the operations in the Kampala Central Division.</p>	<p>Boda boda transport services have grown from small beginnings in the 1960s to now an approximately 30,000 just in the Central Business District (CBD) of Kampala. Unfortunately, although the industry is expanding, there is no evidence or documentation on the effect of boda boda on the welfare of its operators and society. This study sought to explore effects of Boda boda transport industry on the wellbeing of operators and society in Kampala Central Division. A case study design was adopted combining both qualitative and quantitative methods. Carried out in Kampala Central Division (KCD), data was collected from Boda boda operators, management officials and the users, using In-depth interviews, questionnaires and focus group discussions. Data was also collected from Kigali, just to understand and compare the Rwanda situation with and the chaos in Uganda. The Boda boda business has clearly contributed to the economic and social wellbeing of operators in mainly creation of jobs and hence a significant source of livelihood. The members and the associations take care of the welfare of the operators in times of emergencies [such as] attending to a sick operator, loss of job or paying damages should an operator plunge into an accident Other contributions were: 1) assistance in formation association 2) increased level of savings; 3) level of access to loan able funds very high and 4) assistance to open up bank account very low. There are mixed views about the social relationship between the operators and public (users), but, overall, boda boda' is commended for contributing to transport sector e.g by providing a convenient, flexible, affordable and quick means of movement to people and goods. The complaints raised by the public were about the age of boda boda operators said to be young inexperienced boys, who ride recklessly with no driving licence and don't follow regulations. Other complaints were that there were too many boda boda in town and that their numbers needed to be regulated. Both the operators and users had fears of theft and murder while using boda boda. Furthermore, the police complained of lack of appropriate structures to ensure enforcement of laws. The study shows that policies, laws and regulations to ensure safety, health, and security, to control traffic, revenue and discipline exist. Some of these have to do with registration, taxation and mandatory use of helmets for both operators and passengers. However, unlike in Rwanda, enforcement is inadequate and is worsened by political interference leading to resistance of many relevant policies. . In conclusion, boda boda are popular to both the operators and the users. Both operators and users acknowledged the risky nature of business but applauded its importance to survival and quick movement. In recognition of the proliferation and popularity of boda boda and the risks involved, the study recommends that: 1): There should be enforcement of policies and regulations; 2) political patronage and interference should be minimised and 3) authorities should come up with a policy aimed at limiting age of motorcycles coming in the country and number of boda boda in the city centre.</p>
<p>MWOBODIA, B. 2011. Critical success factors in the motorcycle boda boda business in Nairobi, Kenya</p>	<p>This study sought to identify critical success factors in the motor cycle Boda Boda business operators in Nairobi, Kenya. A cross-sectional survey design was used to enable the researcher gather relevant data for this academic undertaking. The target respondents included all operators of Boda boda in the 4 region of Nairobi identified by the researcher. Cluster sampling was applied in drawing the sample size of 100 respondents. The structured questionnaires were used to collect the primary data</p>

	<p>where the respondent rate was 75 % which was considered adequate for the study. The analysis of data was by use of descriptive statistics and the results were presented in charts, graphs and tables. The findings were that amongst the highly rated critical success factors in the motor cycle Boda boda business is convenience with a mean score of 4.37 followed by flexibility, accessibility and reliability with mean of 3.88 and then followed by the call for job creation by the government at a mean score of 3.76.</p>
<p>Ch Ng, Sin Yi, 2016. Rethinking Sustainable Mobility: Understanding the use of boda-boda motorcycle taxis in Kampala, Uganda</p>	<p>Cities in Sub-Saharan Africa are characterised by informal transportation services compensating for the lack of institutionalised transportation system. In Kampala, Uganda, the vast army of boda-boda (boda) motorcycle taxis have proliferated through the city, with passengers and/or cargo goods straddled behind the boda drivers as they navigate through the city's congested and dilapidated roads. Despite the strong presence of informal transport in developing cities, local governments often regulate against them as they do not fit the desired modern image. Against this backdrop, the dynamics of the system, perception and needs of the users themselves are neglected and unknown. Therefore, this study aims to identify the role of informal mobility in the sustainable urban landscape by investigating the boda sector in Kampala from the users' (i.e. passengers and cargo) lens. Qualitative Geographical Information System (GIS) as a mixed-methods approach was adopted for the research, explicitly: GIS analysis, questionnaire surveys, interviews, and unstructured observations. The study develops understanding of the boda demand – travel patterns, trip purposes, profiles, perceptions, and aspirations of the boda users. Visual representations and findings are discussed vis-à-vis the sustainable mobility dimensions. The study finds that the boda physical attributes influence the types of market served including service areas and users. More importantly, the boda market morphs according to the city's prevailing activities throughout the day, signifying how boda are woven into the urbanites' life and the city itself. This is more distinctive for lower income groups, working population, and areas with high formal and informal economic activities. Nonetheless, the high social costs resulting from unprofessional driving and high accident rates should justify intervention by formal and informal institutions. Overall, this study identifies the complementary role of the boda system and advocate for its integration into the public transport system through three transition pathways, namely improvement, complementary planning, and institutional reform. This analysis suggests that the informal mobility system and users should be engaged in changing the negative narratives of the sector and working towards sustainable urban mobility and development.</p>
<p>Starkey, P., Ellis, S., Hine, J. &amp; Ternell, A. 2002. World Bank. Improving Rural Mobility. Options for Developing Motorised and Non-motorised Transport in Rural Areas</p>	<p>Many inhabitants of rural areas in developing countries lack adequate and affordable access to transport infrastructure and services. Improving rural people's access to essential services requires better mobility through transport infrastructure and services as well as the location, price, and quality of facilities. This report focuses on improving rural mobility by facilitating the provision of affordable means of transport and transport services. To deliver significant economic and social benefits, investment in transport must take an integrated approach. Rather than focusing solely on expanding road networks, it should also pay attention to smaller roads, paths, and tracks; the use of private and commercial means of transport; and the importance of transport hubs and markets. Transport planners need to take a holistic approach that involves all stakeholders in a participatory process of assessing needs within a clear policy framework based on the interdependence and complementarity of different means of transport. In addition, favourable policies and operating environments can enable the private sector and nongovernmental organisations to play important roles in new initiatives. Pilots can be used to promote lower technology, intermediate means of transport. The needs of women and disadvantaged groups should be considered during planning. Monitoring and evaluation involving stakeholders are also important.</p>
<p>Raynor, J. 2016. Thesis "Informal Transportation and Associations: A Case Study of the Boda Boda"</p>	<p>In my time studying the informal sector, I had come to understand that enterprises in developing countries operating outside of the formal, government regulated economy with unprotected labour relationships were defined as informal. Yet, in the United States, a developed economy, a form of public transportation had emerged in the form of Uber that resembled informal transportation, but was not being addressed as such. In scholarship, there is a tendency to label an enterprise as informal only if it operates within a developing country. With this tendency comes the danger of approaching informal enterprises and the ways in which they organise</p>

	<p>into associations as though they are undeveloped and inherently inferior to those considered to be more formal.</p> <p>In this paper, I attempt to challenge efforts of past scholarship to define the informal and the formal, particularly with respect to the ways in which informal organisation occurs, through the use of my case study of motorcycle taxis in Uganda. Motorcycle taxis have been described as a double-edge sword: they are a necessity as they currently fill a gap in public transport and fulfil an abundance of other roles within their communities, but they do so at a high risk to riders, passengers, and other road users. While their role in urban transport may become more peripheral over time with the eventual introduction of mass transit systems, the operators will undoubtedly continue to be essential in more remote communities.</p>
<p>Matheka, D. 2015. Road traffic injuries in Kenya: a survey of commercial motorcycle drivers</p>	<p>Motorcycle injuries contribute a substantial number of deaths and hospital admissions in Kenya. There is paucity of data to inform prevention strategies to address the issue. Therefore, the current study sought to explore the characteristics of 2 and 3-wheeler related road traffic injuries (RTIs) in Kenya. Methods: A cross-sectional survey of motorcycle drivers involved in a RTI in the preceding 3 months was conducted in 11 urban and rural sites in Kenya's Thika town through face-to-face structured interviews. Drivers' demographic information, comprehensive crash characteristics and socioeconomic impact of injury data were collected. Results: Of 200 drivers injured, 98% were male, with average age of 28.4 years (SD±6.6). Of these drivers, 33% were not wearing any protective equipment. Negligence was the most reported cause of crash (33%), followed by slippery roads (21.0%) and speeding (17.5%). The risk of sustaining a bodily injury was 1.3 times higher in drivers who had not received prevention education compared to those who had received such education. People injured at night were 5 times more likely to sustain a bodily injury compared to those injured during the day. Only 8.5% of the drivers reported the injury incident to the police. Conclusion: Majority of motorcycle related injuries in Thika town occur among young, productive, working-age male drivers. A high proportion of injuries are due to negligence on riding while not wearing any protective equipment compounded by lack of injury prevention education. Initiatives to foster helmet wearing, provision of high-quality affordable helmets, responsible driving and advocacy for stronger legislation, are recommended.</p>
<p>Mutatina, B. 2017. Helmet use in motorcycle taxi operators in Kampala, Uganda</p>	<p>The use of motorcycles for commercial transport of passengers (motorcycle taxis) is a growing industry in Uganda. Current observations indicate poor compliance with the motorcycle helmet law by riders. To address this concern, a motorcycle helmet campaign was initiated in Kampala, Uganda. The first step of this campaign was to establish the prevalence of helmet use and reasons for non-use among motorcycle taxi operators (ie, boda boda riders) in order to inform campaign activities.</p>
<p>Diaz Olvera, L. 2016. Earning a living, but at what price? Being a motorcycle taxi driver in a Sub-Saharan African city</p>	<p>Motorcycle taxis have become an essential part of the transport sector in an increasing number of Sub-Saharan African cities. An analysis of the way this activity operates in Lomé (Togo), based on field surveys, provides a better understanding of the reasons for the development of this transport mode. The majority of drivers earn enough from the activity to meet their day to day needs and to invest to increase human and economic capital. The arduous working conditions, the impacts on health and the risk of accidents and aggression explain however why the activity is perceived as temporary and undertaken for want of anything better. There is a need to identify measures to professionalise the occupation and improve its image, and also find the best way to implement them. The occasionally stated goal of doing away with motorcycle taxis in order to modernise urban transport systems would have negative effects on their livelihoods.</p>
<p>Starkey, P. (2016a). The benefits and challenges of increasing motorcycle use for rural access. Proceedings of the International Conference on Transportation and Road Research, held 15-17 March 2016, Mombasa, Kenya. 17p.</p>	<p>In many countries in Africa, Asia and Latin America, most vehicles on low-volume rural roads are now motorcycles. In ten years, motorcycles in Tanzania increased from under 10,000 to 800,000. In Cameroun, Ghana, Kenya, Nigeria, Rwanda, Sierra Leone and Tanzania motorcycle taxi services have developed and spread rapidly, often becoming an essential part of rural living. Motorcycle taxis operate in the informal private sector. Their spontaneous spread has had little regulatory control. They provide many benefits. Travelling on tracks and footpaths, motorcycle taxis effectively extend the reach of roads as villagers can request the motorcycle taxis using mobile phones. Where there is no alternative means of transport, even pregnant women and sick people praise the access provided by motorcycle taxis. On some rural roads, 70-80% or more of the annual passenger transport and goods</p>

	<p>transport is now provided by motorcycle taxis. However, this is expensive, as the cost per passenger-kilometre and per tonne-kilometre of motorcycle services is much higher than the cost of 'conventional' transport (buses, minibuses and light trucks). Motorcycle taxis provide employment and their profitable operation allows private financing. Regulatory frameworks and enforcement are often weak. Many motorcycles operate without regulatory or fiscal compliance and may carry excessive loads. Road traffic injuries are high, often due to poor driver behaviour. Few driver training services exist. Poor regulatory compliance fuels petty corruption. Motorcycle operator associations can improve standards and safety through self-regulation. There is a need for research and greater understanding of appropriate ways to effectively regulate (and self-regulate) motorcycle operators for improved safety and ensuring the benefits of improved access are shared by all rural people.</p>
<p>Arosanyin, G. 2010. Earnings from commercial motorcycle operations in Ilorin, Nigeria: A Study on Determinants</p>	<p>The use of motorcycles for urban passenger transport in Nigeria popularly called okada is a source of employment and earnings to operators. Studies have attested to this but no attempt has been made to empirically examine the determinants of earnings in this informal transport operation in Nigeria. This paper, using human capital earning function analysis, shows that apart from the core determinant, which is patronage index, others such as experience, mode of work, ownership status and number plates were found to be significant determinants of earnings in commercial motorcycle transport. Formal education was found not to be a significant variable, which further confirms the fact that in some activities in the informal sector, formal education does not affect earnings. The core determinant i.e. patronage index explained over 75 percent of the variations in earnings. Therefore for earnings to be improved upon, constraints to the patronage index must be addressed. These constraints, which require attention, are bad roads, police extortion, high running costs and harassment from other motorised traffic.</p>
<p>Olumide, A. 2015. Young Age as a Predictor of Poor Road Safety Practices of Commercial Motorcyclists in Oyo State, Nigeria</p>	<p>This study examined the association between young age and poor road safety practices of commercial motorcyclists in Oyo state, Nigeria. A cross-sectional study of 371 commercial motorcyclists selected via a multistage sampling technique was conducted. Information on socio-demographic characteristics and road safety practices (possession of a valid licence, helmet use, number of passengers carried per trip, and compliance with 10 selected traffic signs) was obtained with the aid of an interviewer-administered questionnaire. Individual road safety practice items were scored and a total score was obtained giving minimum and maximum obtainable scores of 0 and 35. Respondents with scores <math>\leq 17.5</math> (i.e., less than or equal to half of the maximum obtainable score of 35) were categorised as having poor road safety practices. Descriptive statistics, chi-square, and multiple logistic regression tests were conducted. Selected socio-demographic and occupation-related factors were controlled for in the logistic regression analysis. Most studies conduct only bivariate analysis to test the association between age and road practices of commercial motorcyclists; however, we investigated the influence of potential confounding variables using multivariate analysis. Our findings confirmed young age as a predictor of poor road safety practices among our sample of commercial motorcyclists and emphasises the need for road safety programs to target this category of riders. The current minimum age for obtaining a rider's licence in Nigeria is 18 years; our findings suggest that it might be beneficial to increase the age at which riders in our study area can obtain a commercial rider's licence to above 25 years.</p>
<p>Peters, D. 2002. Gender and Transport in Less Developed Countries: A Background Paper in Preparation for CSD-9</p>	<p>Few developing country research and development projects have adequately accounted for the intersection of gender, transport and mobility. This paper brings together recent evidence from rural and urban transport case studies in less developed countries. Women's disadvantaged position in transport systems is apparent throughout. However, rather than simply use the studies to confirm general trends, this paper highlights both similarities and differences in women's experiences in order to stress the need for locally-adapted gender-sensitive transport strategies. Once this local dimension is brought back in, "giving voice" to women in transport planning and practice does not have to remain a lofty theoretical principle. Crucial, practical advances can be made by improving the quality of household and user surveys and by collecting all data in a sex-disaggregated manner. These efforts should be complemented by comprehensive, locally-targeted gender analyses and action plans. Depending on local context, the provision of special transit services to women may be an appropriate intervention, but should not be seen as a permanent solution.</p>
<p>Njenga, P. 2010. Drawing the road</p>	<p>This paper provides a synopsis of rural transport issues in developing countries and</p>



<p>map to rural poverty reduction</p>	<p>the way in which rural transport can contribute to poverty reduction and the Millennium Development Goals. It begins with an historical overview of the transport sector in the context of rural development, and continues with a summary of the transport needs and constraints of different stakeholders and vulnerable groups. Key transport interventions that address access problems through the development of road infrastructure, transport services and intermediate means of transport are also described, and the paper concludes with a dialogue on the implications for poverty reduction, and recommendations for future research.</p>
<p>Diaz Olvera, L. 2012. Motorbike taxis in the "transport crisis" of West and Central African cities</p>	<p>While the urban motorbike taxi is a relative newcomer, its rural ancestor, the bicycle taxi already existed as far back as the 1930s in the Senegalese city of Kaolack (Morice, 1981) and the 1960s in Kenya, Uganda and Benin where it was used to carry both people and goods (Malmberg-Calvo, 1994; Tossou, 1993). Motorbike taxis appeared in Nigeria in the 1970s (Oyesiku, 2001) but their true rise seems to have started in the mid-1980s in Niger, Cameroon, Togo, Benin, Uganda and Kenya<sup>2</sup> as a development from the bicycle taxi (Agossou, 2004; Howe, Maunder, 2004; Mutiso, Behrens, 2011). While the motorbike taxi is very popular in Uganda and Kenya under the name of boda-boda, its use has above all developed in West and Central Africa under a variety of different local names: zemidjan in Benin and Togo, bendskin in Cameroon, kabu-kabu in Niger, okada or alalok in Nigeria, oleyia in Togo (Agossou, 2004; Guézéré, 2008; Ngabmen et al., 2000; Dille, 2002; Mahlstein, 2009; Oyesiku, 2001; Malmberg-Calvo, 1994; Segbor, 1998).</p>
<p>Gamberini, G. 2014. Boda Boda: The Impact of Motorbike Taxi Service in Rural Uganda</p>	<p>This study aims to provide relevant insights into how the transport service offered by the "Boda Boda" can ensure a better integration between the rural villages' economies and the Southern Ugandan economic network, thus promoting the improvement of the rural citizens' welfare. The analysis of the socio economic realities of the area and the evaluation of the research objectives rely on the collection of data from three sources.</p> <p>The first source is a baseline long form questionnaire administered to 148 citizens of the village of Kigarama. A second baseline long form questionnaire was administered to 120 citizens of the village of Nangara. The questionnaire interview for the village citizens lasted between 30 to 40 minutes each. The second source is a baseline long form questionnaire to be administered to the Boda Boda operators. The questionnaire interview for the Boda Boda operators lasted between 40 to 50 minutes each. The baseline long form questionnaire for the rural citizens of Kigarama and Nangara contains details regarding the citizens' approach to the transportation problem. It also provides a precise description of the households' economic and welfare situation. The questionnaire also comprises of questions about the citizens choices regarding agricultural produce commercialisation in terms of location, profits, and transport choices.</p>
<p>Mutiso, W. 2011. 'Boda Boda' bicycle taxis and their role in urban transport systems: case studies of Kisumu and Nakura, Kenya</p>	<p>This paper reports upon an investigation into the role played by boda boda in urban transport systems in Kisumu and Nakuru (Kenya). A boda boda is a bicycle taxi which provides 'for hire' type transport services for passengers and goods. The research examined the operating characteristics of, and challenges facing, bicycle taxi services, and explored the measures that might be formulated by the concerned authorities to manage and support them. The study involved a (n=500) survey of bicycle taxi operators, as well as interviews with local authority officials. The study found that bicycle taxis serve an identifiable niche market, in the form of short service trips largely for the purposes of accessing work activities (directly, or as a feeder within a multi-mode trip), and off-road trips in high density unplanned settlements where higher capacity vehicles cannot pass. Their ability to pass slow-moving or stopped motor vehicles, enable them to operate efficiently and competitively in congested networks. It is argued that bicycle taxis have a place in Kenyan urban transport systems, and their absence would leave service gaps. Recent increase in motorcycle boda boda operations, at the expense of bicycle boda boda market share, is a cause for concern, and it is recommended that the concerned authorities adopt a policy position in this regard. It is argued that bicycle boda boda operations should be facilitated and supported by the relevant public authorities. The paper concludes with recommendations on measures that authorities might adopt to better regulate and support bicycle taxis. These relate to bicycle lane construction, the promulgation of enforcement by-laws, third party insurance cover, operator association membership, and the need for a harmonised national non-motorised transport policy.</p>

<p>Porter, G. 2013. Transport and mobility constraints in an aging population: health and livelihood implications in rural Tanzania</p>	<p>This paper offers a rare examination of older people’s mobility in a developing country context. It presents findings from a recent mixed-methods study of the transport and mobility constraints faced by older people in 10 settlements in Kibaha district Tanzania and is concerned, in particular, with the interconnections between transport, health and livelihoods. The study demonstrates the diverse ways in which older people’s health, livelihoods and access to transport are interconnected, the growing importance of motorcycle–taxi services for rural connectivity, and how the relationality between older people and younger generations contributes to the shaping of mobility patterns.</p>
<p>Nyachio, G. 2013. Creating employment through transport; the youth and motorcycle (boda boda) in Kitengela, Kajiado county- Kenya</p>	<p>It is widely recognised that young people have been among the most adversely affected by the current economic crisis in Africa and the world. The youths have reduced chances of getting jobs into the formal sector. Due to the above situation, the youths are engaging in a variety of activities for ‘survival’. In Kenya, the motorcycle (boda boda) transport is a form of employment that is giving job opportunities to many young people at a time when the world is facing global unemployment problems. Transport is an important component in both rural and urban development programs and an enabling element for the achievement of Millennium Development Goals. This is in terms of creating employment for the young people and facilitating movement of goods and services. Utilising a sample of 50 motorcycle (boda boda) riders in Kitengela, the study examined motorcycle (boda boda) as a form of employment for the youth. The main objective was to determine the role of (boda boda) motorcycles in employment creation for the youth in Kitengela, the study looks at whether (boda boda) motorcycles have improved the financial wellbeing of youths in Kitengela. The study demonstrates that youths can create employment through their innovative initiatives. The significance of this study is in filling a gap in literature. In addition, it suggests what the government and other stakeholders can do to ensure that the transport sector that is creating employment for the youth is made more efficient and safe. Convenience sampling was used. Qualitative data was coded and summarised and categorised in themes. SPSS was used to analyse quantitative data. Data was presented in pie charts, bar charts and frequency tables</p>
<p>Howe, J. 2004. Boda Boda - Lessons from East Africa's Growing NMT Industry</p>	<p>The aim of this paper is to describe the origins, growth and characteristics of the boda boda phenomenon in East Africa. Essentially they are a bicycle-based taxi service and have grown from modest origins in the early 1960’s in the border region of Uganda and Kenya, to achieve the status of a significant industry in one country and a substantial and growing presence in the other. The reasons for this, their evolving characteristics, influence on the poor, and relationship to motorised services are examined. The paper is mainly based on original research in Uganda conducted by the authors in the context of an analysis of livelihoods and the contribution that mobility and accessibility have on these. Where possible, comparisons are made with Kenya. Boda boda are shown to fill a gap in the transport market that has traditionally existed in African countries where - in contradistinction to Asia – non motorised transport [NMT] based services are rare. Essentially they meet the need for short distance, low-capacity transport able to operate in areas with limited demands that would not support more conventional services. The industry is also a major source of employment and livelihood support for the poor. The absence of either donor or government influences on the growth of the industry is striking, and is shown to have both positive and negative consequences.</p>
<p>Porter, G. 2016. Mobilities in Rural Africa: New Connections, New Challenges</p>	<p>Fluid interdependencies of mobility—physical and virtual—are growing rapidly in sub-Saharan Africa: The remarkable expansion of mobile phone networks is bringing a tangible new dimension of connectivity into mobility, transport, and access equations on the ground. This article draws on in-depth field research, including co-investigation with two groups often disadvantaged in their physical mobility, youth and older people, to explicate some current African developments and their departure from prevailing Western-based conceptualisations of space–time interactions (regarding the potential for space–time flexibility and micro-coordination afforded by mobile phones). Despite the fact that face-to-face interaction is often of great significance in Africa, when the value attached to personalised relationships is balanced against factors of widespread poverty and irregular, sometimes very dangerous transport, the potential for phone substitution appears greater than in many Western contexts. Better distance management through phone use could be particularly closely associated with populations with</p>

	very low disposable incomes or those whose physical mobility is limited; for instance, by disability, infirmity, age, or gender.
Kisaalita, W. 2007. Delivery of urban transport in developing countries: the case for the motorcycle taxi service (boda-boda) operators of Kampala	In East Africa, the development of the bicycle and motorcycle taxi (boda-boda) service can be seen as a spontaneous entrepreneurial response to the increased availability of bicycles and motorcycles. Concomitant with the increasing number of boda-boda operators is the escalating passenger safety concern. A needs assessment survey instrument was administered to randomly selected motorcycle boda-boda operators from a Kampala suburb (Kalerwe and Bwayise locations). Besides safety, the questionnaire addressed issues related to preferred equipment type, ownership, operator training, profitability and operators' attitudes toward organised association. The results of the study support the notion that it is difficult for boda-boda operators to make substantial improvements in their incomes. The results also illustrate the importance of this emerging cottage industry to the local economy. However, more needs to be done to protect the public and to enhance the boda-boda operators' professionalism.
Howe, J. 2003. 'Filling the middle': Uganda's appropriate transport services	Uganda developed bicycle-based passenger and goods transport services in the 1960s. They were complemented by a motorcycle-based version in the 1990s. These have extended the range and capacity of services, known locally as boda boda. Both have spread over the entire country and the bicycle version into neighbouring Kenya. This paper explains the origins of boda boda, the factors conditioning development, its operating characteristics and the problems they face. This analysis is used to examine the benefits boda boda services have brought to the poor. Boda boda operate where more conventional services are uneconomic or physically impossible. They are found in urban and rural areas where they act as feeder services to the towns or major public transport routes. Because of limited capacity and short trips fares per kilometre are two to seven times those of large-capacity buses. Popularity derives from their ability to meet demands other services cannot. While the poorest make only occasional use, due to low incomes and high costs, for many they enhance income by extending the range and intensity of productive activities. Their main impact on the poor is through the employment provided. Operators are drawn from the least educated classes and each supports five dependants. About 1.7 million people, or 7% of the population, receive part of their livelihood from the industry.
Singoro, B. 2016. Causes and trends of public transport motorcycle accidents in Bungoma County, Kenya	There has been a drastic increase in the use of motorcycles as a means of transport worldwide due to various reasons. In Kenya, the increased use of motorcycles has been seen over the last decade. This increase has brought forth many challenges, including motorcycle accidents on disproportionate scale comparative to the world statistics. Indeed motorcycle accidents constitute a major cause of death and injuries to thousands of people every year. In spite of this, motorcycle accidents remain a neglected problem in Kenya. This study sought to determine the causes and trends of motorcycle accidents in Bungoma County. The study population comprised 400 people from households of motorcycle riders involved in accidents and those not involved. Key informants in the motorcycle transport industry were interviewed. The study adopted a cross-sectional survey design to establish the causes, incidences/trends, and vulnerability of motorcycle accidents. Descriptive and inferential statistics were used in the analysis of data. The study was anchored on both the crunch model and the wish to die and domino theory. The study found that human error is the leading cause of motorcycle accidents. This is imparted on by poor regulatory and enforcement regimes. Structured and comprehensive training of riders on traffic code and regulations will most likely reduce accidents and associated economic losses. Collective action measures such as motorcycle Saccos for voluntary enforcement and pooling of resources, to aid riders in case of injuries and death, should be explored and pursued. The study provides information and insights on disaster risk reduction for policy formulation on motorcycle accident mitigation. From the results, the proposed strategies that can be employed to curb motorcycle accidents in the order of magnitude are: training of motorcycle riders; observing speed limits; improved roads; not driving while under the influence of drugs/ alcohol; not carrying more than one passenger; improved enforcement by police; proper motorcycle maintenance; wearing protective clothes/helmets/ boots; wearing reflective jacket; and not driving while tired.
Bryceson, D. 2010. Livelihoods, daily mobility and poverty in sub-Saharan Africa	Based on research funded by the UK Department for International Development, this paper investigates the utility of a livelihoods approach in identifying the mobility and accessibility needs of the poor. Mobility patterns and livelihoods of stratified samples



	<p>of households in urban-to-rural corridors originating in the national capital cities of Zimbabwe and Uganda are compared, with emphasis on the poor's position relative to higher income groups. It is found that livelihood work was the most frequent purpose of short-distance travel for all income groups and localities, amounting to 38% of trip purposes in Uganda and 46% in Zimbabwe. On average, Zimbabweans were more mobile making more daily trips over longer distances reflective of greater reliance on motorised transport in the country. Nonetheless, walking dominates modal journeys in both countries. Ugandans display heavier dependence on bicycle and motorcycle transport primarily through taxi hire compared with Zimbabweans' private care and public kombi bus transport. Survey evidence suggests that Uganda's poor and middle-incomed urban and rural residents benefit from more widely available multimodal public transport.</p>
<p>Goodfellow, T. 2012. Presidential intervention and the changing 'politics of survival' in Kampala's informal economy</p>	<p>In theory, 'urban governance' involves non-state actors and the state working together in formally institutionalised ways to make collective decisions and provide urban services. However, in developing country cities with highly informalised economies, the processes that underpin 'real' governance often reflect informal bargaining power much more than formal institutional frameworks. This paper uses the case of Uganda's capital Kampala to explore how political configurations subvert structures of city governance, with particular attention to the increasing engagement between President Museveni and particular groups of informal workers. We present empirical research on market vendors and motorcycle taxi (boda-boda) drivers showing how this engagement benefits both the informal groups and the president. Increased political competition has created an environment where informal groups seeking to protect their livelihoods can tactically leverage a presidential intervention in their favour, helping them evade the policies and regulations of the City Council. Meanwhile, the president has used these interventions to build support in a city that was largely lost to the opposition. These processes have progressively undermined already weak formal institutions for urban governance.</p>
<p>Kumar, A. 2011. Understanding the emerging role of motorcycles in African cities: A political economy perspective</p>	<p>A decline in organised public transport systems has led to rapid growth in non-conventional means of public transport, initially provided by minibuses and shared taxi/vans, and more recently by commercial motorcycles. Unlike cities in South and East Asia, ownership and use of motorised two-wheelers as a personalised vehicle is very small in sub-Saharan cities. However, over the past decade there has been a significant growth in the use of motorcycles as a commercial public transport mode. While offering certain transport advantages in the form of easy manoeuvrability, ability to travel on poor roads, and demand responsiveness, commercial motorcycle service growth has also led to an increase in road accidents, traffic management problems, pervasive noise and increases in local air pollution and greenhouse gas emissions. Government efforts to regulate the market have had the contrary impact of compounding the problem by distorting market structures. The growth in the use of commercial motorcycles has also dispelled one of the commonly held illusions: fare controls in the public bus market are often justified to support affordability for a vast majority of low income population; however, commercial motorcycles are more expensive than the lowest bus fares, but are increasingly being patronised by the poor due to the inadequacy of bus services. This paper attempts to evaluate the commercial motorcycle mode used in the three cities of Douala, Lagos, and Kampala, based on their political economy context in order to draw general conclusions of value throughout Africa and the rest of the developing world. The evaluation underscores the linkages between governance failure and weak sector performance and highlights the need to adapt policy instruments to local political and economic context. Central to discussion is the necessity to develop a participation framework driven by open communications across a wide spectrum of stakeholders.</p>
<p>Hine, J. 2015. Discussion Paper. Financing Rural Transport Services in Developing Countries: Challenges and Opportunities</p>	<p>The economic and social development of a large part of rural populations, especially in the developing world, is being held back by limited, unreliable or expensive access to markets and essential services. This problem is perpetuated by the continued bias towards the development of rural transport infrastructure, and the relative neglect of passenger and freight services operating on such infrastructure. In many developing countries where rural transport services do exist, they are often expensive, of poor quality and unreliable. The supply of rural transport tends to be dominated by cartels, and farmers need to pay significant sums for often-unreliable freight services. For most poorer developing countries, road building and maintenance is the only form of assistance provided for rural transport, and the provision for transport</p>

	<p>services is very much left up to the informal market. The absence of well functioning markets may hamper the improvement of rural transport services. To address these issues, the authors recommend additional research and increased collection of basic information; new approaches to regulating rural transport services; incorporation of rural transport services in government and donor rural infrastructure programs; appropriate subsidy schemes for rural transport services; and innovative use of ICT to support rural transport services.</p>
<p>Porter, G. 2012. Rural transport services for older people in Kibaha district, Tanzania: report of project findings</p>	<p>This report presents background material and a full review of project findings on rural transport services for older people in Kibaha district of Tanzania, with specific reference to: a) current access to health services) livelihood implications of poor access to health and other services) Broader implications for national rural transport services. Transport is a major hurdle for many older people in the 10 study settlements in rural Kibaha district – most particularly for their daily domestic water and fuel needs, but also for their access to health services and improved livelihoods. The rapid spread of motorcycle taxi services has affected a transport revolution over the last few years, particularly in the nine off-road settlements [and especially where they operate in conjunction with mobile phones]. In the absence of alternatives motorcycle-taxis [boda-boda] have brought improved mobility – at least in emergency contexts – even for very old people, despite the high fares. However, many older people find travel by boda-boda a dangerous and frightening experience. It is important to explore if/how these vehicles might be adapted to make them safer and more comfortable for older people, and to examine feasible alternatives, especially in the context of travel of sick older people to health centres. Attention also needs to be given to intra-village water and fuel transport for domestic purposes and the means by which this can be improved, so that older people are able to reduce their carrying burden and, should they wish, devote more effort to their farms. Water and fuel loads currently present a major transport burden for the younger cohort of older people [those in their 60s and 70s] and carrying is associated particularly with waist/back pain. Reduced domestic loads could raise farm productivity with consequent improvements in food availability. This would have beneficial impacts on health not only for older people but also for the many grandchildren and other young people currently in their care.</p>
<p>Influence of boda-boda transport enterprise on the livelihood of operators in Kitale town, Trans-Nzoia county, Kenya.</p>	<p>This study sought to look into the influence of boda-boda transport business on the livelihood of boda boda operators, within Kitale Town, Trans-Nzoia County. The objectives analyzed included to determine the influence of fare charged on the livelihood of the operators, to establish the influence of the location of operation on the livelihood of the operators, to establish how the regulatory framework influence the livelihood of the operator and to establish the influence of availability of credit facilities on the livelihood of operators. The study adopted descriptive survey design because data from the study was used to describe the livelihood of the boda boda operators. Questionnaires were the instruments of choice and both qualitative and quantitative approaches were used. The target population was 210 operators and the sample size was 136 operators. Probability sampling techniques were used to identify the respondents within Kitale town. Analysis was done scientifically using frequencies and %s in tables. The findings revealed that the fares charged by boda boda were mainly between 500-1200 Shs. Depending on whether one was just an operator or an operator who was also the owner, and then it determined their livelihoods. Those who were hired operators earned less money and therefore low levels of livelihoods whereas those who were owners but also operators had higher levels of livelihoods.</p> <p>The operators in the urban areas had more improved livelihoods as they earned more compared to the peri-urban operators. Lack of a regulatory framework on the boda boda operation has also played a role on the livelihood of the operators. It has led to many operators operating without training hence leading to many accidents and loss of property. Many of the boda boda operators did not access credit facilities from commercial banks. However they accessed credit facilities from the Saccos and SMEs. There were others who did not access the credit facilities at all and consequently were unable to expand their businesses or being able to purchase their own for the hired operators. This implied that those with access to credit facilities realised an improved livelihood unlike those who did not. Consequently credit facilities were important for the improved livelihoods of boda boda operators. The researcher recommended that the operators should come up with better ways of</p>

	<p>setting prices that ensured that they are able to improve their livelihoods. They should also base their charges of millage so that all of them are able to improve their livelihoods regardless of where they are operating from. The regulatory framework should be put in place so as to promote order in the business and minimise on accidents. The operators should be sensitised on credit facilities to enable them benefit from them.</p>
<p>Ablin Consult, (2010). Ghana Ministry of Transport. Consultancy service for a study on the use of motorcycles for transporting passengers for hire and reward in Ghana</p>	<p>The objective of the study was to verify the extent of the operation of motorcycles for commercial purposes using the (Okada) Odododiodio and Ablekuma South operations as case studies. Furthermore it was to identify useful small and medium scale alternative income generating ventures that can be undertaken individually or collectively to sustain the Okada operators after halting the okay practice. The approach of the study was based on field surveys involving both the operators of the Okada services and the users in the city of Accra and two other towns. The choice of these locations is due to the fact that there are Okada services in operation. It was also to compare the characteristics of the okay operation within the urban and rural setting as well as within the southern and Northern sectors of the country. The field surveys were based on the administration questionnaires to both operators and users of the Okada services.</p>
<p>Bishop, T and Amos, P. (2015). Opportunities to improve road safety through 'boda-boda' associations in Tanzania. Final Report. AfCAP project TAN2015G. Thame, UK, Africa Community Access Partnership (AfCAP). 59p</p>	<p>This is the final report of the study into motorcycle taxi associations in Tanzania, identifying opportunities to improve safety and other areas of operation. The numbers of motorcycles and motorised tricycles in Tanzania has increased rapidly in recent years, changing the face of accessibility and mobility. In urban areas, both motorcycles and motorised tricycles are used to avoid congestion, often as taxis, and in rural areas motorcycles are often the only form of motorised transport available. They provide employment and business opportunities for tens of thousands of people. However, safety is a major concern: the numbers of motorcycle- and motorised tricycle- related deaths and injuries has increased as the number of motorcycles and motorised tricycles operating in the country has increased. The Government has identified that opportunities exist to address safety concerns through regulation, including through encouraging the formation of associations of motorcycle and motorised tricycle taxi drivers, and empowering the associations to self-regulate and thus improve the safety-related behaviour of members. Through investigations in Dar es Salaam, Kilimanjaro, Mwanza and Pwani, we have developed, and present in this report, a series of guidelines for motorcycle and motorised tricycle taxi associations and recommendations for Government and other stakeholders.</p>
<p>Cervero, R., 2000. Informal transport in the developing world. UN-HABITAT, Nairobi.</p>	<p>Rapid motorisation and inadequate urban transport planning and management have lead to intolerable levels of traffic, congestion, air pollution and lost urban economic productivity. The growing use of largely inefficient private automobile transport in very densely populated cities to meet the increase in demand for urban transport has reduced the efficiency and effectiveness of public transport. Falling levels of resources to subsidise these systems has led to deteriorating service and revenue deficiencies. Those urban residents unable to afford private transport have been the most negatively affected, as alternatives for travelling other ways have either completely disappeared or have become increasingly out of reach financially. In response, the informal transport sector has burgeoned throughout cities in the both the developed and developing worlds, filling the gap of inadequate and increasingly expensive public transport. In many cases, these systems consist of non-motorised transport such as are found in Asia, or include the mini-vans (matatus) of Nairobi and Mexico City or the "Jeepneys" of Manila. While in some cases these informal systems are efficient, effective and meet real transport needs for many urban residents, in other cases they are yet to be regulated and organised thus posing a threat to road safety and the environment. Local, regional and national transport decision-makers and managers need the knowledge, tools and techniques to more rationally plan and regulate informal transport in order to maximise its inherent economic advantage vis-a-vis existing and planned public transport. It is essential it be incorporated fully into the overall transport fabric of the city to provide a much-needed complementary role, particularly for those residents unable to afford cars. I am confident that this publication will help policy makers, managers and researchers working in the area of urban transport to further their knowledge and understanding of the dynamics of informal transport in the developing world.</p>
<p>Ellis, S.D., and Hine, J.L. (1998). The</p>	<p>Currently many countries suffer from very poor service provision and high transport</p>

<p>Provision of Rural Transport Services: Approach Paper. SSATP Working Paper No. 37. The World Bank: Washington, D.C.</p>	<p>charges. Although most services are provided by the private sector vehicle utilisation is low, cartels are common and government regulation is weak. In this paper key problems are identified which might be solved through various forms of intervention. The following key issues have been identified as the major constraints on the satisfactory development of rural transport services: • Low density of demand for transport • Poor quality infrastructure • Poor diversity of vehicle types • Uncompetitive transport markets • Lack of understanding by government donors and other agencies of the potential benefits of increasing the efficiency with which transport services are provided. Key issues: Controlling transport cartels, reducing tariffs and increasing service frequency, Reducing import prices of vehicles and parts, Devising training programmes to indicate the advantages of slow and careful driving and the importance of routine maintenance, Consider ways that surplus capacity of old vehicles may be removed from the market, Promoting the use of Intermediate Means of Transport, Devising methods to financially support a minimum of frequency of transport services that cannot be supported through other means and Public Private Partnerships</p>
<p>Hettige, H. (2006). When do rural roads benefit the poor and how? An in-depth analysis based on case studies. Asian Development Bank.</p>	<p>Roads are clearly a critical enabling condition for improving living conditions in rural areas. However, the distribution of socio-economic benefits resulting from a rural road is a separate issue, and there are no guarantees or inherent mechanisms to ensure that these benefits will be distributed equitably between the poor and the non-poor in communities. In the rural road projects studied, their ability to affect the distribution of assets and the skills capacity of the poor was limited and largely outside their scope. Nevertheless, recognising how assets are distributed is important both for understanding how benefits will accrue and for planning complementary measures to enable those who lack assets also to benefit from the investment. Given the right complementary activities, projects can broaden livelihood opportunities. The poor need support to make use of the opportunities that rural roads may bring. This suggests that integrated projects are needed to tackle poverty effectively. The case studies covered both sector road investments and integrated projects, where the road was one part of a larger program. In practice, the latter were either not truly integrated or were focused largely on benefiting better-off farmer groups. The poor require genuinely integrated programs of support right through the cycles of production, transportation, and sale. For the poor to travel for productive purposes, the provision of transport services must be linked to some livelihood and income diversification activity that builds on or supplements their existing subsistence activities. For such a scheme to be sustainable, it must eventually be self-financing. Implementation of integrated rural road projects is difficult, and the contextual situation differs from place to place. The Asian Development Bank (ADB) may suggest to borrowers to take on partners in program design and implementation such as other cooperating external assistance agencies, or local or international nongovernment organisations that have a proven track record in mobilising and working closely with communities. In addition to the suggestions above, the study provides a range of other recommendations regarding project design (on participatory design and planning, and on poverty assessment) as well as implementation (working with partners and project performance monitoring). The importance of baseline surveys and data monitoring needs to be realised by all stakeholders if rigorous impact evaluations are to be carried out in the future to further improve project design. The study also acknowledges that governments have a critical role in facilitating a regulatory environment for competitive transport services, in participatory selection of roads to be improved, and in promoting understanding of the priority to be given to poverty reduction by its agencies.</p>
<p>Porter, G. (2011). 'I think a woman who travels a lot is befriending other men and that's why she travels': mobility constraints and their implications for rural women and girls in sub-Saharan Africa. <i>Gender, place and culture</i>, 18:01, pp. 65-81.</p>	<p>This article is concerned with the implications of practices, politics and meanings of mobility for women and girl children in rural areas of sub-Saharan Africa. Women and girls commonly face severe mobility constraints which affect their livelihoods and their life chances. The article reflects on their experiences in rural areas where patriarchal institutions (including the gender division of labour, which places great emphasis on female labour contributions to household production and reproduction), and a patriarchal discourse concerning linkages between women's mobility, vulnerability and sexual appetite, shape everyday social practices and material inequalities. This compounds the physical constraints imposed by poor accessibility (to services and markets) associated with poor roads and inadequate transport in both direct and more complex ways. The article draws on field research</p>

	<p>conducted in diverse socio-cultural and agro-ecological contexts in western and southern Africa (principally southern Ghana, southern Malawi and northern and central Nigeria) to explore the impacts of relative immobility and poor service access on women and girls. Three (interconnected) issues are examined in some detail: access to markets, access to education and access to health services. Possible interventions to initiate positive change are considered.</p>
<p>Porter, G. 2002. Improving mobility and access for the off-road rural poor through Intermediate Means of Transport. <i>World Transport Policy and Practice</i> 8 (4), 6-19</p>	<p>This paper is concerned with the potential of Intermediate Means of Transport (IMTs) for improving mobility and alleviating access problems in off-road areas in Sub-Saharan Africa. Off-road rural populations appear to be disadvantaged and vulnerable in many respects. They characteristically appear markedly poorer in income terms, in health and in life chances than those in comparable roadside locations in the same region, though, obviously, not all off-road people are disadvantaged to the same degree by their location: women and children in Sub-Saharan Africa suffer much of the burden of off-road transport, for instance. In the first section I briefly review the range of difficulties commonly faced by men, women and children resident in off-road locations as a result of restricted mobility and poor access. The second section of the paper focuses on the potential of Intermediate Means of Transport for alleviating access/mobility problems in off-road areas. Constraints on IMT use among different sectors of the off-road rural poor are examined through presentation of a case study from coastal Ghana, while recent evidence from the Jos Plateau, Nigeria, is used to illustrate the enormous potential of IMTs, in favourable circumstances, for improving access and reducing isolation.</p>
<p>Porter, G. 2008. Transport planning in sub-Saharan Africa. Progress report 2. Putting gender into mobility and transport planning in Africa. <i>Progress in Development Studies</i>, 8(3): 281–289.</p>	<p><i>Progress in Development Studies</i>. Jul 2008, Vol. 8 Issue 3, p281-289. 9p. Abstract: The article offers an analysis on gender in physical mobility and the transport needs and patterns in Africa. It specifically focuses on the cultural constraints on women's travel, the impact of poor transport on the health of the women, and their available access to intermediate means of transport (IMTs). It also explores the causes and effects of the broad pattern of gender disparity in transport access and use. The author further emphasises the contribution of social processes in shaping gendered mobility patterns and access to transport. An overview of suggested ways to improve women's access to transport is offered.</p>
<p>Starkey P, 2002. Local transport solutions for rural development. Department for International Development (DFID), London, UK. 48p.</p>	<p>This book explores the importance of local transport solutions as a means for increasing the mobility of rural women, men and children in the poorest countries. Many intermediate forms of transport are covered including bicycles, hand carts, animal-drawn transport, motorcycles and motor tricycles. Many of these modes are not available to women, or are very expensive, but when they are available they stimulate agricultural production because of increased access to markets. They also enable itinerant selling of perishable commodities. Local attitudes to intermediate transport may constrain its use as it is perceived as old fashioned. Adoption of transport technologies may be patchy, depending on topography, culture, income and other factors. Development of a critical mass of users makes transport ownership socially acceptable and justifies the establishment of service providers. Non-transport solutions include the provision of water supplies, new markets or grinding mills where they are needed. Cycle trailers are used as an example of the promotion of a technology that proved unsuitable for women in Ghana. Credit schemes for the purchase of carts are described. The potential for public transport using intermediate transport is explained. The importance of proper discussion with all stakeholders and of fully considering environmental factors in new projects is emphasised.</p>
<p>Starkey P, 2007. The rapid assessment of rural transport services. SSATP Working Paper No. 87A. Sub-Saharan Africa Transport Policy Program (SSATP), The World Bank, Washington DC, USA. 80p</p>	<p>Rural transport services are often inadequate. Passenger and goods transport needs improving to stimulate rural economies and reduce poverty. Understanding existing rural transport systems and constraining factors is a precondition for appropriate policy action. The Sub-Saharan African Transport Policy Program (SSATP, managed by the World Bank) commissioned a study to develop and test a methodology for the rapid assessment of rural transport systems. The guidelines specified passenger and freight transport for distances of 5- 200 km, encompassing much rural transport, but excluding within-village transport, long-distance national transport and international corridors. Under a contract implemented by Intermediate Technology Consultants (ITC) in 2005, a multidisciplinary team met in Ethiopia to devise the survey methodology. Four national experts and the team leader implemented the methodology in parts of Burkina Faso, Cameroon, Tanzania and Zambia. The team reconvened in Kenya to review the methodological lessons and survey findings.</p>



<p>Starkey P, 2008. Rural transport services in Africa: Lessons from rapid appraisal surveys in Burkina Faso, Cameroon, Tanzania and Zambia. SSATP Working Paper No. 87B. Sub-Saharan Africa Transport Policy Program (SSATP), The World Bank, Washington DC, USA. 114p</p>	<p>Rural transport services for passengers and goods need to be improved to stimulate rural economies and reduce poverty. Appropriate policy action to stimulate change must be based on a good understanding of the existing situation and the various limiting factors.</p> <p>The Sub-Saharan African Transport Policy Program (SSATP, managed by the World Bank) commissioned a study to develop and test a methodology for the rapid assessment of rural transport systems. The guidelines specified passenger and freight transport for distances of 5– 200 km, encompassing much rural transport, but excluding within-village transport, long-distance national transport and international corridors. Under a contract implemented by Practical Action Consulting in 2005, a multidisciplinary team met in Ethiopia to devise the survey methodology. Four national experts and the team leader implemented the methodology in selected regions of Burkina Faso, Cameroon, Tanzania and Zambia. The team reconvened in Kenya to review the methodological lessons and the survey findings.</p> <p>The methodology developed has been described in detail in another SSATP publication (Starkey, 2007). Different transport hub and spoke patterns form the basis of all rural transport systems and these patterns must be understood and described. The rapid appraisal survey is stratified by hub system (provincial/regional, district/market and village hubs) and by remoteness. Participative interviews are held with transport regulators, operators, users and support services. Users surveyed must include adequate numbers of women (at least 40%), people in remote areas (15%) and people disadvantaged in various ways (age, disabilities, minorities, ill-health, extreme poverty). As the survey progresses, information from the different interviews and field observations is triangulated so that anomalies can be investigated immediately. Traffic counts are undertaken on selected representative spokes, chosen by hub type and remoteness. Data is collected on passenger and freight tariffs and the operating cost of motor vehicles and intermediate means of transport (IMTs).</p> <p>Using this methodology, five pilot surveys were undertaken and the full survey reports are available in hardcopy and on the internet. This report summarises important issues emerging from these five surveys, and goes on to discuss the implications. All figures quoted here are order-of-magnitude estimations and/or approximations, based on the 2005 surveys.</p>
<p>Starkey P, Njenga P, Kemtsop G, Willilo S, Hine J, Odero K, Mbathi M and Opiyo R (2013a). Rural transport services indicators: guidelines to the methodology, September 2013. International Forum for Rural Transport and Development (IFRTD) Project AFCAP GEN/060. London. African Community Access Programme (AFCAP). 176p. Available at: <a href="http://www.ruraltransport.info/RTSi/resources/project_outputs.php">http://www.ruraltransport.info/RTSi/resources/project_outputs.php</a></p>	<p>In many countries in Africa, Asia and Latin America, most vehicles on low-volume rural roads are now motorcycles. In ten years, motorcycles in Tanzania increased from under 10,000 to 800,000. In Cameroon, Ghana, Kenya, Nigeria, Rwanda, Sierra Leone and Tanzania motorcycle taxi services have developed and spread rapidly, often becoming an essential part of rural living. Motorcycle taxis operate in the informal private sector. Their spontaneous spread has had little regulatory control. They provide many benefits. Travelling on tracks and footpaths, motorcycle taxis effectively extend the reach of roads as villagers can request the motorcycle taxis using mobile phones. Where there is no alternative means of transport, even pregnant women and sick people praise the access provided by motorcycle taxis. On some rural roads, 70-80% or more of the annual passenger transport and goods transport is now provided by motorcycle taxis. However, this is expensive, as the cost per passenger-kilometre and per tonne-kilometre of motorcycle services is much higher than the cost of 'conventional' transport (buses, minibuses and light trucks). Motorcycle taxis provide employment and their profitable operation allows private financing. Regulatory frameworks and enforcement are often weak. Many motorcycles operate without regulatory or fiscal compliance and may carry excessive loads. Road traffic injuries are high, often due to poor driver behaviour. Few driver training services exist. Poor regulatory compliance fuels petty corruption. Motorcycle operator associations can improve standards and safety through self-regulation. There is a need for research and greater understanding of appropriate ways to effectively regulate (and self-regulate) motorcycle operators for improved safety and ensuring the benefits of improved access are shared by all rural people.</p>
<p>Starkey P, Njenga P, Kemtsop G, Willilo S, Opiyo R and Hine J (2013b).</p>	<p>Adequate public transport services are vital for rural communities. This paper reports lessons and recommendations from a 12-month project to develop indicators to</p>

<p>Rural transport services indicators: Final Report, August 2013. International Forum for Rural Transport and Development (IFRTD) Project AFCAP GEN/060. London. African Community Access Programme (AFCAP). 158p. Available at: <a href="http://www.ruraltransport.info/RTSi/resources/project_outputs.php">http://www.ruraltransport.info/RTSi/resources/project_outputs.php</a></p>	<p>'measure' how transport services were meeting the access needs of rural people. The Rural Transport Services Indicators (RTSi) project was funded by AFCAP and implemented by an IFRTD team. In Phase 1 (Apr-Sep 2012), a methodology to acquire the data for indicator statistics was developed and tested on six roads in Tanzania and Kenya. In Phase 2 (Oct 2012 to Mar 2013), the questions and analysis systems were revised and tested on roads in Tanzania, Kenya and Cameroon. All indicator statistics are linked to specific roads. Road-based transport services indicators are relevant to the users, operators, regulators and development projects and such indicators could be used to appraise and evaluate road investments.</p>
<p>Starkey, P. (2016b). Provision of rural transport services: user needs, practical constraints and policy issues. Transport and Communications Bulletin for Asia and the Pacific, 86: 6-22. Available at: <a href="http://www.unescap.org/sites/default/files/Bulletin_86_Sustainable_Rural_Access_fulltext.pdf">http://www.unescap.org/sites/default/files/Bulletin_86_Sustainable_Rural_Access_fulltext.pdf</a></p>	<p>Rural people need transport services to travel to markets and services at local towns. Different types of rural transport users want passenger services that are affordable, frequent, predictable, safe and carry freight. Many different vehicles can be used, each with advantages. Passenger trucks may be more realistic than buses. Motorcycles are the most common vehicles on many rural roads. In some countries, motorcycle taxis provide vital, off-road access to homesteads, despite high tariffs. Compliance with public transport regulations is poor on rural roads. Local officials are less stringent with regulations to accommodate transport services. High vehicle standards and strict enforcement can reduce services and increase prices. Regulations inappropriate to local situations fuel petty corruption. Cartels entrench poor practices. Rural roads and transport services authorities are not integrated. Transport regulators are under-resourced and concentrate on urban and inter-urban services. Research should identify 'best practices' for rural transport services</p>
<p>Starkey P, Ellis S, Hine J and Ternell A, 2002. Improving rural mobility: options for developing motorised and non-motorised transport in rural areas. World Bank Technical Paper 525. World Bank, Washington DC, USA. 64p.</p>	<p>Many inhabitants of rural areas in developing countries lack adequate and affordable access to transport infrastructure and services. Poor access to transport constrains economic and social development and contributes to poverty. Better transport services can stimulate economic activity and social improvement, leading to easier access and a virtuous circle that reduces poverty and improves the lives of poor rural residents. Improving rural people's access to essential services requires better mobility through transport infrastructure and services as well as the location, price, and quality of facilities. This report focuses on improving rural mobility by facilitating the provision of affordable means of transport and transport services. There are many obstacles to cheaper, more efficient rural transport, and many factors influence efforts to promote rural transport services. Despite massive spending, many government and donor efforts to improve rural transport have not met the needs of rural residents. Moreover, the market has not provided transport services to areas with low demand and to the poorest and least mobile segments of the community. To deliver significant economic and social benefits, investment in transport must take an integrated approach. Rather than focus solely on expanding road networks, it should also pay attention to smaller roads, paths, and tracks; the use of private and commercial means of transport (motorised and non-motorised); and the importance of transport hubs and markets. Transport planners need to take a holistic approach that involves all stakeholders in a participatory process of assessing needs within a clear policy framework based on the interdependence and complementarity of different means of transport. In addition, favourable policies and operating environments can enable the private sector and nongovernmental organisations (NGOs) to play important roles in new initiatives. Pilot activities can be used to promote lower technology, intermediate means of transport, which can enhance local productivity in low-density, low-income areas. Planning efforts should consider the needs of women and disadvantaged groups. Monitoring and evaluation involving stakeholders are also important, as is local, national, and international networking. Based on these efforts, governments and project planners can take steps in three areas, financial, regulatory, and complementary, to promote increased ownership of intermediate means of transport and the private provision of rural transport services.</p>
<p>Bishop, T and Jinadasa D, 2014. Road Traffic Injury on Rural Roads in Tanzania: A study to determine the causes and circumstances of motorcycle crashes on low-volume rural roads. Final report Project AFCAP/TAN/115. Amend for Crown</p>	<p>By 2030, road traffic injury (RTI) is forecast to be the fifth largest killer worldwide. Sub-Saharan Africa has the world's most dangerous roads, and rates of RTI are increasing as roads are built and vehicles are imported into the continent. Improving roads can bring economic and social benefits. But these benefits must not be offset by an increase in RTI and the associated negative economic and social consequences. The use of motorcycles is revolutionising rural access in many countries, including Tanzania. But this revolution has a price, with RTI rates among motorcycle drivers as</p>

<p>Agents, Sutton, UK.</p>	<p>high as 63 per 100 drivers per year. Through detailed crash investigations, risk assessments, interviews and inspections, this research aimed to determine the causes and circumstances of motorcycle crashes on low-volume rural roads in Tanzania, to inform the development of targeted road safety policies and interventions. This report identifies that motorcycle crashes on rural roads can be attributed to numerous factors, including those related to human behaviour and the road design and condition. Improving road safety requires coordinated efforts between policy-makers, engineers, police, community organisations and others. The report provides practical recommendations for road safety stakeholders to improve the safety of low-volume rural roads for motorcycles and other users.</p>
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### Motorcycle Taxi Road Safety

Reference	Abstract
<p>Porter, G. 2007. Youth, mobility and rural livelihoods in sub-Saharan Africa : perspectives from Ghana and Nigeria : poverty, development and livelihoods</p>	<p>There has been little work done on the linkages between youth daily mobility and livelihood patterns and potential. Drawing on field studies conducted in Ghana and Nigeria, this article examines youth transport and mobility issues from a livelihoods perspective. Mobility affects livelihoods directly, in terms of access to jobs, and indirectly in terms of accessing education, health care and strong social networks on which future job opportunities may depend. The factors that help determine youth access to transport and mobility are considered, and the role of transport itself as a livelihood strategy (girls as porters, boys as transport operators) is examined.</p>
<p>Porter, G. 2002. Living in a Walking World: Rural Mobility and Social Equity Issues in Sub-Saharan Africa</p>	<p>Accessibility and mobility are embedded in the development nexus in far-reaching ways. Field studies of mobility among women and men in rural settlements with poor road access illustrate the frustrations and costs of living off-road. They are frequently marginalised and invisible, even to local administrations. State decentralisation appears to have had little positive impact in reducing “tarmac bias” and improving rural service delivery. A range of potential interventions, from Intermediate Means of Transport to electronic communications is reviewed, and opportunities for building social capital in off-road areas through nurturing improvements in state–civil society relations are considered.</p>
<p>Porter, G. 2008. Increasing children's participation in African transport planning: reflections on methodological issues in a child-centred research project</p>	<p>This paper examines the potential for applying child-centred research methodologies which involve children doing their own research (with adult facilitators) within a transport and mobility context in West Africa. Relatively little attention has been paid to the transport needs of the poor and powerless within African transport policy and planning: the specifics of children and young people's transport and mobility needs are essentially unknown and unconsidered. Using evidence from a small pilot study in Ghana, we reflect on both the opportunities and the challenges of work in this field. Although the paper is focused on the specific issues raised by child-centred research, it raises broader questions regarding the potential for research partnerships with vulnerable groups and, more specifically, the challenges of developing more collaborative research processes within transport studies, where technical priorities still regularly triumph over social concerns.</p>
<p>Porter, G. 2007. Presentation Paper. Transport, (im)mobility and spatial poverty traps: issues for rural women and girl children in sub-Saharan Africa</p>	<p>This paper reflects on the experiences of women and girl children resident in rural areas of sub-Saharan Africa with poor physical accessibility (to services and markets) because of poor roads and inadequate transport (in terms of regularity, reliability and cost). Examples from field research conducted in diverse agro-ecological and cultural contexts in western and southern Africa are used to explore the impacts of relative immobility and poor access to services on women and girls. Three themes are examined in some detail: access to education, access to health services and access to markets.</p>



<p>Chen, G. 2010. Road traffic safety in African countries – status, trend, contributing factors, countermeasures and challenges</p>	<p>Road traffic crashes and injuries constitute a major health, economic and developmental challenge for many African countries. With only 4% of the world's motor vehicles, African roads witness more than 10% of the world total collision fatalities. With further motorisation, the number of road traffic crashes, injuries and fatalities are expected to grow. This study updates on the status, trends, causes, countermeasures and issues in traffic safety in African countries by reviewing studies published in the past 12 years. The study found that traffic fatalities continued its upward trend in recent years. Similar to those in motorised countries, the study identified that human behaviour and incapacitation account for more than 85% of the contributing factors reported by police in Africa. Unlike in developed countries, the victims of traffic casualties are primarily vulnerable road users. Pedestrians alone account for more than 40% of the total fatalities on African roads. Limited countermeasures were reported in the literature. The outcomes of these programmes are mixed and the research methods have inconsistent validity. Investigation in the feasibility of transferring proven programmes from motorised countries is suggested as an efficient measure for traffic safety improvement.</p>
<p>Zimmerman, K. 2014. Road Traffic Injury on Rural Roads in Tanzania: Measuring the Effectiveness of a Road Safety Program</p>	<p>Road traffic injuries (RTIs) are a major public health burden, especially in low- and middle-income countries. There is limited data on RTIs in low-volume, rural African settings. This study attempted to survey all individuals living in households within 200 m of two low-volume rural roads in Tanzania and to collect data on RTIs.</p>
<p>Sumner, S. 2014. Effect of free distribution of safety equipment on usage among motorcycle-taxi drivers in Tanzania—A cluster randomised controlled trial</p>	<p>Deaths due to road traffic injuries, particularly motorcycle crashes, have increased rapidly in many African nations and context-specific strategies to improve preventative behaviours are needed. Although adhering to conspicuity measures by wearing reflective safety vests is a highly effective crash prevention strategy and mandated by law among motorcycle-taxi drivers in some African countries, actual use is currently low. We aimed to test whether eliminating cost-barriers through the provision of free reflective, fluorescent motorcycle safety vests would lead to increased utilisation among a high-risk population of motorcycle-taxi drivers in Tanzania.</p>
<p>Roehler, D. 2014. Using baseline and formative evaluation data to inform the Uganda Helmet Vaccine Initiative</p>	<p>Motorcycles are an important form of transportation in Uganda, and are involved in more road traffic injuries than any other vehicle. The majority of motorcycles in Uganda are used as motorcycle taxis, better known locally as boda boda. Research shows that a motorcycle helmet is effective at reducing a rider's risk of death and head injury. As part of the Uganda Helmet Vaccine Initiative (UHVI), researchers collected baseline and formative evaluation data on boda boda operators' helmet attitudes, beliefs, and behaviors to inform UHVI activities. Researchers collected data on motorcycle helmet-related attitudes and beliefs through focus group discussions and structured roadside interviews, and researchers conducted roadside observations to collect data on helmet-wearing behaviors. Of the 12,189 motorcycle operators and passengers observed during roadside observations, 30.8% of drivers and &lt;1% of passengers were wearing helmets. The most commonly reported helmet-wearing barriers from the focus group discussions and structured roadside interviews were: (1) 'Helmet is uncomfortable', (2) 'Helmet is too hot', (3) 'Helmet is too expensive', and (4) 'Helmet is of low quality'. Researchers incorporated findings from the formative research into the UHVI campaign to increase motorcycle helmet use. Radio messages addressing helmet comfort and cost were widely aired throughout Kampala, Uganda. In addition, campaign staff held nine boda boda operator workshops, covering approximately 900 operators, in which the facilitator addressed barriers and facilitators to helmet use. Each workshop participant received a high-quality tropical motorcycle helmet. UHVI will continue to use a data-driven approach to future campaign activities.</p>

<p>Chalya, P. 2014. Injury outcome among helmeted and non-helmeted motorcycle riders and passengers at a tertiary care hospital in north-western Tanzania</p>	<p>Motorcycle helmets have been reported to reduce the risk of death and head injuries following motorcycle accidents. The aim of this descriptive prospective study was to determine the injury outcome among helmeted and non-helmeted motorcyclists and passengers at a tertiary hospital in north-western Tanzania. A total of 654 patients involved in the motorcycle accident were studied. Of these, 468 (71.6%) were motorcyclists (riders) and the remaining 186 (28.4%) were passengers. The median age of patients at presentation was 26 years. Male outnumbered females by a ratio of 4.5: 1. Helmet use was reported in 312 (47.7%) patients. Non-helmeted patients were young compared with helmeted patients and this was statistically significant (p=0.021). The rate of helmet use was significantly higher among motorcyclists than among passengers (p=0.004). History of alcohol consumption prior to the accident was reported in 212 (32.4%) patients. The rate of helmet use was significantly low among alcohol consumers compared with non-alcohol consumers (p=0.011). Lack of helmet use was significantly associated with abnormal head Computed Tomography scans, admission to the Intensive care unit, severe trauma, and worse traumatic brain injury severity (p&lt;0.001). Helmet use was significantly associated with shorter period of hospitalisation and reduced mortality rate (p&lt;0.001). Motorcycle helmet use is still low in this part of Tanzania and this poses a great impact on injury outcome among motorcycle injury patients. This observation calls for action to implement more widespread injury prevention and helmet safety education and advocacy.</p>
<p>NKEDE NJIE, L. 2014. Master’s Thesis. The socio-cultural impact of the introduction of motorbike taxis in the rural community of Tombel, South West region, Cameroon</p>	<p>“The socio-cultural impact of the introduction of motorbike taxis in the rural community of Tombel, South West region, Cameroon” seeks to bring out the impact of commercial motorbike taxis on the lifestyle of the Bakossi. The principal objective of this research is to show how the introduction of motorbike taxis has modified the lifestyle of the Tombel population. This anthropological research defines the profile of a motorbike taxi rider, his role in society, the perception of the population towards this activity and the impact of this activity on the lifestyle of the rural population of Tombel. This study reveals that motorbike taxi riders are essentially made up of youths from all works of life who earn a living by riding a motorbike taxi on a daily bases for commercial purposes. The revenue earn here goes a long way to sustain the livelihood of the rider and his entourage, becoming an ascension tool into the social ladder. The activity is very dangerous not only for the riders but also for the passengers because of the risks involved in riding for most of the riders do not have the basic knowledge of the road code. This research also reveals that motorbike taxi has become the preferred means of public transport of most inhabitants of Tombel to the point of monopolising certain destinations. The population of Tombel perceives this activity as an instrument of change that has brought development and progress. But this activity also constitutes a social ill because of the prevalent sexual promiscuity encouraged by the riders. This activity has also gotten a cultural impact on the society, changing perceptions and being involve in rituals. Motorbike taxis have become a force to reckon with in the organisation of the community. They are a “response from below” to the transport crises in Cameroon.</p>
<p>Doherty, J. 2017. Life (and limb) in the fast-lane: disposable people as infrastructure in Kampala’s boda boda industry</p>	<p>Motorcycle taxis, dubbed boda boda, constitute a vital aspect of Kampala’s transportation infrastructure, yet the industry is perpetually precarious, threatened with wholesale eviction. Moreover, drivers’ lives and bodies are continually put at risk by the city’s traffic. Through a relational approach to ontology, this article asks how the boda boda industry comes into being and endures, what forms of vulnerability it entails, and what experiences, relations, and forms of urban life it produces. It argues that three forms disposability structure and arise from the industry – structural unemployment, embodied vulnerability, and infrastructural displacement. Infrastructural violence, it is argued, must be considered when describing and theorising people as infrastructure. The article examines how boda boda drivers’ shared condition of insecurity and disposability generates intense forms of sociality, solidarity, mutual obligation, recognition, and urban vitality.</p>

<p>Uteng, Tanu Priya. 2012. Gender and Mobility in the Developing World</p>	<p>'Access' is primarily a gendered phenomenon in the developing countries, pertaining to all the subsets of access, i.e. access to information, rights, land, money, education, skills, political participation and voice. It thus becomes incumbent upon the policy makers and development practitioners to shred down the details of these 'constrained accesses' to truly empower women. This study highlights the ways in which constrained (daily) mobility i.e. the element of physical access to different facilities bears upon the issue of women empowerment. Rather than being a singular function of transport provision, the daily mobility of women in developing countries is guided by a set of complex hierarchies. This study contends that the following elements, though not exhaustive in nature, are highly influential in gendering of mobility in the present times: prevalent social/cultural norms, transport infrastructure, physical/area planning, effects of globalisation, governance (women's presence and participation in informal sector and micro-credit schemes), pre and post disaster/conflict rehabilitation process and access to information and communication technologies (ICTs). Although the study is primarily a review of recent academic and policy-oriented literature, the core idea has been to salvage the theme of 'women and transport' from the narrow confines of transport-related understanding and highlight that 'mobility' is a multi-faceted phenomenon and bears significant impact on the overarching aim of women empowerment.</p>
<p>NASONG'O, W. 2015. Master's Thesis MOTORCYCLE PUBLIC TRANSPORT SERVICES IN KENYA:A study of their Compliance with Road Safety Regulations in Kitale Municipality</p>	<p>The study was conducted in Kitale Municipality to determine the level of compliance with road safety regulations among public motorcycle transport operators. The research study had three objectives. The first objective was to find out the characteristics of public motorcycle operators second, determine their level of awareness of government policy and regulations and the third to examine their level of compliance to road safety regulations. The study was informed by two theories namely; rational choice theory and systems theory. The study was conducted using descriptive survey, employing both quantitative and qualitative approaches to source, process and analyze data. Data was collected using a set of questionnaire for public motorcycle operators and interview guide for key informants (see annexes I, II &amp; III).Quantitative data was analyzed using statistical package for social sciences (SPSS) while qualitative data was analyzed using thematic categorisation and narrations.</p>
<p>RUGUT, J. 2015. Determinants influencing performance of alternative public transport in Kenya: a case of motor cycle transport, Nakuru county</p>	<p>Alternative means of transport referred to as boda boda has been widely adopted in the developing countries as an alternative to the conventional buses and minibuses and as development from the non-motorised two wheeler bicycles. In Kenya the industry thrived significantly after the zero rating of motorcycles below 150cc by the government in 2007. The broad objectives were to enhance transport and provide employment to the youth through the creation of transport enterprises. However, developments in the industry have revealed a myriad of negative incidences of fatal accidents leading to loss of lives and property including the motorcycles themselves which raises questions on the economic viability of the venture. This study therefore was designed to establish the determinants of successful implementation of motorcycle transport business. The specific objectives of the study were: to establish the effect of education and training on the performance of motorcycle transport business; to determine the effects of compliance to government regulations on performance of motorcycle transport business; to establish the effects of access to business support services on performance of motorcycle transport business and to find out the effects of entrepreneurial orientation on performance of motorcycle transport business. The study was conducted in Bahati Town among boda boda operators. The study adopted descriptive design to explain the interaction between the determinant variables and performance of motorcycle transport businesses. A sample of 77 motorcycle boda boda operators was selected from the population in Bahati Town using systematic random sampling technique. The study relied on primary data obtained from boda boda operators using questionnaires. After all the data was collected, the researcher conducted coding and data cleaning and analyzed using descriptive statistics such as frequency counts, percentages, mean, mode and standard deviation. Multiple regression analysis was then used to determine the relation between predictor variables (determinant factors) and the dependent variable (performance of motorcycle boda boda businesses). The analysis showed that training and entrepreneurial orientation had the positive (Pearson correlation coefficient =.471 and .419) and significantly influenced performance of alternative public transport. In addition, compliance with government regulations and enterprise</p>

	<p>transport support services (Pearson correlation coefficient = .098 and .419) did not significantly influence performance of alternative public transport. The study revealed that the two most significant determinants of performance of boda boda businesses were the training and the entrepreneurial orientation. Therefore the study recommends for training and increase support services for boda boda operators should not only focus on the technical and business management skills of operators but also on developing their entrepreneurial orientation as a strategy to enhance best practice, performance and growth in the sector.</p>
<p>Karema, F. 2017. Role of commercial motorcycles in promoting agricultural production in Kenya: a case study of Laikipia east sub-county.</p>	<p>In the rural areas of many developing countries, intermediate means of transport (ITMs) such as motorcycles play a leading role in agricultural production. The main objective of this study was: to examine the contribution of commercial motorcycles in agricultural production in Laikipia East Sub-County in Kenya. The hypothesis tested was “there is no significant difference between adoption of motorcycles and agricultural production in Laikipia East Sub-County”. Questionnaire survey was administered to 66 respondents. Thorough literature search and review as well as field observations were used. Data was analysed using both descriptive and inferential statistics. Descriptive analysis included frequency counts, tables, bar graphs, pie-charts and percentages. The major findings were: (i) there was a statistical significance in the difference between promotion of agriculture and commercial motorcycles’ trips in Laikipia East Sub-County. Since the calculated value of <math>\chi^2</math> was greater than the critical <math>\chi^2</math>, the null hypothesis was rejected and therefore a conclusion was made that promotion of agriculture was dependent on commercial Motorcycles’ trips in Laikipia East Sub-County; (ii) the study also found out that commercial motorcycle contributes 10% towards agricultural production in Laikipia East Sub-County, and that key activities which had come up as a result of commercial motorcycle operation generated gainful employment. The study recommended that the county government should construct feeder roads in order to encourage the introduction and operation of more motorcycles.</p>
<p>Obey, J. (N.D) Establishing possible risk factors associated with motorcycle use and safety between Baraton and Chepterit, Nandi county, Kenya</p>	<p>Risk factors associated with motorcycle (boda-boda) safety is significant in contributing to the health risks of disease in Kenya. These risk factors are important to the health status of the drivers and passengers and families of both as well as to the society at large. The aim of this study is to determine some factors associated with road safety use by motorcyclists between Baraton and Chepterit, Nandi County, Kenya. The data obtained from this study was collected by observational studies at Baraton and Chepterit locations of Nandi County, Kenya. It focused on the use of helmets and reflective clothing by motorcyclists and passengers. Some other factors were established as possible risks to the safety of motorcycle users in the study area. It was observed during the study period that overall, 80% of motorcyclists wore helmets and 21% wore reflective clothing. Only 1.33% of the passengers wore helmets. No passenger was observed to wear reflective clothing during the study. Results also showed that 82% of the motorcycle drivers had no licence or public service (PSV) insurance coverage. Promotion of helmet and reflective clothing use between Baraton and Chepterit will decrease the risk of head injuries, disease, and death obtained from motorcycle crash. The study proposes that there be education for local motorcycle users on the safe use of roads. It also suggests that the laws governing the use of helmets and reflective clothing by motorcyclists be enforced and given more focus.</p>

<p>Chepngetich, E. 2016. Determinants of boda boda accidents in Bomet county. A social determinant perspective.</p>	<p>Road traffic injuries have become a major problem to public health not only in developing countries but in the world at large. Increase in motorcycle and related accidents in the recent years are attributed to joblessness since most youths venture into motorcycle business due to lack of white collar jobs. Despite government intervention in setting and enforcing laws to govern motorcycle riding in Kenya the rate of motorcycle accidents is still alarming. The objective of the study was to establish the social determinants of motorcycle accidents. The data was collected in three places in Bomet County where questionnaires were administered to commercial motorcycle riders who were selected by simple random sampling. The study found out that majority of the riders were youths who have just completed high school. 59.1% of the riders were aged 25 years and below and 59.65% had their highest level of education being secondary education. The study found out that majority of the riders lacked formal training. Only 23.39% went for authorised training institutions. Those who were trained by friends and relatives were 51.46% and 23.98% respectively. Majority of the operators involved in accidents have less than two years of experience on the road. Only 35.09% have been on the road for more than two years, the rest 64.91% have less than 2 years of experience. The results showed a significant statistical relationship (<math>p &lt; 0.05</math>) between road structure and accidents in Bomet County. Accidents mostly occur in footpaths and murrum roads which have not been constructed well. There was also a significant statistical relationship (<math>p &lt; 0.05</math>) between speed and road accidents in Bomet County. The results showed that most accidents which happen in the county are due to lack of training, experience, over speeding and bad roads. The government should organise continuous training for the new entrants and the experienced riders to constantly keep them informed of the current road safety measures. The government should also deploy disciplined and trained officers on road safety to help curb the vices of motorcycle riders on the road</p>
<p>Diaz Olvera, L. 2010. Presentation Paper. Motorised Two-Wheelers in Sub-Saharan African Cities: Public and Private Use</p>	<p>In a number of Sub-Saharan African cities, motorised two-wheelers, which are traditionally intended for private use, have been appropriated for a commercial activity, the motorbike taxi. The aim of this paper is twofold: first, to determine the conditions which have made it possible for motorised two-wheelers to become a major public transport mode; second, to highlight the roles of motorised two-wheelers in daily travel, whether they are used as a personal or public transport mode. Our analysis is based on empirical material gathered in quantitative and qualitative surveys in Niamey and Douala. The commercial use of motorised two-wheelers can be explained by the combination of three factors: shortage of transport supply, availability of factors of production and deficiencies in the regulatory framework and the enforcement of regulations. Whether used as a private vehicle or a taxi, motorbikes widen access to motorised modes, in terms of both users and travel. In Niamey, the users of private motorbikes are mainly young male middle-income earners, while in Douala the clientele of motorbike taxis consists of young working poor. The boom in the use of motorbike taxis is also due to the fact that they meet travel needs not satisfied by the other public transport modes, i.e. trips or segments of trips that are simultaneously too long to be made on foot and too short to represent a profitable market for other public transport modes. In both cities, attitudes towards personal and commercial motorbikes vacillate between prizing the flexibility of usage and rejecting its dangers. The most pressing needs for research into motorbikes, particularly taxis, relate to environmental, social and public health issues, with a view to improving regulation of the activity.</p>
<p>Ezeibe, C. Work on wheels: collective organising of motorcycle taxis in Nigerian cities</p>	<p>This article examines the political economy of collective organising in the motorcycle taxi economy of Nigerian cities. Using the mixed-methods approach, this study demonstrates the nature and problems of collective organising in the motorcycle taxi economy. It notes that implementation of a neo-liberal development policy in Nigeria in the 1980s gave rise to job losses and catalysed the creation of a motorcycle taxi sub-system as a livelihood. While collective organising in the motorcycle taxi sub-system is sometimes exploited to advance the ambition of some politicians, the informal economy is often paradoxically victimised through the initiation and implementation of hostile urban policies, such as banning motorcycle taxis, soon after electoral mandates are secured. This paper, however, argues that despite the challenges, collective organising represents a struggle to influence urban policy and could present an opportunity for a new form of engagement between the state and the informal economy in development policy and urban governance.</p>

<p>Porter, G. 2014. Transport Services and Their Impact on Poverty and Growth in Rural Sub-Saharan Africa: A Review of Recent Research and Future Research Needs</p>	<p>This paper reviews recent transport services research in rural sub-Saharan Africa, with reference to the crucial significance of transport services for reducing poverty and encouraging growth. It focuses on issues key to improved well-being: generation of direct employment, broader economic effects on agricultural and off-farm activities, and social effects regarding health and education. Throughout, the emphasis is on implications for vulnerable groups. Attention is drawn to the potential of recent developments, notably connectivities associated with motorcycle taxis and the rapid expansion of mobile phones. Significant knowledge gaps in the transport services arena are identified, from impacts of climate change, conflict and pedestrian portorage to the economic valuation of transport, village transport operations and road safety. Suggestions are made regarding the type of studies and methods which could help to reduce some of these gaps.</p>
<p>Diaz Olvera, L. 2013. The motorbike taxis in Lomé: Who earns what?</p>	<p>Motorbike taxis have become a major public transport mode in a number of cities in Sub-Saharan Africa. This paper examines the economic performance of motorbike taxi operators with data from a motorbike drivers survey conducted in Lomé (Togo) in 2012. According to their status in relation to the vehicle ownership, there are four main groups: drivers who own the motorbike, “work and pay” drivers, drivers who rent the motorbike from someone else and motorbike owners who do not operate the vehicle themselves and contract it to drivers in a “work and pay” scheme or a simple rental agreement. To undertake our analyses we estimate revenues, the main operating costs, the added value and cash flows. Results show that the amount of added value depends on the operating characteristics (e.g. night-time activity, number of working hours, another professional activity) and the length of service as motorbike taxi operator. The results of this empirical research provide useful inputs for policymakers for the assessment of the economic functioning of motorbike taxis systems in Sub-Saharan Africa.</p>
<p>Taruwera, Y. 2015. Determinants of Passenger Capacity Compliance among Commercial Motorcyclists in Kwara State Nigeria</p>	<p>Commercial motorcyclists often violate road traffic regulations where they operate. The traffic offences they commit include, but are not limited to carrying more than one passenger per trip, which is above the passenger capacity of a motorcycle as provided by law. The objective of this study is to examine the determinants of passenger capacity compliance among commercial motorcyclists in Kwara State, Nigeria. This study studied 1,178 randomly selected motorcyclists across the rural-urban divide of Kwara State. Logistic regression models were used as the tool for data analysis. Statistics showed that 62.19 percent of the motorcyclists operate on full-time basis while the rest operate on part-time basis. About 68 percent of the motorcyclists operate without a valid driver’s licence. It was found that only 25 percent of the motorcyclists comply with the regulation of carrying one passenger per trip.. The rate of compliance with the passenger capacity regulation stood at 38.3 percent for the urban areas while that of rural areas was estimated at 13.8 percent. The regression results revealed that licence holding, operation mode, age, location, education, and earnings are factors that determine compliance with the passenger capacity regulation among commercial motorcyclists in Kwara State. The study recommends that traffic law enforcement agents should educate commercial motorcyclists on road safety issues and also enforce compliance.</p>
<p>Venter, C. 2014. Supply and pricing strategies of informal rural transport providers</p>	<p>Informal para-transit operators using a range of vehicle types (including pickup trucks, small buses, and motorcycles) are a major provider of mobility in rural areas of the developing world. The paper describes a mixed method approach used to examine such operators’ decisions about vehicle deployment, route frequency, network organisation, and pricing in three rural districts in South Africa. New evidence is presented showing that the condition of rural roads (both paved and unpaved) affects the quantity and quality of public transport services provided, as well as the fares charged to passengers. This strengthens the case for judicious infrastructure investment as a way of improving rural access and livelihoods, and suggests how this might happen by way of leveraging better private sector responses. We also describe the emergence of a differentiated service hierarchy involving a variety of vehicle types suited to different operating conditions, and based on intentional coordination among operators of minibus and pickup truck (‘bakkie’) services. We argue that governments should promote such coordination and innovation in rural transport markets.</p>



<p>Starkey, P. 2010. AFCAP PRACTITIONERS CONFERENCE. Improving sustainable rural transport services: constraints, opportunities and research needs</p>	<p>Roads are not enough. People need rural transport services to access services and livelihoods. Governments are not adequately stimulating passenger and freight service development in rural areas. Services include buses, minibuses, trucks, pickups and intermediate means of transport (bicycles, motorcycles, three wheelers and animal power). Communities need safe, reliable, predictable and affordable transport services. Transport appraisal studies highlighted problems of low fleet investment, unreliable services and poor governance, with clear gender implications. Intermediate means of transport are increasingly important with new roles for motorcycles and three wheelers but challenging times for animal power. Climate change will affect services. New indicators are needed to measure the impact of road improvement and recommended initiatives on rural transport services.</p>
<p>NYACHIEO, G. 2015. Socio-cultural and economic determinants of boda boda Motorcycle transport safety in Kisumu County, Kenya.</p>	<p>Road safety remains one of the main societal concerns despite extensive research and interventions. It is a serious challenge in Kenya and the world over. The emergence of boda boda motorcycles as a means of transport in the village paths, the highways and city streets has brought a new dimension to road safety in Kenya. Motorcycle transport, though the most dangerous mode of transport, is still preferred by many because of its availability and flexibility. Although motorcycle safety has been a concern; only a few sociological studies have been conducted in Kenya to address the challenge. Motorcycle accidents pose a threat to the structure and functioning of the society. The study was conducted in Kisumu East sub-county in Kisumu county and sought to examine the socio-cultural and economic determinants of motorcycle transport safety. Specifically, the study sought to gather information on the demographic characteristics of riders in Kisumu East sub-county; to establish the levels of formal rider training among boda boda riders; to determine the levels of safety knowledge among boda boda riders; to determine boda boda motorcycle accidents rates in Kisumu East sub-county, to evaluate the attitudes and behaviour of boda boda motorcycle riders in Kisumu East sub-county; to establish whether pillion sitting style on boda boda influenced motorcycle safety and to establish whether there was a relationship between motorcycle ownership and boda boda safety.</p>
<p>Okebiro, G. 2016. Motorcycle (Boda-Boda) as Emerging Business for the Poor in Transport Industry and Sustainable Development in Modern Kenya</p>	<p>Motorcycle business known as “Boda-boda” eased transportation problem of connecting urban and rural areas in Kenya. “Boda-boda” originated early 1990s from Uganda through Busia town in western Kenya and spread to adjacent towns, subsequently other towns and all towns currently are crowded with Boda-boda in Kenya. Initially bicycles were used as means of transportation in plains but as the introduction of motorcycle had afforded prices, businessmen shifted and used them and are easy to maintain. It is booming, since it is readily available in urban and rural areas and people always transport goods to and fro and uses paths instead of roads given that feeder roads in Kenya are impassable during rainy seasons. The problems of boda-boda riders cause accidents in Kenya highways and traffic jams in towns, yet it is a source of livelihood for the unemployed graduates and sustainable development. The objective is to investigate whether motorcycle riders acquire licence through training before transporting goods and people, and study the strategy to be used to minimise frequency of accidents without affecting the business. Interview method will be used to collect data from riders in five towns in Kenya through purposive random sample to represent the forty seven towns in the counties. Analyzed data will be presented through graphs and tables. The key finding is although boda-boda cause accidents, it is a key source of employment today, leading to socio-economic, structural and human resource sustainability, as a consequence of national development in Kenya. It is recommended traffic laws be enforced to enable it flourish.</p>
<p>Kakembo, E. 2010. Makerere University. The boda boda transport system and the welfare of the operations in the Kampala Central Division.</p>	<p>Boda boda transport services have grown from small beginnings in the 1960s to now an approximately 30,000 just in the Central Business District (CBD) of Kampala. Unfortunately, although the industry is expanding, there is no evidence or documentation on the effect of boda boda on the welfare of its operators and society. This study sought to explore effects of boda boda transport industry on the wellbeing of operators and society in Kampala Central Division. A case study design was adopted combining both qualitative and quantitative methods. Carried out in Kampala Central Division (KCD), data was collected from boda boda operators, management officials and the users, using In-depth interviews, questionnaires and focus group discussions. Data was also collected from Kigali, just to understand and compare the Rwanda situation with and the chaos in Uganda. The boda boda business has clearly contributed to the economic and social wellbeing of operators in</p>

	<p>mainly creation of jobs and hence a significant source of livelihood. The members and the associations take care of the welfare of the operators in times of emergencies [such as] attending to a sick operator, loss of job or paying damages should an operator plunge into an accident Other contributions were: 1) assistance in formation association 2) increased level of savings; 3) level of access to loan able funds very high and 4) assistance to open up bank account very low. There are mixed views about the social relationship between the operators and public (users), but, overall, boda boda' is commended for contributing to transport sector e.g by providing a convenient, flexible, affordable and quick means of movement to people and goods. The complaints raised by the public were about the age of boda boda operators said to be young inexperienced boys, who ride recklessly with no driving licence and don't follow regulations. Other complaints were that there were too many boda boda in town and that their numbers needed to be regulated. Both the operators and users had fears of theft and murder while using boda boda.</p> <p>Furthermore, the police complained of lack of appropriate structures to ensure enforcement of laws. The study shows that policies, laws and regulations to ensure safety, health, and security, to control traffic, revenue and discipline exist. Some of these have to do with registration, taxation and mandatory use of helmets for both operators and passengers. However, unlike in Rwanda, enforcement is inadequate and is worsened by political interference leading to resistance of many relevant policies. . In conclusion, boda boda are popular to both the operators and the users. Both operators and users acknowledged the risky nature of business but applauded its importance to survival and quick movement. In recognition of the proliferation and popularity of boda boda and the risks involved, the study recommends that: 1): There should be enforcement of policies and regulations; 2) political patronage and interference should be minimised and 3) authorities should come up with a policy aimed at limiting age of motorcycles coming in the country and number of boda boda in the city centre.</p>
<p>MWOBOBIA, B. 2011. Critical success factors in the motorcycle boda boda business in Nairobi, Kenya</p>	<p>This study sought to identify critical success factors in the motorcycle boda boda business operators in Nairobi, Kenya. A cross-sectional survey design was used to enable the researcher gather relevant data for this academic undertaking. The target respondents included all operators of boda boda in the 4 region of Nairobi identified by the researcher. Cluster sampling was applied in drawing the sample size of 100 respondents. The structured questionnaires were used to collect the primary data where the respondent rate was 75 % which was considered adequate for the study. The analysis of data was by use of descriptive statistics and the results were presented in charts, graphs and tables. The findings were that amongst the highly rated critical success factors in the motor cycle boda boda business is convenience with a mean score of 4.37 followed by flexibility, accessibility and reliability with mean of 3.88 and then followed by the call for job creation by the government at a mean score of 3.76.</p>
<p>Ch Ng, Sin Yi, 2016. Rethinking Sustainable Mobility: Understanding the use of boda-boda motorcycle taxis in Kampala, Uganda</p>	<p>Cities in Sub-Saharan Africa are characterised by informal transportation services compensating for the lack of institutionalised transportation system. In Kampala, Uganda, the vast army of boda-boda (boda) motorcycle taxis have proliferated through the city, with passengers and/or cargo goods straddled behind the boda drivers as they navigate through the city's congested and dilapidated roads. Despite the strong presence of informal transport in developing cities, local governments often regulate against them as they do not fit the desired modern image. Against this backdrop, the dynamics of the system, perception and needs of the users themselves are neglected and unknown. Therefore, this study aims to identify the role of informal mobility in the sustainable urban landscape by investigating the boda sector in Kampala from the users' (i.e. passengers and cargo) lens. Qualitative Geographical Information System (GIS) as a mixed-methods approach was adopted for the research, explicitly: GIS analysis, questionnaire surveys, interviews, and unstructured observations. The study develops understanding of the boda demand – travel patterns, trip purposes, profiles, perceptions, and aspirations of the boda users. Visual representations and findings are discussed vis-à-vis the sustainable mobility dimensions. The study finds that the boda physical attributes influence the types of market served including service areas and users. More importantly, the boda market morphs according to the city's prevailing activities throughout the day, signifying how boda are woven into the urbanites' life and the city itself. This is more distinctive for lower income groups, working population, and areas with high formal and informal</p>



	<p>economic activities. Nonetheless, the high social costs resulting from unprofessional driving and high accident rates should justify intervention by formal and informal institutions. Overall, this study identifies the complementary role of the boda system and advocate for its integration into the public transport system through three transition pathways, namely improvement, complementary planning, and institutional reform. This analysis suggests that the informal mobility system and users should be engaged in changing the negative narratives of the sector and working towards sustainable urban mobility and development.</p>
<p>Starkey, P., Ellis, S., Hine, J. &amp; Ternell, A. World Bank. Improving Rural Mobility. Options for Developing Motorised and Non-motorised Transport in Rural Areas</p>	<p>Many inhabitants of rural areas in developing countries lack adequate and affordable access to transport infrastructure and services. Improving rural people's access to essential services requires better mobility through transport infrastructure and services as well as the location, price, and quality of facilities. This report focuses on improving rural mobility by facilitating the provision of affordable means of transport and transport services. To deliver significant economic and social benefits, investment in transport must take an integrated approach. Rather than focusing solely on expanding road networks, it should also pay attention to smaller roads, paths, and tracks; the use of private and commercial means of transport; and the importance of transport hubs and markets. Transport planners need to take a holistic approach that involves all stakeholders in a participatory process of assessing needs within a clear policy framework based on the interdependence and complementarity of different means of transport. In addition, favourable policies and operating environments can enable the private sector and nongovernmental organisations to play important roles in new initiatives. Pilots can be used to promote lower technology, intermediate means of transport. The needs of women and disadvantaged groups should be considered during planning. Monitoring and evaluation involving stakeholders are also important.</p>
<p>Raynor, J. 2016. Thesis "Informal Transportation and Associations: A Case Study of the Boda Boda"</p>	<p>In my time studying the informal sector, I had come to understand that enterprises in developing countries operating outside of the formal, government regulated economy with unprotected labour relationships were defined as informal. Yet, in the United States, a developed economy, a form of public transportation had emerged in the form of Uber that resembled informal transportation, but was not being addressed as such. In scholarship, there is a tendency to label an enterprise as informal only if it operates within a developing country. With this tendency comes the danger of approaching informal enterprises and the ways in which they organise into associations as though they are undeveloped and inherently inferior to those considered to be more formal.</p> <p>In this paper, I attempt to challenge efforts of past scholarship to define the informal and the formal, particularly with respect to the ways in which informal organisation occurs, through the use of my case study of motorcycle taxis in Uganda. Motorcycle taxis have been described as a double-edge sword: they are a necessity as they currently fill a gap in public transport and fulfil an abundance of other roles within their communities, but they do so at a high risk to riders, passengers, and other road users. While their role in urban transport may become more peripheral over time with the eventual introduction of mass transit systems, the operators will undoubtedly continue to be essential in more remote communities.</p>
<p>Matheka, D. 2015. Road traffic injuries in Kenya: a survey of commercial motorcycle drivers</p>	<p>Motorcycle injuries contribute a substantial number of deaths and hospital admissions in Kenya. There is paucity of data to inform prevention strategies to address the issue. Therefore, the current study sought to explore the characteristics of 2 and 3-wheeler related road traffic injuries (RTIs) in Kenya. Methods: A cross-sectional survey of motorcycle drivers involved in a RTI in the preceding 3 months was conducted in 11 urban and rural sites in Kenya's Thika town through face-to-face structured interviews. Drivers' demographic information, comprehensive crash characteristics and socioeconomic impact of injury data were collected. Results: Of 200 drivers injured, 98% were male, with average age of 28.4 years (SD±6.6). Of these drivers, 33% were not wearing any protective equipment. Negligence was the most reported cause of crash (33%), followed by slippery roads (21.0%) and speeding (17.5%). The risk of sustaining a bodily injury was 1.3 times higher in drivers who had not received prevention education compared to those who had received such education. People injured at night were 5 times more likely to sustain a bodily injury compared to those injured during the day. Only 8.5% of the drivers reported the injury incident to the police. Conclusion: Majority of motorcycle related</p>

	<p>injuries in Thika town occur among young, productive, working-age male drivers. A high proportion of injuries are due to negligence on riding while not wearing any protective equipment compounded by lack of injury prevention education. Initiatives to foster helmet wearing, provision of high-quality affordable helmets, responsible driving and advocacy for stronger legislation, are recommended.</p>
<p>Mutatina, B. 2017. Helmet use in motorcycle taxi operators in Kampala, Uganda</p>	<p>The use of motorcycles for commercial transport of passengers (motorcycle taxis) is a growing industry in Uganda. Current observations indicate poor compliance with the motorcycle helmet law by riders. To address this concern, a motorcycle helmet campaign was initiated in Kampala, Uganda. The first step of this campaign was to establish the prevalence of helmet use and reasons for non-use among motorcycle taxi operators (ie boda boda riders) in order to inform campaign activities.</p>
<p>Diaz Olvera, L. 2016. Earning a living, but at what price? Being a motorcycle taxi driver in a Sub-Saharan African city</p>	<p>Motorcycle taxis have become an essential part of the transport sector in an increasing number of Sub-Saharan African cities. An analysis of the way this activity operates in Lomé (Togo), based on field surveys, provides a better understanding of the reasons for the development of this transport mode. The majority of drivers earn enough from the activity to meet their day to day needs and to invest to increase human and economic capital. The arduous working conditions, the impacts on health and the risk of accidents and aggression explain however why the activity is perceived as temporary and undertaken for want of anything better. There is a need to identify measures to professionalise the occupation and improve its image, and also find the best way to implement them. The occasionally stated goal of doing away with motorcycle taxis in order to modernise urban transport systems would have negative effects on their livelihoods.</p>
<p>Starkey, P. 2016. The benefits and challenges of increasing motorcycle use for rural access</p>	<p>In many countries in Africa, Asia and Latin America, most vehicles on low-volume rural roads are now motorcycles. In ten years, motorcycles in Tanzania increased from under 10,000 to 800,000. In Cameroun, Ghana, Kenya, Nigeria, Rwanda, Sierra Leone and Tanzania motorcycle taxi services have developed and spread rapidly, often becoming an essential part of rural living. Motorcycle taxis operate in the informal private sector. Their spontaneous spread has had little regulatory control. They provide many benefits. Travelling on tracks and footpaths, motorcycle taxis effectively extend the reach of roads as villagers can request the motorcycle taxis using mobile phones. Where there is no alternative means of transport, even pregnant women and sick people praise the access provided by motorcycle taxis. On some rural roads, 70-80% or more of the annual passenger transport and goods transport is now provided by motorcycle taxis. However, this is expensive, as the cost per passenger-kilometre and per tonne-kilometre of motorcycle services is much higher than the cost of 'conventional' transport (buses, minibuses and light trucks). Motorcycle taxis provide employment and their profitable operation allows private financing. Regulatory frameworks and enforcement are often weak. Many motorcycles operate without regulatory or fiscal compliance and may carry excessive loads. Road traffic injuries are high, often due to poor driver behaviour. Few driver training services exist. Poor regulatory compliance fuels petty corruption. Motorcycle operator associations can improved standards and safety through self-regulation. There is a need for research and greater understanding of appropriate ways to effectively regulate (and self-regulate) motorcycle operators for improved safety and ensuring the benefits of improved access are shared by all rural people.</p>
<p>Arosanyin, G. 2010. Earnings from commercial motorcycle operations in Ilorin, Nigeria: A Study on Determinants</p>	<p>The use of motorcycles for urban passenger transport in Nigeria popularly called okada is a source of employment and earnings to operators. Studies have attested to this but no attempt has been made to empirically examine the determinants of earnings in this informal transport operation in Nigeria. This paper, using human capital earning function analysis, shows that apart from the core determinant, which is patronage index, others such as experience, mode of work, ownership status and number plates were found to be significant determinants of earnings in commercial motorcycle transport. Formal education was found not to be a significant variable, which further confirms the fact that in some activities in the informal sector, formal education does not affect earnings. The core determinant i.e. patronage index explained over 75 percent of the variations in earnings. Therefore for earnings to be improved upon, constraints to the patronage index must be addressed. These constraints, which require attention, are bad roads, police extortion, high running costs and harassment from other motorised traffic.</p>

<p>Olumide, A. 2015. Young Age as a Predictor of Poor Road Safety Practices of Commercial Motorcyclists in Oyo State, Nigeria</p>	<p>This study examined the association between young age and poor road safety practices of commercial motorcyclists in Oyo state, Nigeria. A cross-sectional study of 371 commercial motorcyclists selected via a multistage sampling technique was conducted. Information on socio-demographic characteristics and road safety practices (possession of a valid licence, helmet use, number of passengers carried per trip, and compliance with 10 selected traffic signs) was obtained with the aid of an interviewer-administered questionnaire. Individual road safety practice items were scored and a total score was obtained giving minimum and maximum obtainable scores of 0 and 35. Respondents with scores <math>\leq 17.5</math> (i.e., less than or equal to half of the maximum obtainable score of 35) were categorised as having poor road safety practices. Descriptive statistics, chi-square, and multiple logistic regression tests were conducted. Selected socio-demographic and occupation-related factors were controlled for in the logistic regression analysis. Most studies conduct only bivariate analysis to test the association between age and road practices of commercial motorcyclists; however, we investigated the influence of potential confounding variables using multivariate analysis. Our findings confirmed young age as a predictor of poor road safety practices among our sample of commercial motorcyclists and emphasises the need for road safety programs to target this category of riders. The current minimum age for obtaining a rider's licence in Nigeria is 18 years; our findings suggest that it might be beneficial to increase the age at which riders in our study area can obtain a commercial rider's licence to above 25 years.</p>
<p>Peters, D. 2002. Gender and Transport in Less Developed Countries: A Background Paper in Preparation for CSD-9</p>	<p>Few developing country research and development projects have adequately accounted for the intersection of gender, transport and mobility. This paper brings together recent evidence from rural and urban transport case studies in less developed countries. Women's disadvantaged position in transport systems is apparent throughout. However, rather than simply use the studies to confirm general trends, this paper highlights both similarities and differences in women's experiences in order to stress the need for locally-adapted gender-sensitive transport strategies. Once this local dimension is brought back in, "giving voice" to women in transport planning and practice does not have to remain a lofty theoretical principle. Crucial, practical advances can be made by improving the quality of household and user surveys and by collecting all data in a sex-disaggregated manner. These efforts should be complemented by comprehensive, locally-targeted gender analyses and action plans. Depending on local context, the provision of special transit services to women may be an appropriate intervention, but should not be seen as a permanent solution.</p>
<p>Njenga, P. 2010. Drawing the road map to rural poverty reduction</p>	<p>This paper provides a synopsis of rural transport issues in developing countries and the way in which rural transport can contribute to poverty reduction and the Millennium Development Goals. It begins with an historical overview of the transport sector in the context of rural development, and continues with a summary of the transport needs and constraints of different stakeholders and vulnerable groups. Key transport interventions that address access problems through the development of road infrastructure, transport services and intermediate means of transport are also described, and the paper concludes with a dialogue on the implications for poverty reduction, and recommendations for future research.</p>
<p>Diaz Olvera, L. 2012. Motorbike taxis in the "transport crisis" of West and Central African cities</p>	<p>While the urban motorbike taxi is a relative newcomer, its rural ancestor, the bicycle taxi already existed as far back as the 1930s in the Senegalese city of Kaolack (Morice, 1981) and the 1960s in Kenya, Uganda and Benin where it was used to carry both people and goods (Malmberg-Calvo, 1994; Tossou, 1993). Motorbike taxis appeared in Nigeria in the 1970s (Oyesiku, 2001) but their true rise seems to have started in the mid-1980s in Niger, Cameroon, Togo, Benin, Uganda and Kenya<sup>2</sup> as a development from the bicycle taxi (Agossou, 2004; Howe, Maunder, 2004; Mutiso, Behrens, 2011). While the motorbike taxi is very popular in Uganda and Kenya under the name of boda-boda, its use has above all developed in West and Central Africa under a variety of different local names: zemidjan in Benin and Togo, bendskin in Cameroon, kabu-kabu in Niger, okada or alalok in Nigeria, oleyia in Togo (Agossou, 2004; Guézéré, 2008; Ngabmen et al., 2000; Dille, 2002; Mahlstein, 2009; Oyesiku, 2001; Malmberg-Calvo, 1994; Segbor, 1998).</p>
<p>Gamberini, G. 2014. Boda Boda: The Impact of Motorbike Taxi Service in Rural Uganda</p>	<p>This study aims to provide relevant insights into how the transport service offered by the "Boda Boda" can ensure a better integration between the rural villages' economies and the Southern Ugandan economic network, thus promoting the improvement of the rural citizens' welfare. The analysis of the socio economic realities of the area and the evaluation of the research objectives rely on the</p>

	<p>collection of data from three sources.</p> <p>The first source is a baseline long form questionnaire administered to 148 citizens of the village of Kigarama. A second baseline long form questionnaire was administered to 120 citizens of the village of Nangara. The questionnaire interview for the village citizens lasted between 30 to 40 minutes each. The second source is a baseline long form questionnaire to be administered to the Boda Boda operators. The questionnaire interview for the Boda Boda operators lasted between 40 to 50 minutes each. The baseline long form questionnaire for the rural citizens of Kigarama and Nangara contains details regarding the citizens' approach to the transportation problem. It also provides a precise description of the households' economic and welfare situation. The questionnaire also comprises of questions about the citizens choices regarding agricultural produce commercialisation in terms of location, profits, and transport choices.</p>
<p>Mutiso, W. 2011. 'Boda Boda' bicycle taxis and their role in urban transport systems: case studies of Kisumu and Nakura, Kenya</p>	<p>This paper reports upon an investigation into the role played by boda boda in urban transport systems in Kisumu and Nakuru (Kenya). A boda boda is a bicycle taxi which provides 'for hire' type transport services for passengers and goods. The research examined the operating characteristics of, and challenges facing, bicycle taxi services, and explored the measures that might be formulated by the concerned authorities to manage and support them. The study involved a (n=500) survey of bicycle taxi operators, as well as interviews with local authority officials. The study found that bicycle taxis serve an identifiable niche market, in the form of short service trips largely for the purposes of accessing work activities (directly, or as a feeder within a multi-mode trip), and off-road trips in high density unplanned settlements where higher capacity vehicles cannot pass. Their ability to pass slow-moving or stopped motor vehicles, enable them to operate efficiently and competitively in congested networks. It is argued that bicycle taxis have a place in Kenyan urban transport systems, and their absence would leave service gaps. Recent increase in motorcycle boda boda operations, at the expense of bicycle boda boda market share, is a cause for concern, and it is recommended that the concerned authorities adopt a policy position in this regard. It is argued that bicycle boda boda operations should be facilitated and supported by the relevant public authorities. The paper concludes with recommendations on measures that authorities might adopt to better regulate and support bicycle taxis. These relate to bicycle lane construction, the promulgation of enforcement by-laws, third party insurance cover, operator association membership, and the need for a harmonised national non-motorised transport policy.</p>
<p>Porter, G. 2013. Transport and mobility constraints in an aging population: health and livelihood implications in rural Tanzania</p>	<p>This paper offers a rare examination of older people's mobility in a developing country context. It presents findings from a recent mixed-methods study of the transport and mobility constraints faced by older people in 10 settlements in Kibaha district Tanzania and is concerned, in particular, with the interconnections between transport, health and livelihoods. The study demonstrates the diverse ways in which older people's health, livelihoods and access to transport are interconnected, the growing importance of motorcycle-taxi services for rural connectivity, and how the relationality between older people and younger generations contributes to the shaping of mobility patterns.</p>
<p>Nyachieo, G. 2013. Creating employment through transport; the youth and motorcycle (boda boda) in Kitengela, Kajiado county- Kenya</p>	<p>It is widely recognised that young people have been among the most adversely affected by the current economic crisis in Africa and the world. The youths have reduced chances of getting jobs into the formal sector. Due to the above situation, the youths are engaging in a variety of activities for 'survival'. In Kenya, the motorcycle (boda boda) transport is a form of employment that is giving job opportunities to many young people at a time when the world is facing global unemployment problems. Transport is an important component in both rural and urban development programs and an enabling element for the achievement of Millennium Development Goals. This is in terms of creating employment for the young people and facilitating movement of goods and services. Utilising a sample of 50 motorcycle (boda boda) riders in Kitengela, the study examined motorcycle (boda boda) as a form of employment for the youth. The main objective was to determine the role of (boda boda) motorcycles in employment creation for the youth in Kitengela, the study looks at whether (boda boda) motorcycles have improved the financial wellbeing of youths in Kitengela. The study demonstrates that youths can create employment through their innovative initiatives. The significance of this study</p>

	<p>is in filling a gap in literature. In addition, it suggests what the government and other stakeholders can do to ensure that the transport sector that is creating employment for the youth is made more efficient and safe. Convenience sampling was used. Qualitative data was coded and summarised and categorised in themes. SPSS was used to analyse quantitative data. Data was presented in pie charts, bar charts and frequency tables.</p>
<p>Howe, J. 2004. Boda Boda - Lessons from East Africa's Growing NMT Industry</p>	<p>The aim of this paper is to describe the origins, growth and characteristics of the boda boda phenomenon in East Africa. Essentially they are a bicycle-based taxi service and have grown from modest origins in the early 1960's in the border region of Uganda and Kenya, to achieve the status of a significant industry in one country and a substantial and growing presence in the other. The reasons for this, their evolving characteristics, influence on the poor, and relationship to motorised services are examined. The paper is mainly based on original research in Uganda conducted by the authors in the context of an analysis of livelihoods and the contribution that mobility and accessibility have on these. Where possible, comparisons are made with Kenya. Boda boda are shown to fill a gap in the transport market that has traditionally existed in African countries where - in contradistinction to Asia - non motorised transport [NMT] based services are rare. Essentially they meet the need for short distance, low-capacity transport able to operate in areas with limited demands that would not support more conventional services. The industry is also a major source of employment and livelihood support for the poor. The absence of either donor or government influences on the growth of the industry is striking, and is shown to have both positive and negative consequences.</p>
<p>Porter, G. 2016. Mobilities in Rural Africa: New Connections, New Challenges</p>	<p>Fluid interdependencies of mobility—physical and virtual—are growing rapidly in sub-Saharan Africa: The remarkable expansion of mobile phone networks is bringing a tangible new dimension of connectivity into mobility, transport, and access equations on the ground. This article draws on in-depth field research, including co-investigation with two groups often disadvantaged in their physical mobility, youth and older people, to explicate some current African developments and their departure from prevailing Western-based conceptualisations of space-time interactions (regarding the potential for space-time flexibility and micro-coordination afforded by mobile phones). Despite the fact that face-to-face interaction is often of great significance in Africa, when the value attached to personalised relationships is balanced against factors of widespread poverty and irregular, sometimes very dangerous transport, the potential for phone substitution appears greater than in many Western contexts. Better distance management through phone use could be particularly closely associated with populations with very low disposable incomes or those whose physical mobility is limited; for instance, by disability, infirmity, age, or gender.</p>
<p>Kisaalita, W. 2007. Delivery of urban transport in developing countries: the case for the motorcycle taxi service (boda-boda) operators of Kampala</p>	<p>In East Africa, the development of the bicycle and motorcycle taxi (boda-boda) service can be seen as a spontaneous entrepreneurial response to the increased availability of bicycles and motorcycles. Concomitant with the increasing number of boda-boda operators is the escalating passenger safety concern. A needs assessment survey instrument was administered to randomly selected motorcycle boda-boda operators from a Kampala suburb (Kalerwe and Bwayise locations). Besides safety, the questionnaire addressed issues related to preferred equipment type, ownership, operator training, profitability and operators' attitudes toward organised association. The results of the study support the notion that it is difficult for boda-boda operators to make substantial improvements in their incomes. The results also illustrate the importance of this emerging cottage industry to the local economy. However, more needs to be done to protect the public and to enhance the boda-boda operators' professionalism.</p>

<p>Howe, J. 2010. 'Filling the middle': Uganda's appropriate transport services</p>	<p>Uganda developed bicycle-based passenger and goods transport services in the 1960s. They were complemented by a motorcycle-based version in the 1990s. These have extended the range and capacity of services, known locally as boda boda. Both have spread over the entire country and the bicycle version into neighbouring Kenya. This paper explains the origins of boda boda, the factors conditioning development, its operating characteristics and the problems they face. This analysis is used to examine the benefits boda boda services have brought to the poor. Boda boda operate where more conventional services are uneconomic or physically impossible. They are found in urban and rural areas where they act as feeder services to the towns or major public transport routes. Because of limited capacity and short trips fares per kilometre are two to seven times those of large-capacity buses. Popularity derives from their ability to meet demands other services cannot. While the poorest make only occasional use, due to low incomes and high costs, for many they enhance income by extending the range and intensity of productive activities. Their main impact on the poor is through the employment provided. Operators are drawn from the least educated classes and each supports five dependants. About 1.7 million people, or 7% of the population, receive part of their livelihood from the industry.</p>
<p>Singoro, B. 2016. Causes and trends of public transport motorcycle accidents in Bungoma County, Kenya</p>	<p>There has been a drastic increase in the use of motorcycles as a means of transport worldwide due to various reasons. In Kenya, the increased use of motorcycles has been seen over the last decade. This increase has brought forth many challenges, including motorcycle accidents on disproportionate scale comparative to the world statistics. Indeed motorcycle accidents constitute a major cause of death and injuries to thousands of people every year. In spite of this, motorcycle accidents remain a neglected problem in Kenya. This study sought to determine the causes and trends of motorcycle accidents in Bungoma County. The study population comprised 400 people from households of motorcycle riders involved in accidents and those not involved. Key informants in the motorcycle transport industry were interviewed. The study adopted a cross-sectional survey design to establish the causes, incidences/trends, and vulnerability of motorcycle accidents. Descriptive and inferential statistics were used in the analysis of data. The study was anchored on both the crunch model and the wish to die and domino theory. The study found that human error is the leading cause of motorcycle accidents. This is imparted on by poor regulatory and enforcement regimes. Structured and comprehensive training of riders on traffic code and regulations will most likely reduce accidents and associated economic losses. Collective action measures such as motorcycle Saccos for voluntary enforcement and pooling of resources, to aid riders in case of injuries and death, should be explored and pursued. The study provides information and insights on disaster risk reduction for policy formulation on motorcycle accident mitigation. From the results, the proposed strategies that can be employed to curb motorcycle accidents in the order of magnitude are: training of motorcycle riders; observing speed limits; improved roads; not driving while under the influence of drugs/ alcohol; not carrying more than one passenger; improved enforcement by police; proper motorcycle maintenance; wearing protective clothes/helmets/ boots; wearing reflective jacket; and not driving while tired.</p>
<p>Bryceson, D. 2010. Livelihoods, daily mobility and poverty in sub-Saharan Africa</p>	<p>Based on research funded by the UK Department for International Development, this paper investigates the utility of a livelihoods approach in identifying the mobility and accessibility needs of the poor. Mobility patterns and livelihoods of stratified samples of households in urban-to-rural corridors originating in the national capital cities of Zimbabwe and Uganda are compared, with emphasis on the poor's position relative to higher income groups. It is found that livelihood work was the most frequent purpose of short-distance travel for all income groups and localities, amounting to 38% of trip purposes in Uganda and 46% in Zimbabwe. On average, Zimbabweans were more mobile making more daily trips over longer distances reflective of greater reliance on motorised transport in the country. Nonetheless, walking dominates modal journeys in both countries. Ugandans display heavier dependence on bicycle and motorcycle transport primarily through taxi hire compared with Zimbabweans' private care and public kombi bus transport. Survey evidence suggests that Uganda's poor and middle-income urban and rural residents benefit from more widely available multimodal public transport.</p>



<p>Goodfellow, T. 2012. Presidential intervention and the changing 'politics of survival' in Kampala's informal economy</p>	<p>In theory, 'urban governance' involves non-state actors and the state working together in formally institutionalised ways to make collective decisions and provide urban services. However, in developing country cities with highly informalised economies, the processes that underpin 'real' governance often reflect informal bargaining power much more than formal institutional frameworks. This paper uses the case of Uganda's capital Kampala to explore how political configurations subvert structures of city governance, with particular attention to the increasing engagement between President Museveni and particular groups of informal workers. We present empirical research on market vendors and motorcycle taxi (boda-boda) drivers showing how this engagement benefits both the informal groups and the president. Increased political competition has created an environment where informal groups seeking to protect their livelihoods can tactically leverage a presidential intervention in their favour, helping them evade the policies and regulations of the City Council. Meanwhile, the president has used these interventions to build support in a city that was largely lost to the opposition. These processes have progressively undermined already weak formal institutions for urban governance.</p>
<p>Kumar, A. 2011. Understanding the emerging role of motorcycles in African cities. A political economy perspective</p>	<p>A decline in organised public transport systems has led to rapid growth in non-conventional means of public transport, initially provided by minibuses and shared taxi/vans, and more recently by commercial motorcycles. Unlike cities in South and East Asia, ownership and use of motorised two-wheelers as a personalised vehicle is very small in sub-Saharan cities. However, over the past decade there has been a significant growth in the use of motorcycles as a commercial public transport mode. While offering certain transport advantages in the form of easy maneuverability, ability to travel on poor roads, and demand responsiveness, commercial motorcycle service growth has also led to an increase in road accidents, traffic management problems, pervasive noise and increases in local air pollution and greenhouse gas emissions. Government efforts to regulate the market have had the contrary impact of compounding the problem by distorting market structures. The growth in the use of commercial motorcycles has also dispelled one of the commonly held illusions: fare controls in the public bus market are often justified to support affordability for a vast majority of low income population; however, commercial motorcycles are more expensive than the lowest bus fares, but are increasingly being patronised by the poor due to the inadequacy of bus services. This paper attempts to evaluate the commercial motorcycle mode used in the three cities of Douala, Lagos, and Kampala, based on their political economy context in order to draw general conclusions of value throughout Africa and the rest of the developing world. The evaluation underscores the linkages between governance failure and weak sector performance and highlights the need to adapt policy instruments to local political and economic context. Central to discussion is the necessity to develop a participation framework driven by open communications across a wide spectrum of stakeholders.</p>
<p>Hine, J. 2015. Discussion Paper. Financing Rural Transport Services in Developing Countries: Challenges and Opportunities</p>	<p>The economic and social development of a large part of rural populations, especially in the developing world, is being held back by limited, unreliable or expensive access to markets and essential services. This problem is perpetuated by the continued bias towards the development of rural transport infrastructure, and the relative neglect of passenger and freight services operating on such infrastructure. In many developing countries where rural transport services do exist, they are often expensive, of poor quality and unreliable. The supply of rural transport tends to be dominated by cartels, and farmers need to pay significant sums for often-unreliable freight services. For poorer developing countries, road building and maintenance is the only form of assistance provided for rural transport, and the provision for transport services is very much left up to the informal market. The absence of well-functioning markets may hamper the improvement of rural transport services. To address these issues, the authors recommend additional research and increased collection of basic information; new approaches to regulating rural transport services; incorporation of rural transport services in government and donor rural infrastructure programs; appropriate subsidy schemes for rural transport services; and innovative use of ICT to support rural transport services.</p>



<p>Porter, G. 2012. Rural transport services for older people in Kibaha district, Tanzania: report of project findings</p>	<p>This report presents background material and a full review of project findings on rural transport services for older people in Kibaha district of Tanzania, with specific reference to: a) current access to health services) livelihood implications of poor access to health and other services) Broader implications for national rural transport services. Transport is a major hurdle for many older people in the 10 study settlements in rural Kibaha district – most particularly for their daily domestic water and fuel needs, but also for their access to health services and improved livelihoods. The rapid spread of motorcycle taxi services has effected a transport revolution over the last few years, particularly in the nine off-road settlements [and especially where they operate in conjunction with mobile phones]. In the absence of alternatives motorcycle-taxis [boda-boda] have brought improved mobility – at least in emergency contexts – even for very old people, despite the high fares. However, many older people find travel by boda-boda a dangerous and frightening experience. It is important to explore if/how these vehicles might be adapted to make them safer and more comfortable for older people, and to examine feasible alternatives, especially in the context of travel of sick older people to health centres. Attention also needs to be given to intra-village water and fuel transport for domestic purposes and the means by which this can be improved, so that older people are able to reduce their carrying burden and, should they wish, devote more effort to their farms. Water and fuel loads currently present a major transport burden for the younger cohort of older people [those in their 60s and 70s] and carrying is associated particularly with waist/back pain. Reduced domestic loads could raise farm productivity with consequent improvements in food availability. This would have beneficial impacts on health not only for older people but also for the many grandchildren and other young people currently in their care.</p>
<p>Influence of boda-boda transport enterprise on the livelihood of operators in Kitale town, Trans-Nzoia county, Kenya.</p>	<p>This study sought to look into the influence of boda-boda transport business on the livelihood of boda boda operators, within Kitale Town, Trans-Nzoia County. The objectives analyzed included to determine the influence of fare charged on the livelihood of the operators, to establish the influence of the location of operation on the livelihood of the operators, to establish how the regulatory framework influence the livelihood of the operator and to establish the influence of availability of credit facilities on the livelihood of operators. The study adopted descriptive survey design because data from the study was used to describe the livelihood of the boda boda operators. Questionnaires were the instruments of choice and both qualitative and quantitative approaches were used. The target population was 210 operators and the sample size was 136 operators. Probability sampling techniques were used to identify the respondents within Kitale town. Analysis was done scientifically using frequencies and %s in tables. The findings revealed that the fares charged by boda boda were mainly between 500-1200 Shs. Depending on whether one was just an operator or an operator who was also the owner, and then it determined their livelihoods. Those who were hired operators earned less money and therefore low levels of livelihoods whereas those who were owners but also operators had higher levels of livelihoods. The operators in the urban areas had more improved livelihoods as they earned more compared to the peri urban operators. Lack of a regulatory framework on the boda boda operation has also played a role on the livelihood of the operators. It has led to many operators operating without training hence leading to many accidents and loss of property. Many of the boda boda operators did not access credit facilities from commercial banks. However they accessed credit facilities from the Saccos and SMEs. There were others who did not access the credit facilities at all and consequently were unable to expand their businesses or being able to purchase their own for the hired operators. This implied that those with access to credit facilities realised an improved livelihood unlike those who did not. Consequently credit facilities were important for the improved livelihoods of boda boda operators. The researcher recommended that the operators should come up with better ways of setting prices that ensured that there are able to improve their livelihoods. They should also base their charges of millage so that all of them are able to improve their livelihoods regardless of where they are operating from. The regulatory framework should be put in place so as to promote order in the business and minimise on accidents. The operators should be sensitised on credit facilities to enable them benefit from them.</p>

<p>WHO (2015). Global Status Report on Road Safety. Geneva Switzerland: WHO</p>	<p>More than 1.2 million people die each year on the world’s roads, making road traffic injuries a leading cause of death globally. Most of these deaths are in low- and middle-income countries where rapid economic growth has been accompanied by increased motorisation and road traffic injuries. As well as being a public health problem, road traffic injuries are a development issue: low- and middle- income countries lose approximately 3% of GDP as a result of road traffic crashes. Although road traffic injuries have been a leading cause of mortality for many years, most traffic crashes are both predictable and preventable. There is considerable evidence on interventions that are effective at making roads safer: countries that have successfully implemented these interventions have seen corresponding reductions in road traffic deaths. Rolling out these interventions globally offers huge potential to mitigate future damage and save lives at a global level.</p>
<p>WHO (2017). Powered two- and three-wheeler safety: A road safety manual for decision-makers and practitioners. Geneva Switzerland: WHO</p>	<p>The powered two- and three-wheeler (PTW) Fleet is growing rapidly in most parts of the world. PTWs are becoming one of the main means of transporting both people and goods in many countries, and are attracting an increasingly varied user population. However, this mode of transport accounts for more than 286 000 deaths each year globally – about 23% of all road traffic deaths is alarming number of potentially avoidable deaths highlights the need for increased attention around PTWs and their use in road safety policy. Effective planning for PTW safety requires a comprehensive understanding of the risk factors involved in different settings. The Safe System approach has several benefits as a framework for examining key PTW risk factors and approaches to prevention.</p> <p>This manual describes the magnitude of PTW death and injury; key risk factors; ways of assessing the PTW safety situation in a given setting and preparing an action plan; and how to select, design, implement and evaluate effective interventions. The manual stresses the importance of a comprehensive, holistic approach that includes engineering, legislation and enforcement measures, as well as behavioural change. We hope that implementing the steps in this manual – designed for a multidisciplinary audience including engineers, planners, police, public health professionals and educators – will help develop new, evidence-based plans, programmes and other initiatives to increase PTW safety and encourage a critical review and evaluation of existing actions. We also hope it will contribute towards strengthening national and local capacity to implement PTW safety measures worldwide. We encourage all to bring this manual to the attention of those who will use it to save the lives of PTW users and others who use the roads.</p>
<p>Afukaar, Peters and Damsere-Derry (2017), Rural Transport Diagnostic Study in Ghana – Stakeholders Workshop Report</p>	<p>Rural transport systems include both roads and transport services. Without appropriate and affordable means of transport rural communities will remain isolated and poor, however good the condition of the road may be. Transport services provide rural communities access to markets, health services, education, and other essential services, often located in more urban areas. Yet, attempts to improve rural access remain very much ‘road’ focused, partly due to a limited understanding of and data on the role of rural transport services. The overall objective of this study is to better understand the existing rural transport systems in Ghana based on an assessment of the needs and perspectives of different transport users, transport operators, transport regulators and other transport stakeholders in rural communities. Identifying constraining factors and good practice in Ghana's rural transport services, allows for evidence-based policy suggestions. This inception report provides the overall framework for the study. It highlights the project background, use of the rapid rural appraisal methodology and the criteria for the selection of the surveyed roads in the three ecological zones of Ghana. A detailed implementation plan is also provided to guide the stakeholders of the project.</p>
<p>Jomo Kenyatta, R.J. and Jomo Kenyatta, M.B. (2015). Determinants influencing performance of alternative public transport in Kenya: A case of motorcycle transport, Nakuru County. The Strategic Journal of Business and Change Management, 2 (62), 436-471.</p>	<p>Alternative means of transport referred to as boda boda has been widely adopted in the developing countries as an alternative to the conventional buses and minibuses and as development from the non motorised two wheeler bicycles. In Kenya the industry thrived significantly after the zero rating of motorcycles below 150cc by the government in 2007. The broad objectives were to enhance transport and provide employment to the youth through the creation of transport enterprises. However, developments in the industry have revealed a myriad of negative incidences of fatal accidents leading to loss of lives and property including the motorcycles themselves which raises questions on the economic viability of the venture. This study therefore was designed to establish the determinants of successful implementation of</p>

	<p>motorcycle transport business. The specific objectives of the study were: to establish the effect of education and training on the performance of motorcycle transport business; to determine the effects of compliance to government regulations on performance of motorcycle transport business; to establish the effects of access to business support services on performance of motorcycle transport business and to find out the effects of entrepreneurial orientation on performance of motorcycle transport business. The study was conducted in Bahati Town among boda boda operators. The study adopted descriptive design to explain the interaction between the determinant variables and performance of motorcycle transport businesses. A sample of 77 motorcycle boda boda operators was selected from the population in Bahati Town using systematic random sampling technique. The study relied on primary data obtained from boda boda operators using questionnaires. After all the data was collected, the researcher conducted coding and data cleaning and analyzed using descriptive statistics such as frequency counts, percentages, mean, mode and standard deviation. Multiple regression analysis was then used to determine the relation between predictor variables (determinant factors) and the dependent variable (performance of motorcycle boda boda businesses). The analysis showed that training and entrepreneurial orientation had the positive (Pearson correlation coefficient = .471 and .419) and significantly influenced performance of alternative public transport. In addition, compliance with government regulations and enterprise transport support services (Pearson correlation coefficient = .098 and .419) did not significantly influence performance of alternative public transport. The study revealed that the two most significant determinants of performance of boda boda businesses were the training and the entrepreneurial orientation. Therefore the study recommends for training and increase support services for boda boda operators should not only focus on the technical and business management skills of operators but also on developing their entrepreneurial orientation as a strategy to enhance best practice, performance and growth in the sector.</p>
<p>WHO PTW manual</p>	<p>The powered two- and three-wheeler (PTW) fleet is growing rapidly in most parts of the world. PTWs are becoming one of the main means of transporting both people and goods in many countries, and are attracting an increasingly varied user population. However, this mode of transport accounts for more than 286 000 deaths each year globally – about 23% of all road traffic deaths – is alarming number of potentially avoidable deaths highlights the need for increased attention around PTWs and their use in road safety policy. Effective planning for PTW safety requires a comprehensive understanding of the risk factors involved in different settings. Safe System approach has several benefits as a framework for examining key PTW risk factors and approaches to prevention. This manual describes the magnitude of PTW death and injury; key risk factors; ways of assessing the PTW safety situation in a given setting and preparing an action plan; and how to select, design, implement and evaluate effective interventions. The manual stresses the importance of a comprehensive, holistic approach that includes engineering, legislation and enforcement measures, as well as behavioural change. We hope that implementing the steps in this manual – designed for a multidisciplinary audience including engineers, planners, police, public health professionals and educators – will help develop new, evidence-based plans, programmes and other initiatives to increase PTW safety and encourage a critical review and evaluation of existing actions. We also hope it will contribute towards strengthening national and local capacity to implement PTW safety measures worldwide. We encourage all to bring this manual to the attention of those who will use it to save the lives of PTW users and others who use the roads.</p>
<p>WHO (2004). World report on road traffic injury prevention. Geneva, Switzerland: WHO</p>	<p>Road traffic injuries constitute a major public health and development crisis, and are predicted to increase if road safety is not addressed adequately by Member States. The World Health Organization (WHO) has been concerned with this issue for over four decades. As early as 1962, a WHO report discussed the nature and dynamics of the problem. In 1974, the World Health Assembly adopted Resolution WHA27.59, declaring road traffic accidents a major public health issue and calling for Member States to address the problem. For the past two decades, the World Bank has encouraged its borrowers to include road safety components within most of their highway and urban transport projects. Over the last three years, both organisations have intensified their work in road traffic injury prevention. This was reflected in the establishment in March 2000 of WHO's Department of Injuries and Violence</p>

	<p>Prevention, the development and implementation of a five-year WHO strategy for road traffic injury prevention, and greater financial and human support for road traffic injury prevention activities around the world. Recently, WHO dedicated World Health Day for 2004 to Road Safety. Within the World Bank, an interdisciplinary task force was established to ensure that this important issue was regarded as a major public health issue and tackled jointly by transport and public health specialists. Among other international organisations, the United Nations Economic Commission for Europe, the United Nations Development Fund and the United Nations Children's Fund, have all stepped up their road safety activities over the past decade. In early 2003, the United Nations adopted Resolution (A/RES/57/309) on the global road safety crisis ( 4 ), followed by a report of the Secretary-General on the same topic to the 58th session of the United Nations General Assembly later that year ( 5 ). In November 2003, a further Resolution (A/RES/58/9) was passed by the United Nations, calling for a plenary meeting of the United Nations General Assembly on 14 April 2004.</p>
<p>Ackaah W &amp; Afukaar F (2010). Prevalence of Helmet Use Among Motorcycle Users in Tamale Metropolis, Ghana: An Observational Study.</p>	<p>To estimate the prevalence of helmet use among riders and pillion riders of motorcycles in the Tamale Metropolis of Ghana. A total of 3,115 riders and 1,058 pillion riders (passengers) were observed at 10 different sites. The overall helmet use for riders was 34.2 percent and that for pillion riders was 1.9 percent. Riders' helmet use rate was highest among the elderly (49.6%), followed by adults (34.3%) and lowest for young people (21.9%) and the observed percentage differences were significant (<math>\chi^2(2) = 67.1</math>; <math>p &lt; .001</math>). A marked difference (<math>\chi^2(1) = 6.7</math>; <math>p = .0096</math>) in helmet use was observed between riders riding within the central business district (CBD; 36.5%) and those outside the CBD (32.1%). Riders with at least one pillion rider (27.4%) were less likely to wear a helmet compared to riders riding alone without passengers (37.3%; <math>\chi^2(1) = 29.347</math>; <math>p &lt; .001</math>).</p> <p>Helmet use by motorcyclists in Ghana is generally low. There is a need for public awareness campaigns on the safety benefits of helmets to increase its prevalence in Ghana. The education on helmet use must be accompanied by sustained enforcement of the road traffic law by the traffic police to ensure compliance and change in attitudes.</p>
<p>Nguyen TDV, Joelson T, Vissoci J, Pesambili M, Haglund M, Mvungi M, Staton CA (2016). Injury prevalence and safety habits of motorcycle taxi drivers in urban Moshi, Tanzania</p>	<p>Background: Road traffic crashes are a major cause of global morbidity and mortality, disproportionately affecting low- and middle-income countries. Motorcycle taxi (boda-boda) drivers are particularly vulnerable because they have limited protection and safety equipment. This study characterises injury prevalence and safety habits amongst boda-boda drivers, and identifies intervention points to improve road safety.</p> <p>Methods: A prospective mixed methods interview and safety assessment was administered to 300 boda-boda drivers in urban Moshi, Tanzania. Participants were chosen randomly from 25 of 58 registered boda-boda stands and 2 of 31 unregistered stands. The survey was administered using a computerised, internet based survey tool (REDCAPS) and tablet computers. Data were analysed using R, and a thematic analysis was performed and agreed upon by three investigators (MP, TN, CS).</p> <p>Results: Of the 148 participants (49.3%) who had experienced a crash, 114 (77.0%) sustained at least one injury. Only 27 of those injured (23.4%) were hospitalised. 220 participants (73.3%) reported consistent helmet usage despite the fact that 285 participants (95.0%) agree that helmet usage reduces injury severity. Of the 280 helmets observed, 231 (82.5%) were either damaged or fit improperly. A thematic analysis of boda-boda drivers' suggestions to increase road safety identified four intervention points: 1) roadway infrastructure and traffic regulation, 2) road user attitudes and safe driving behaviours, 3) education and training, and 4) law enforcement.</p> <p>Conclusions: The present study demonstrates the high prevalence of road traffic injuries amongst boda-boda drivers. The study identifies four intervention points that can be leveraged to increase overall road traffic safety. Unfortunately, while boda-boda drivers are aware of ways to improve safety, adherence to safety habits remains low. Successful interventions will bridge the gap between knowledge and practice of safety habits.</p>

<p>Chalya PL, Ngayomela IH, Mabula JB, Mbelenge N, Dass RM, Chandika A, Gilyoma JM, Kapesa A and Ngallaba SE (2014). Injury outcome among helmeted and non-helmeted motorcycle riders and passengers at a tertiary care hospital in north-western Tanzania</p>	<p>Motorcycle helmets have been reported to reduce the risk of death and head injuries following motorcycle accidents. The aim of this descriptive prospective study was to determine the injury outcome among helmeted and non-helmeted motorcyclists and passengers at a tertiary hospital in north-western Tanzania. A total of 654 patients involved in the motorcycle accident were studied. Of these, 468 (71.6%) were motorcyclists (riders) and the remaining 186 (28.4%) were passengers. The median age of patients at presentation was 26 years. Male outnumbered females by a ratio of 4.5: 1. Helmet use was reported in 312 (47.7%) patients. Non-helmeted patients were young compared with helmeted patients and this was statistically significant (<math>p = 0.021</math>). The rate of helmet use was significantly higher among motorcyclists than among passengers (<math>p = 0.004</math>). History of alcohol consumption prior to the accident was reported in 212 (32.4%) patients. The rate of helmet use was significantly low among alcohol consumers compared with non-alcohol consumers (<math>p = 0.011</math>). Lack of helmet use was significantly associated with abnormal head Computed Tomography scans, admission to the Intensive care unit, severe trauma, and worse traumatic brain injury severity (<math>p &lt; 0.001</math>). Helmet use was significantly associated with shorter period of hospitalisation and reduced mortality rate (<math>p &lt; 0.001</math>). Motorcycle helmet use is still low in this part of Tanzania and this poses a great impact on injury outcome among motorcycle injury patients. This observation calls for action to implement more widespread injury prevention and helmet safety education and advocacy.</p>
<p>Almeida GCM, Medeiros FCD, Pinto LO, Moura JMBO, Lima KC (2016). Prevalence and factors associated with traffic accidents involving motorcycle taxis.</p>	<p>The objective was to determine the prevalence of motorcycle accidents involving motorcycle taxi drivers and associated factors. The methodology used was a cross-sectional and exploratory study, with application of questionnaires to motorcycle taxi drivers of 32 regions of Caicó, Rio Grande do Norte, Brazil (N=420). The results showed that taxi drivers have a high level of daily working hours (12 hours on average), and it was found that 63.6% were involved in at least one motorcycling accident. The occurrence of motorcycling accidents was significantly associated only to level of education (<math>p &lt; 0.001</math>), with no significant association with the other variables, such as age (<math>p = 0.132</math>), time of service (<math>p = 0.744</math>) and working hours (<math>p = 0.830</math>). In conclusion it is necessary to implement preventive and educational actions with motorcycle taxi drivers and users of this service concerning accidents and emergency measures, due to constant exposure to accidents during work routine.</p>
<p>Mwakapasa EG (2011). Attitude towards and practice of helmet use among commercial motorcyclists in Dar es Salaam region, Tanzania.</p>	<p>Background: Motorcycle accidents form a fatal category of motor traffic accidents. Motorcycle riders have a 34 times risk of death than the drivers of other types of vehicles and 8 times more likely to be injured. The non-use of helmet is a specific factor leading to head injuries and fatalities resulting from motorcycle crashes. Objectives: The purpose of this study was to explore the commercial motorcyclists' attitude and their practices of helmet wearing. The specific objectives were to determine the following among commercial motorcyclists in Dar es Salaam region: attitude of helmet use, proportion of commercial motorcyclists who wear helmet and the practice of helmet use. Material and methods: A cross-sectional survey was conducted in urban and peri-urban areas of Dar es Salaam region in May, 2011 at randomly selected commercial motorcycle parking points. A total of 273 conveniently selected eligible commercial motorcyclists participated. Face-to-face interviews were performed using a standard questionnaire while observation was conducted using an observation checklist. Data was analyzed using SPSS version 16.0. Results: All commercial motorcyclists were males, with the majority (64.8%) with primary education. The proportion of commercial motorcyclists who reported to wear helmet was 81.3%. However about two thirds of them (67.6%) reported to not wear helmet consistently. Helmet wearing was strongly predicted by having a positive attitude towards helmet for passengers (<math>p = 0.005</math>), protective ability of helmet against head injury (<math>p = 0.003</math>), wearing helmet during night (<math>p = 0.001</math>) and wearing helmet even for the experienced rider (<math>p = 0.000</math>). However in a multiple regression model, it was found that those who agreed regarding the protective ability of helmet against head injury were more likely to wear helmet than those who disagreed (AOR: 0.279; 95% CI: 0.086-0.905); those who strongly agreed on wearing helmet during hot weather were more likely to wear helmet than those who disagreed (AOR: 0.039; 95% CI: 0.002-0.698). Those who strongly agreed on necessity for passengers to wear helmet and wearing helmet during night were more likely to wear helmet than those who were undecided (AOR: 0.091; 95% CI: 0.013-0.617 and AOR: 0.114; 95% CI: 0.014-</p>



	<p>0.931 respectively). Those who had primary education were more likely to wear helmet than those who had no formal education (AOR: 6.146; 95% CI; 1.345-28.097). There was no significant difference in helmet wearing between urban and peri-urban areas (p=0.109). A small majority (52.7%) were observed wearing helmet, although 91.8% of them had no passenger's helmet. Conclusion: These findings indicate that despite the inconsistent helmet wearing, commercial motorcyclists had positive attitude towards helmet wearing. Helmet wearing is associated with the level of education and having a positive attitude towards helmet wearing. There is a high disparity on the observed helmet wearing between riders and passengers. Very few among the later were found to be wearing helmet. Recommendations: There is a need to strengthen legal enforcement of helmet wearing and ensuring the availability and accessibility of quality helmet to the majority of commercial motorcyclists. There is also a need for regular education campaigns to foster positive attitude towards helmet use. Further explorative studies on the quality of helmet and the factors associated with the use and non-use of helmet among motorcycle passengers are recommended.</p>
<p>Passmore JW, Nguyen LH, Nguyena NP, Olivéa JM (2010). The formulation and implementation of a national helmet law: a case study from Viet Nam.</p>	<p>Road traffic injuries are a leading cause of death and disability in Viet Nam. In 2008, official data reported 11 243 deaths and 7771 serious injuries on the roads, of which an estimated 60% of fatalities occur in motorcycle riders and passengers. In recognition of this problem, Viet Nam has had partial motorcycle helmet legislation since 1995. However, for a variety of reasons, implementation and enforcement have been limited. On 15 December 2007, Viet Nam's first comprehensive mandatory helmet law came into effect, covering all riders and passengers on all roads nationwide. Penalties increased ten-fold and cohorts of police were mobilised for enforcement. The Viet Nam national helmet legislation was developed and implemented by the National Traffic Safety Committee.</p> <p>Despite past barriers to enforcement, increased policing in 2008 led to 680 000 infringements being issued for non-helmet wearing. While changes in helmet wearing were not nationally observed, significant increases were documented in selected provinces in the first six months of the law's introduction. In Da Nang, helmet wearing increased from 27 to 99%. In the first three months after the law took effect, surveillance data from 20 urban and rural hospitals, found the risk of road traffic head injuries and deaths decreased by 16% and 18% respectively. Political leadership, intensive advanced public education and stringent enforcement have contributed to the successful implementation of the new law. Through continual monitoring of the legislation, loopholes detrimental to the effectiveness of the law have been identified and addressed.</p>
<p>WHO, Global Status report on road safety: Time for action. 2013, World health Organization: Geneva. Available at <a href="http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/">http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/</a></p>	<p>The report shows that there has been no overall reduction in the number of people killed on the world's roads: about 1.24 million deaths occur annually. However, this plateau should be considered in the context of a corresponding 15% global increase in the number of registered vehicles, suggesting that interventions to improve global road safety have mitigated the expected rise in the number of deaths. Eighty-eight countries – in which almost 1.6 billion people live – reduced the number of deaths on their roads between 2007 and 2010, showing that improvements are possible, and that many more lives will be saved if countries take further action. However, of concern is that 87 countries saw increases in the numbers of road traffic deaths over the same period. The report also shows that the highest road traffic fatality rates are in middle-income countries, particularly the African Region. More than three-quarters of all road traffic deaths are among young males. The report notes the need for standardised data collection on fatalities and the need for improvement in the quality of road safety data on road traffic deaths, non-fatal injuries and disability. It also stresses the importance of good post-crash care, both in terms of providing quick access for road traffic victims to health care, and in ensuring the quality of trained hospital trauma care staff in mitigating the negative outcomes associated with road traffic crashes.</p>
<p>Kamulegeya et al (2015) The scourge of head injury among commercial motorcycle riders in Kampala; a preventable clinical and public health menace. Available at <a href="https://www.ajol.info/index.php/ahs/article/view/121917">https://www.ajol.info/index.php/ahs/article/view/121917</a></p>	<p>Background: Trauma is an increasingly important cause of disease globally. Half of this trauma is from road traffic injuries with motorcycles contributing 21-58%. Low protective gear use, lack of regulation and weak traffic law enforcement contribute to unsafe nature of commercial motorcycles also known as "boda boda" in Uganda. Objectives: To determine the prevalence of protective gear use, the occurrence of head injury and the relationship between the two among commercial motorcycle riders in Kampala.</p>

	<p>Methods: Following ethical approval we recruited consecutive consenting participants to this analytical cross-sectional study. Data was collected using pretested interviewer administered questionnaires, double entered in Epidata and analyzed with STATA. Proportions and means were used to summarise data. Odds ratios were calculated for association between wearing helmets and occurrence and severity of head injury.</p> <p>Results: All 328 participants recruited were male. Of these, 18.6% used Protective gear and 71.1 % sustained head injury. Helmets protected users from head injury (OR 0.43, 95% CI, 0.23-0.8) and significantly reduced its severity when it occurred.</p> <p>Conclusion: Protective gear use was low, with high occurrence of head injury among commercial motorcycle riders in Uganda. More effective strategies are needed to promote protective gear use among Uganda’s commercial motorcycle riders.</p>
<p>Duku (2010), Motorcycle Crash Helmet Usage in Ghana – Case Study of Tamale (2010), accessed at <a href="http://ir.knust.edu.gh/handle/123456789/1415">http://ir.knust.edu.gh/handle/123456789/1415</a> on 29 October 2017</p>	<p>The master counts conducted revealed that, motorcycles constitute over a third of the vehicles on the roads where counts were conducted. This is enough to warrant for road safety education for both riders and pillion riders. In the future traffic management policies for the metropolis should significantly feature motorcycles.</p> <p>Objective 1: To establish the prevalence of motorcycle helmet usage for both the rider and the pillion rider and factors determining use or non – use of the helmet There was a vast difference between the outcomes of the two surveys conducted (observational and attitudinal). From the observational survey the overall prevalence rate of motorcycle crash helmet use by riders was 20.3%, whereas the attitudinal survey indicates a prevalence rate of 38.1%. It is therefore clear that respondents being aware of the helmet law may have overstated their level of compliance. The rate of helmet use was found to be highest (23.8%) within the CBD as compared to the outskirts (15.9%). It was also observed that the rate of helmet use is affected by time of the day. Prevalence rate of helmet use was high in the early hours of the day (8:00-12pm), as compared to the afternoons (around 14pm). The survey also revealed that prevalence rate of crash helmet use by pillion riders is low, 6.9%. There was an indication that the chances of a male pillion rider wearing a helmet were higher than a female pillion rider.</p>
<p>Derry, J. D., Afukaar, F. K., Donkor, P and Mock, C (2007), Study of vehicle speeds on a major highway in Ghana: Implication for monitoring and Control. <i>Traffic Injury Prevention</i>, Vol. 8:142-146</p>	<p><b>Objective.</b> Vehicular speeds have been identified to be at the core of road accident severity and frequency globally. Whereas speed control is a fundamental priority and the cornerstone of road safety in the developed world, the subject is at rudimentary stages in most developing countries thus making research into vehicle speeds in developing nations imperative. The main aim of the study was to establish two major speed parameters, namely the mean speed and dispersion, and their implications for more extensive and long-term speed monitoring in Ghana.</p> <p><b>Methods.</b> Research workers stationed themselves in a parked car and used a radar gun to unobtrusively measure the travelling speeds of 4,163 vehicles over two 24-hour periods at two separate sites on one of the main inter-urban roads (Accra-Kumasi). Both sites were settled areas with posted speed limits of 50 km/hr.</p> <p><b>Results.</b> Over 95% of vehicles travelled above the posted speed limit of 50 km/hr. Vehicles on an average travelled at 87 km/hr, (95% CI = 87, 88). Variation in speeds was wide, with a standard deviation of 18 km/hr for all classes of vehicles, and with a range of 40 to 187 km/hr. The highest vehicular speed was associated with the private car (97.6 ± 18.3 km/hr) followed by large buses (93.6 ± 13.3 km/hr) and the least was with heavy trucks (73.8 ± 12.9 km/hr).</p> <p><b>Conclusion.</b> The excessive vehicular speeds coupled with the wide speed variations explain in part the high incidence of traffic crashes and fatalities on the Accra-Kumasi highway. An integrated speed monitoring and control program, and realigning the highway to by-pass small and medium settlements would be required as a long-term measure for the reduction of speed-related road traffic crashes, fatalities, and injuries in Ghana.</p>



<p>Seidu, Mubarik and Abdul-Lateef (2017), Barriers and Facilitators to the Use of Motorcycle Helmets in Tamale, IOSR Journal of Humanities and Social Science, Vol. 22, Issue 8, Ver.11 (August 2017), pp 94-99; accessed at <a href="http://www.iosrjournals.org/iosr-jhss/papers/Vol.%2022%20Issue8/Version-2/N2208029498.pdf">http://www.iosrjournals.org/iosr-jhss/papers/Vol.%2022%20Issue8/Version-2/N2208029498.pdf</a> on 29 October 2017</p>	<p>While road traffic crashes involving motorcycles cannot be completely prevented, the probability and severity of head injuries following a crash can surely be mitigated through helmet use. In northern Ghana where motorcycles are popular means of transport, prevalence of motorcycle helmet use is low. This study identifies the barriers and facilitators to the use of motorcycle helmet in Tamale, Ghana. A questionnaire survey was administered to 300 motorcyclists at three different locations in the city. Data were edited, coded and entries made into SPSS version 20, and descriptive statistical analysis was extensively carried out. The study found that about 33% of motor cycle riders were using helmet of any type. The strongest facilitating factor for helmet use is the feeling for protection (62.2%) followed by respondent's awareness that helmet use is mandatory (19.7%), and the presence of police on the street (15%). The evidence also suggests that the leading discouraging factor for non-use of crash helmet is the perception that helmet use disturbs head and hearing ability (63%). While the influence of short travelling distance is imprecise, long distance trip slightly appears to be a negative determinant with about 54% of participants reporting long distance as factor in their non-use of helmet. Public health interventions on helmet use should be tailored to surmount the perceived barriers to the use of helmet. That is, concerns for helmet use as being associated with headache and discomfort would need urgent attention if public educations on helmets are to be successful. Helmets that offer good ventilation may be convenient and less troubling to users. Road safety education campaigns can promote the facilitators to motorcycle helmet use by highlighting the benefits and protective efficacy of helmet. Increased presence of road traffic police and strong enforcement of helmet use legislations would also be germane to improving road safety behaviours of motorcyclists.</p>
<p>Jackie K. Obey &amp; Esther Njagi, Establishing possible risk factors associated with motorcycle use and safety between Baraton and Chepterit, Nandi county, Kenya, University of Eastern Africa, Baraton, P.O. Box 2500-30100, Eldoret, Kenya</p>	<p>Risk factors associated with motorcycle (boda-boda) safety is significant in contributing to the health risks of disease in Kenya. These risk factors are important to the health status of the drivers and passengers and families of both as well as to the society at large. The aim of this study is to determine some factors associated with road safety use by motorcyclists between Baraton and Chepterit, Nandi County, Kenya. The data obtained from this study was collected by observational studies at Baraton and Chepterit locations of Nandi County, Kenya. It focused on the use of helmets and reflective clothing by motorcyclists and passengers. Some other factors were established as possible risks to the safety of motorcycle users in the study area. It was observed during the study period that overall, 80% of motorcyclists wore helmets and 21% wore reflective clothing. Only 1.33% of the passengers wore helmets. No passenger was observed to wear reflective clothing during the study. Results also showed that 82% of the motorcycle drivers had no licence or public service (PSV) insurance coverage. Promotion of helmet and reflective clothing use between Baraton and Chepterit will decrease the risk of head injuries, disease, and death obtained from motorcycle crash. The study proposes that there be education for local motorcycle users on the safe use of roads. It also suggests that the laws governing the use of helmets and reflective clothing by motorcyclists be enforced and given more focus. Keywords: Helmet, Reflective Clothing, Baraton, Chepterit, Public Service Vehicle, motorcycle, boda-boda</p>

<p>Brian Wanyama Singoro, Jacob Wakhungu, John Obiri &amp; Edmund Were. CAUSES AND TRENDS OF PUBLIC TRANSPORT MOTORCYCLE ACCIDENTS IN BUNGOMA COUNTY, KENYA</p>	<p>There has been a drastic increase in the use of motorcycles as a means of transport worldwide due to various reasons. In Kenya, the increased use of motorcycles has been seen over the last decade. This increase has brought forth many challenges, including motorcycle accidents on disproportionate scale comparative to the world statistics. Indeed motorcycle accidents constitute a major cause of death and injuries to thousands of people every year. In spite of this, motorcycle accidents remain a neglected problem in Kenya. This study sought to determine the causes and trends of motorcycle accidents in Bungoma County. The study population comprised 400 people from households of motorcycle riders involved in accidents and those not involved. Key informants in the motorcycle transport industry were interviewed. The study adopted a cross-sectional survey design to establish the causes, incidences/trends, and vulnerability of motorcycle accidents. Descriptive and inferential statistics were used in the analysis of data. The study was anchored on both the crunch model and the wish to die and domino theory. The study found that human error is the leading cause of motorcycle accidents. This is imparted on by poor regulatory and enforcement regimes. Structured and comprehensive training of riders on traffic code and regulations will most likely reduce accidents and associated economic losses. Collective action measures such as motorcycle Saccos for voluntary enforcement and pooling of resources, to aid riders in case of injuries and death, should be explored and pursued. The study provides information and insights on disaster risk reduction for policy formulation on motorcycle accident mitigation. From the results, the proposed strategies that can be employed to curb motorcycle accidents in the order of magnitude are: training of motorcycle riders; observing speed limits; improved roads; not driving while under the influence of drugs/ alcohol; not carrying more than one passenger; improved enforcement by police; proper motorcycle maintenance; wearing protective clothes/ helmets/ boots; wearing reflective jacket; and not driving while tired.</p>
<p>Patel et al. BMC Public Health (2016) 16:697. DOI 10.1186/s12889-016-3359-4. The epidemiology of road traffic injury hotspots in Kigali, Rwanda from police data Anjni Patel<sup>1,2</sup>, Elizabeth Krebs<sup>1</sup>, Luciano Andrade<sup>3</sup>, Stephen Rulisa<sup>4</sup>, João Ricardo N. Vissoci<sup>5,6,7</sup> and Catherine A. Staton<sup>1,6,7</sup></p>	<p><b>Background:</b> Road traffic injuries (RTIs) are the eighth-leading cause of death worldwide, with low- and middle-income countries sharing a disproportionate number of fatalities. African countries, like Rwanda, carry a higher burden of these fatalities and with increased economic growth, these numbers are expected to rise. We aim to describe the epidemiology of RTIs in Kigali Province, Rwanda and create a hotspot map of crashes from police data.</p> <p><b>Methods:</b> Road traffic crash (RTC) report data from January 1, 2013 to December 31, 2013 was collected from Kigali Traffic Police. In addition to analysis of descriptive data, locations of RTCs were mapped and analyzed through exploratory spatial data analysis to determine hotspots.</p> <p><b>Results:</b> A total of 2589 of RTCs were reported with 4689 total victims. The majority of victims were male (94.7 %) with an average age of 35.9 years. Cars were the most frequent vehicle involved (43.8 %), followed by motorcycles (14.5 %). Motorcycles had an increased risk of involvement in grievous crashes and pedestrians and cyclists were more likely to have grievous injuries. The hotspots identified were primarily located along the major roads crossing Kigali and the two busiest downtown areas.</p> <p><b>Conclusions</b> Despite significant headway by the government in RTC prevention, there continue to be high rates of RTIs in Rwanda, specifically with young males and a vulnerable road user population, such as pedestrians and motorcycle users. Improvements in police data and reporting by laypersons could prove valuable for further geographic information system analysis and efforts towards crash prevention and targeting education to motorcycle taxis could help reduce RTIs in a severely affected population.</p>

<p>Tumwesigye NM, Atuyambe LM, Kobusingye OK (2016). Factors Associated with Injuries among Commercial Motorcyclists: Evidence from a Matched Case Control Study in Kampala City, Uganda.</p>	<p><b>Introduction:</b> Road traffic injuries are the eighth leading cause of death globally and the most affected are young people aged 15–29. By 2030 road traffic deaths will become the fifth leading cause of death unless urgent action is taken. Motorcyclists are among the most vulnerable road users and in Uganda they contribute 41% of all road traffic injuries. This paper establishes factors associated with the injuries of commercial motorcycle riders also known as boda-boda riders in Kampala, Uganda’s capital city.</p> <p><b>Methods:</b> The study was matched case-control with a case being a boda-boda rider that was seen at one of the 5 major city hospitals with a road traffic injury while a control was a boda-boda rider that was at the parking stage where the case operated from before the injury. The sample size was 289 riders per arm and data collection took 7 months. A structured questionnaire was used to collect data on background and exposing factors. Being matched case-control data conditional logistic regression was used in the analysis.</p> <p><b>Results:</b> Factors independently associated with injury among motorcyclists were younger age group, being a current alcohol drinker (OR = 2.30, 95%CI: 1.19–4.45), lower engine capacity (&lt;100cc)(OR = 5.03, 95%CI: 2.91–8.70), riding experience of less than 3 years, not changing a motorcycle in past 1 year (OR = 2.04, 95%CI: 1.19–3.52), riding for a longer time in a day (OR = 6.05, 95%CI: 2.58–14.18) and sharing a motorcycle (OR = 8.25, 95%CI:2.62–25.9). Other factors associated with injury were low level of knowledge of traffic rules, being stopped by police for checks on condition of motorcycle/licence/insurance, working till late.</p> <p><b>Recommendations:</b> More road safety sensitisation is required among riders to raise awareness against sharing motorcycles, working for a longer time and alcohol consumption. Police enforcement of drink-driving laws should include riders of commercial motorcycles. Investigate the validity of motorcycle riding licences and test the riding competency of all who got licences in last 3 years.</p>
<p>Sanusi, A., &amp; Emmelin, M. (2015). Nigeria: an explorative study. <i>International Journal of Injury Control and Safety Promotion</i>, 22(4), 328-339. DOI: 10.1080/17457300.2014.909499</p>	<p>Road traffic injury is a great public health challenge with an emerging trend of increasing rates and high mortality involving commercial motorcycles in Nigeria. A qualitative approach was used with 10 in-depth interviews conducted to explore the risk perceptions of commercial motorcyclists in Ibadan, Nigeria. The data analysis using manifest and latent content analysis resulted in an overarching theme: inadequate structures and internalised norms prevent change. The three themes leading to the overarching theme are: risk-taking as generally acceptable; risk-taking as an intrinsic part of occupation; and risk-taking as a way to make ends meet. The study suggests that there is a great need for adequate regulation as regards training and licensing of riders. Also the need to tighten enforcement of traffic rules is paramount to road safety in Nigeria.</p>
<p>Amanyire, R &amp; Dr. Steven Kasiima (2017). The Road Safety Situation in Uganda, A presentation at a Workshop on UN Transport Legal Instruments – a Tool for Improved Road Safety Management By Ronald– Director of Traffic and Road Safety/UPF. Available at <a href="https://www.unece.org/fileadmin/DAM/trans/main/wp1/events/2017_July_UNDA/S2_Amanyire.pdf">https://www.unece.org/fileadmin/DAM/trans/main/wp1/events/2017_July_UNDA/S2_Amanyire.pdf</a>. Accessed on 10/14/2017</p>	<p>A presentation at a Workshop on UN Transport Legal Instruments – a Tool for Improved Road Safety Management</p>

<p>Paul Gudoi Zanule (2015). Road Management System and Road Safety in Uganda. Walden University. Available at <a href="http://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=1368&amp;context=dissertations">http://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=1368&amp;context=dissertations</a>. Accessed on 10/14/2017</p>	<p>Traffic collisions cost Uganda millions of dollars each year. The purpose of this descriptive case study was to describe the strategies and processes needed to implement a road management system. Such a system would significantly reduce the fatalities and accidents in Uganda, improve the transportation within Kampala’s business district, and increase business profitability. Three conceptual theories framed the research study: management theory, strategic management theory, and criminology theory. Using a snowball sampling strategy, data were collected from open-ended interviews, questionnaires, observations, and archived documents from 20 administrative participants in the government and organisational leaders involved in the transport operations and transport services in the Kampala business district in Uganda. Data were analyzed using 3 phases: (a) interpretational analysis, coding, and grouping segments; (b) structural analysis, consistency, and quality; and (c) reflective analysis, consequences, what, when, where, and how. Five themes or action requirements emerged from the data analysis: to improve transport operations and transport services profitability, reduce traffic jams and fatalities, provide sufficient driving training, maintain road infrastructure, and maintain traffic law enforcement. The findings and recommendations from this study may improve the profitability of businesses, reduce the traffic jams and fatalities, and improve the gross domestic product of Uganda, thereby contributing to positive social change.</p>
<p>Kwamusi Paul (2002) a chapter extract from Balancing the Load. Women, Gender and Transport. Edited by Priyanthi Fernando and Gina Porter (2002) Zed Books, United Kingdom. Available at <a href="https://www.ssatp.org/sites/ssatp/files/publications/HTML/Gender-RG/Source%20documents/case%20studies/IFRTD%20Case%20Summaries/CSIFR11%20Safety,%20Gender%20Transport%20Uganda.pdf">https://www.ssatp.org/sites/ssatp/files/publications/HTML/Gender-RG/Source documents/case studies/IFRTD Case Summaries/CSIFR11 Safety, Gender Transport Uganda.pdf</a>.</p>	<p>The paper reviews the history and current usage of Intermediate Means of Transport (IMTs) with particular reference to Ghana. An earlier version of this paper was prepared as preliminary background for a small action research project in 5 off-road villages in southern Ghana (which commenced in February 2001). The current version incorporates findings from the ensuing project. The paper, although especially relevant to the coastal Ghanaian context, has wider application in Ghana and sub-Saharan Africa.</p>
<p>Webinar: Motorcycle-taxis in the Rural Context in Sub-Saharan Africa and South Asia. <a href="http://www.transaid.org/knowledge-centre/introductory-webinar-topic-motorcycle-taxis-rural-context-sub-saharan-africa-south-asia/">http://www.transaid.org/knowledge-centre/introductory-webinar-topic-motorcycle-taxis-rural-context-sub-saharan-africa-south-asia/</a></p>	<p>This free, introductory webinar on the topic of Motorcycle Taxis in the rural context of Sub-Saharan Africa and South Asia was held on Thursday 6th of April 2017. This was a Research for Community Access Partnership (ReCAP) event, made possible with funding from the Department for International Development and facilitated by Transaid. ReCAP is a six-year programme of applied research and knowledge dissemination funded by a grant from the UK Government through the DfID. The overall aim is to promote safe and sustainable rural access in Africa and Asia through research and knowledge sharing between participating countries and the wider community. Transaid would like to thank ReCAP; as without their support, this webinar would not have been possible.</p> <p>The webinar brought together African and Asian transport research practitioners, from within research institutes and universities, regulators and practitioners. Our panel of experts included Mr. Leo Ngowi from the Surface and Marine Transport Regulatory Authority in Tanzania (SUMATRA), Dr. Elizabeth Ekirapa Kiracho from Makerere University in Uganda and Mr. Felix Wilhelm Siebert from the Technical University of Berlin. The discussion was moderated by Caroline Barber, Head of Programmes at Transaid who invited participants to ask questions as well as to contribute ideas for further research into this topic.</p>

<p>Citywide trauma experience in Kampala, Uganda: a call for intervention O C Kobusingye, D Guwatudde, G Owor, R R Lett: Injury Prevention 2002; 8:133–136</p>	<p>Objectives: To describe injuries and their emergency care at five city hospitals.                  Setting: Data were collected between January and December 1998 from casualty departments of the five largest hospitals of Kampala city, Uganda, with bed capacity ranging from 60 to 1200.</p> <p>Methods: Registry forms were completed on trauma patients. All patients with injuries were eligible. Outcome at two weeks was determined for admitted patients.                  Results: Of the 4359 injury patients, 73% were males. Their mean age was 24.2 years, range 0.1–89, and a 5–95 percentile of 5–50 years. Patients with injuries were 7% of all patients seen. Traffic crashes caused 50% of injuries, and were the leading cause for patients ≥10 years. Fifty eight per cent of injuries occurred on the road, 29% at home, and 4% in a public building. Falls, assaults, and burns were the main causes in homes. Fourteen per cent of injuries were intentional. Injuries were severe in 24% as determined with the Kampala trauma score. One third of patients were admitted; two thirds arrived at the hospital within 30 minutes of injury, and 92% were attended within 20 minutes of arrival.</p> <p>Conclusions: Injuries in Kampala are an important public health problem, predominantly in young adult males, mostly due to traffic. The majority of injuries are unintentional. Hospital response is rapid, but the majority of injuries are minor. Without pre-hospital care, it is likely that patients with serious injuries die before they access care. Preventive measures and a pre-hospital emergency service are urgently needed.</p>
<p>Kigera J.W.M. and Naddumba E.K. (2010) Patterns of Injuries After Road Traffic Crashes Involving Boda boda. The ANNALS of AFRICAN SURGERY Volume 5 January 2010</p>	<p>Background Trauma is a leading cause of morbidity and mortality in Africa. Boda boda are a main form of transport in Kampala and are becoming a major cause of road traffic crashes. We examined the pattern of injuries attributed to boda boda. Patients and Methods We retrospectively reviewed the charts of all trauma patients who presented between June and August 2008 to the emergency ward of the Mulago hospital in Kampala and identified the patient characteristics and the nature of injuries sustained. Results Road Traffic Crashes (RTC's) were the leading cause of trauma and boda boda were involved in 41% of all trauma patients. Majority of the patients were young males below the age of 40. The commonest injuries were fractures, cranial trauma and soft tissue injuries. The lower limbs bore the brunt of the injuries. Conclusions Injuries seen as a result of boda boda constitute a majority of trauma cases and are hence a pressing problem in need of urgent solutions. The relevant authorities should ensure preparedness of the health system to cater for the care of these patients.</p>

### Innovation

Reference	Abstract
<p>Roehler, D. (2013) Using baseline and formative evaluation data to inform the Uganda Helmet Vaccine Initiative. Global Health Promotion 1757-9759; Vol 20 Supp. 4: 37 –44; 50965.</p>	<p>Motorcycles are an important form of transportation in Uganda, and are involved in more road traffic injuries than any other vehicle. The majority of motorcycles in Uganda are used as motorcycle taxis, better known locally as boda boda. Research shows that a motorcycle helmet is effective at reducing a rider's risk of death and head injury. As part of the Uganda Helmet Vaccine Initiative (UHVI), researchers collected baseline and formative evaluation data on boda boda operators' helmet attitudes, beliefs, and behaviours to inform UHVI activities. Researchers collected data on motorcycle helmet-related attitudes and beliefs through focus group discussions and structured roadside interviews, and researchers conducted roadside observations to collect data on helmet-wearing behaviours. Of the 12,189 motorcycle operators and passengers observed during roadside observations, 30.8% of drivers and &lt;1% of passengers were wearing helmets. The most commonly reported helmet-wearing barriers from the focus group discussions and structured roadside interviews were: (1) 'Helmet is uncomfortable', (2) 'Helmet is too hot', (3) 'Helmet is too expensive', and (4) 'Helmet is of low quality'. Researchers incorporated findings from the formative research into the UHVI campaign to increase motorcycle helmet use. Radio messages addressing helmet comfort and cost were widely aired throughout Kampala, Uganda. In addition, campaign staff held nine boda boda operator workshops, covering approximately 900 operators, in which the facilitator addressed</p>

	barriers and facilitators to helmet use. Each workshop participant received a high-quality tropical motorcycle helmet. UHVI will continue to use a data-driven approach to future campaign activities.
Godard, X. 2013: Sustainable Urban Mobility in Francophone sub-Saharan Africa. Global Report on Human Settlements.	The cities of 'Francophone' Sub-Saharan Africa (FSSA) are subjected to the sustainability crisis in urban transport in a context of rapid urbanisation and concentration of population in capital cities. Countries can be classified according to the percentage of the urban population in the total population in 2008. The report focuses on the experience of large cities (often capital cities) as they concentrate the maximum of difficulties and of responses to these difficulties. The large cities also register the maximum of information and analysis, on which this report is based.
Transaid (2015) Tanzania Motorcycle Taxi Rider Training: Assessment and Development of Appropriate Training Curriculum.	Between December 2014 and April 2015, Transaid, working closely with key stakeholders in Tanzania, have developed an appropriate training curriculum for motorcycle taxi riders (for the full curriculum see annex A). This AFCAP-funded programme began by gathering and assessing any existing motorcycle training curricula to identify any gaps that need to be addressed. It was vital that the development of the training curriculum had strong support from the relevant training schools and regulatory authorities as well as feeding in valuable input from the motorcycle taxi riders themselves and addressing the needs of passengers. To ensure this key stakeholder input and support, SUMATRA and the Traffic Police (see Annex B for letter of support) were engaged from the very start and the project team conducted interviews with Driving Schools and regulatory authorities. Two stakeholder workshops were facilitated; one in Bagamoyo, which focused on gathering input from boda boda riders, owners and passengers for the curriculum and one in Dar es Salaam that focused on gaining feedback and input from the key regulatory authorities and ministries. This final report details the outcomes from these activities as well as presenting the final developed curriculum, proposed next steps and proposals for licensing, testing and training.
Amend (2015) The magnitude and characteristics of road traffic injury in Kilolo District, Tanzania.	This is the final report of the study into the magnitude and characteristics of road traffic injury on two low volume rural roads in Kilolo District, Tanzania. After providing the background to the study, the report details the study's three data collection activities: traffic counts, household surveys and motorcycle driver surveys, and then discusses their findings and implications. The motorcycle driver survey identified a far greater magnitude of crashes than the household survey, with higher numbers of crashes and greater severity. 24% of motorcycle drivers had been involved in a crash in the past three months, while only 1% of all household members had been involved in a crash in the past three months, rising to over 5% among household heads. For crashes identified through the motorcycle driver survey, the number of days of normal activity missed as a result of the crash was double that of the crashes identified through the household survey. The characteristics of all crashes – both those identified through the household survey and those identified through the motorcycle driver survey – are similar: involving young men with motorcycles, no training and no licences. The most common contributory factors were related to road user behaviour, the design and condition of the road, and environmental conditions.
Transaid, 2015: MSD for Ugandan Mothers Programme: FINAL PROGRAMMATIC REPORT - Improving the availability of affordable transport as a means to overcoming the constraints to accessing maternal health services. <a href="http://www.transaid.org/wp-content/uploads/2017/09/Merck-Final-Programmatic-Report-FINALVERSION1.pdf">http://www.transaid.org/wp-content/uploads/2017/09/Merck-Final-Programmatic-Report-FINALVERSION1.pdf</a>	The MSD for Ugandan Mothers Programme aimed to 'strengthen private health providers' ability to offer affordable and quality maternal health services. As well improving service delivery the programme aimed to address the transport related constraints to accessing obstetric care. Transaid's role was to improve the understanding around these constraints as well as to design and implement an intervention to improve access for pregnant women.
Pariyo GW, Mayora C, Okui O, Ssenooba F, Peters DH, Serwadda D, Lucas H, Bloom G, Rahman MH, Ekirapa-Kiracho E. (2011) Exploring new health markets: experiences from informal providers of transport for maternal health services in	Although a number of intermediate transport initiatives have been used in some developing countries, available evidence reveals a dearth of local knowledge on the effect of these rural informal transport mechanisms on access to maternal health care services, the cost of implementing such schemes and their scalability. This paper, attempts to provide insights into the functioning of the informal transport markets in facilitating access to maternal health care. It also demonstrates the role that higher institutions of learning can play in designing projects that can increase the



<p>Eastern Uganda. BMC Int Health Hum Rights. 2011; 11 Suppl 1:S10.</p>	<p>utilisation of maternal health services. The objective was to explore the use of intermediate transport mechanisms to improve access to maternal health services, with emphasis on the benefits and unintended consequences of the transport scheme, as well as challenges in the implementation of the scheme. The methodology is based on the pilot phase to inform a quasi-experimental study aimed at increasing access to maternal health services using demand and supply side incentives. The data collection for this paper included qualitative and quantitative methods that included focus group interviews, review of project documents and facility level data. As a result, there was a marked increase in attendance of antenatal, and delivery care services, with the contracted transporters playing a leading role in mobilising mothers to attend services. The project also had economic spill-over effects to the transport providers, their families and community generally. However, some challenges were faced including difficulty in setting prices for paying transporters, and poor enforcement of existing traffic regulations. The findings indicate that locally existing resources such as motorcycle riders, also known as "boda boda" can be used innovatively to reduce challenges caused by geographical inaccessibility and a poor transport network with resultant increases in the utilisation of maternal health services. However, care must be taken to mobilise the resources needed and to ensure that there is enforcement of laws that will ensure the safety of clients and the transport providers themselves.</p>
<p>Diaz Olvera, L. 2012. Motorbike taxis in the "transport crisis" of West and Central African cities</p>	<p>While the urban motorbike taxi is a relative newcomer, its rural ancestor, the bicycle taxi already existed as far back as the 1930s in the Senegalese city of Kaolack (Morice, 1981) and the 1960s in Kenya, Uganda and Benin where it was used to carry both people and goods (Malmberg-Calvo, 1994; Tossou, 1993). Motorbike taxis appeared in Nigeria in the 1970s (Oyesiku, 2001) but their true rise seems to have started in the mid-1980s in Niger, Cameroon, Togo, Benin, Uganda and Kenya<sup>2</sup> as a development from the bicycle taxi (Agossou, 2004; Howe, Maunder, 2004; Mutiso, Behrens, 2011). While the motorbike taxi is very popular in Uganda and Kenya under the name of boda-boda, its use has above all developed in West and Central Africa under a variety of different local names: zemidjan in Benin and Togo, bendskin in Cameroon, kabu-kabu in Niger, okada or alalok in Nigeria, oleyia in Togo (Agossou, 2004; Guézéré, 2008; Ngabmen et al., 2000; Dille, 2002; Mahlstein, 2009; Oyesiku, 2001; Malmberg-Calvo, 1994; Segbor, 1998).</p>
<p>Porter, G., Tewodros, A., Bifandimu, F., Gorman, M., Heslop, A., Sibale, E., Awadh, A., Kiswaga, L. 2013. Transport and mobility constraints in an aging population: health and livelihood implications in rural Tanzania</p>	<p>This paper offers a rare examination of older people's mobility in a developing country context. It presents findings from a recent mixed-methods study of the transport and mobility constraints faced by older people in 10 settlements in Kibaha district Tanzania and is concerned, in particular, with the interconnections between transport, health and livelihoods. The study demonstrates the diverse ways in which older people's health, livelihoods and access to transport are interconnected, the growing importance of motorcycle-taxi services for rural connectivity, and how the relationality between older people and younger generations contributes to the shaping of mobility patterns.</p>
<p><sup>1</sup> Hingi M et al, 2016: Text Message-based Medical Dispatch for Accidents Occurring in Urban Mwanza Community in Northwestern-Tanzania.</p>	<p>Despite the increase of road traffic accident (RTA) injuries that claim significant lives of people in low and middle income (LMIC), there is no reliable pre-hospital emergency care in Tanzania. This survey was conducted to study the use of text messages as an emergency medical dispatch system. In December 2015, a text message (SMS)-based emergency medical dispatch system known as BEACON software was deployed in Mwanza as a pilot region in Tanzania, The system receives a notification SMS from any person in urban Mwanza who happens to be at an accident scene. It then alerts trained responders located nearby to quickly move to the accident scene, provide an emergency first aid care to the injured and then transport the injured to local hospitals. From December 2015 to August 2016, a total of 104 trained volunteers responded to 112 incidents. An average of seven minutes was used by the responders to arrive at the accident scene following an initial alert.</p>
<p>Porter, G. (2016) Mobilities in Rural Africa: New Connections, New Challenges. Annals of the American Association of Geographers 106(2) 2016, pp 434-441.</p>	<p>Fluid interdependencies of mobility—physical and virtual—are growing rapidly in sub-Saharan Africa: The remarkable expansion of mobile phone networks is bringing a tangible new dimension of connectivity into mobility, transport, and access equations on the ground. This article draws on in-depth field research, including co-investigation with two groups often disadvantaged in their physical mobility, youth and older people, to explicate some current African developments and their departure from prevailing Western-based conceptualisations of space-time interactions (regarding the potential for space-time flexibility and micro-</p>



	<p>coordination afforded by mobile phones). Despite the fact that face-to-face interaction is often of great significance in Africa, when the value attached to personalised relationships is balanced against factors of widespread poverty and irregular, sometimes very dangerous transport, the potential for phone substitution appears greater than in many Western contexts. Better distance management through phone use could be particularly closely associated with populations with very low disposable incomes or those whose physical mobility is limited; for instance, by disability, infirmity, age, or gender.</p>
<p>Tom Goodfellow, Kristof Titeca (2012) Presidential intervention and the changing 'politics of survival' in Kampala's informal economy.</p>	<p>In theory, 'urban governance' involves non-state actors and the state working together in formally institutionalised ways to make collective decisions and provide urban services. However, in developing country cities with highly informalised economies, the processes that underpin 'real' governance often reflect informal bargaining power much more than formal institutional frameworks. This paper uses the case of Uganda's capital Kampala to explore how political configurations subvert structures of city governance, with particular attention to the increasing engagement between President Museveni and particular groups of informal workers. We present empirical research on market vendors and motorcycle taxi (boda-boda) drivers showing how this engagement benefits both the informal groups and the president. Increased political competition has created an environment where informal groups seeking to protect their livelihoods can tactically leverage a presidential intervention in their favour, helping them evade the policies and regulations of the City Council. Meanwhile, the president has used these interventions to build support in a city that was largely lost to the opposition. These processes have progressively undermined already weak formal institutions for urban governance.</p>
<p>Mwakapasa, E. (2011) Attitude towards and practice of helmet use among commercial motorcyclists in Dar es Salaam region, Tanzania</p>	<p>Motorcycle accidents form a fatal category of motor traffic accidents. Motorcycle riders have a 34 times risk of death than the drivers of other types of vehicles and 8 times more likely to be injured. The non-use of helmet is a specific factor leading to head injuries and fatalities resulting from motorcycle crashes. Objectives: The purpose of this study was to explore the commercial motorcyclists' attitude and their practices of helmet wearing. The specific objectives were to determine the following among commercial motorcyclists in Dar es Salaam region: attitude of helmet use, proportion of commercial motorcyclists who wear helmet and the practice of helmet use. Material and methods: A cross-sectional survey was conducted in urban and peri-urban areas of Dar es Salaam region in May, 2011 at randomly selected commercial motorcycle parking points. A total of 273 conveniently selected eligible commercial motorcyclists participated. Face-to-face interviews were performed using a standard questionnaire while observation was conducted using an observation checklist. Data was analyzed using SPSS version 16.0. Results: All commercial motorcyclists were males, with the majority (64.8%) with primary education. The proportion of commercial motorcyclists who reported to wear helmet was 81.3%. However about two thirds of them (67.6%) reported to not wear helmet consistently. Helmet wearing was strongly predicted by having a positive attitude towards helmet for passengers (p=0.005), protective ability of helmet against head injury (p=0.003), wearing helmet during night (p=0.001) and wearing helmet even for the experienced rider (p=0.000). However in a multiple regression model, it was found that those who agreed regarding the protective ability of helmet against head injury were more likely to wear helmet than those who disagreed (AOR: 0.279; 95% CI: 0.086-0.905); those who strongly agreed on wearing helmet during hot weather were more likely to wear helmet than those who disagreed (AOR: 0.039; 95% CI: 0.002-0.698). Those who strongly agreed on necessity for passengers to wear helmet and wearing helmet during night were more likely to wear helmet than those who were undecided (AOR: 0.091; 95% CI: 0.013- 0.617 and AOR: 0.114; 95% CI: 0.014-0.931 respectively). Those who had primary education were more likely to wear helmet than those who had no formal education (AOR: 6.146; 95% CI: 1.345-28.097). There was no significant difference in helmet wearing between urban and peri-urban areas (p=0.109). A small majority (52.7%) were observed wearing helmet, although 91.8% of them had no passenger's helmet. Conclusion: These findings indicate that despite the inconsistent helmet wearing, commercial motorcyclists had positive attitude towards helmet wearing. Helmet wearing is associated with the level of education and having a positive attitude towards helmet wearing. There is a high disparity on the observed helmet wearing between riders and passengers. Very few among the later were found to be wearing helmet. Recommendations: There is a need to strengthen legal</p>

	<p>enforcement of helmet wearing and ensuring the availability and accessibility of quality helmet to the majority of commercial motorcyclists. There is also a need for regular education campaigns to foster positive attitude towards helmet use. Further explorative studies on the quality of helmet and the factors associated with the use and non-use of helmet among motorcycle passengers are recommended</p>
<p>Norman M, 2012: Thinking of Setting up an Ambulance Referral System? <a href="http://www.eranger.com/NetC.eRanger/media/HomepageImageSlides/Mike-norman-ambulance-programme-set-up-19112012.pdf">http://www.eranger.com/NetC.eRanger/media/HomepageImageSlides/Mike-norman-ambulance-programme-set-up-19112012.pdf</a></p>	<p>A guide on setting up a referral system in Africa. When setting up an ambulance referral system in a rural environment in low income countries there are many factors to consider. Often many obvious things are sometimes overlooked. We have put together some basic points which we have learnt over the many years of supplying eRangers into the field. The information below is by no means definitive but we hope it will be useful to those contemplating setting up a referral system.</p>
<p>Gina Porter, Amleset Tewodros, Flavian Bifandimu, Amanda Heslop, Mark Gorman (2015) Qualitative methods for investigating transport and mobility issues among commonly socially excluded populations: A case study of co-investigation with older people in rural Tanzania.</p>	<p>Qualitative research on transport and mobilities in development contexts is relatively sparse. Following a preliminary discussion of qualitative approaches developed by the first author when researching transport-related issues with commonly excluded populations (women, children, people resident away from the paved road, older people) in rural sub-Saharan Africa, a detailed case study is presented of the methodology employed in an investigation into the transport and mobility problems experienced by older people. This study, which focuses on older people's physical access to health and other services in rural Tanzania, was conducted in collaboration with older people from the Kibaha District of Pwani region. The study is one of the first to explore older people's mobility and associated access to services in Africa and the first to use a co-investigation approach in this context.</p>
<p>Howe, J. (2003). 'Filling the middle': Uganda's appropriate transport services. <i>Transport Reviews</i>, 23(2), 161-176. doi:10.1080/01441640309890</p>	<p>Uganda developed bicycle-based passenger and goods transport services in the 1960s. They were complemented by a motorcycle-based version in the 1990s. These have extended the range and capacity of services, known locally as boda boda. Both have spread over the entire country and the bicycle version into neighbouring Kenya. This paper explains the origins of boda boda, the factors conditioning development, its operating characteristics and the problems they face. This analysis is used to examine the benefits boda boda services have brought to the poor. Boda boda operate where more conventional services are uneconomic or physically impossible. They are found in urban and rural areas where they act as feeder services to the towns or major public transport routes. Because of limited capacity and short trips fares per kilometre are two to seven times those of large-capacity buses. Popularity derives from their ability to meet demands other services cannot. While the poorest make only occasional use, due to low incomes and high costs, for many they enhance income by extending the range and intensity of productive activities. Their main impact on the poor is through the employment provided. Operators are drawn from the least educated classes and each supports five dependants. About 1.7 million people, or 7% of the population, receive part of their livelihood from the industry.</p>

## Annex E: Revised Workplan

		2017				2018										
Task	Sub-Task	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Phase 1: Inception	1.1: Engage National Experts	█														
	1.2: Understand the Existing Situation in Each Country	█	█	█												
	1.3: Prepare for Research Phase				█											
	1.4: Inception Report			★												
Phase 2: Research	2.1: Undertake In-Country Research				█	█	█	█	█	█	█	█	█			
	2.2: Progress Report								★							
	2.3: Preparation of Draft Discussion Papers											★	★			
Phase 3: Uptake & Embedment	3.1: Four-Day Team Workshop															
	3.2: Revision of Draft Discussion Papers															
	3.3: One-Day Country Workshops															
	3.4: Draft Final Report and Draft Country Reports														★	
	3.5: Final Report and Final Country Reports															★
	3.6: Dissemination of Study Findings and Recommendations															

Deliverables and Milestones ★  
 Completed tasks in red. Pending tasks in blue

## Annex F: Risk Matrix

Programme Risk Assessment and Mitigation Matrix			Very High	High	Medium	Low
Potential Risk	Risk Grading <sup>1</sup>		Description of risk	Proposed Management and mitigation actions		
	Probability	Impact				
<b>A. Risks identified in project proposal</b>						
A1: A lack of crash data means that disaggregation of rural/urban data is not possible	H	M	From our past experience, and looking at what we have been able to obtain so far, it seems that crash data in some of the project countries may not be reliable. This will hinder our ability to understand in-depth the location of crashes.	Where reliable data is not available, it may be necessary to allocate some project resources to obtaining stronger data. This may mean working with the relevant authorities to do in-depth analysis of existing raw data, or it may mean collecting primary data.  In Ghana, we will obtain and reanalyse existing crash data (along with other types of data) to better understand the rural situation.  In all countries, we will obtain primary data on injuries through the survey on benefits and disbenefits.		
A2: Challenges in gathering information from stakeholders in the short timeframe	H	L	We have experienced such challenges in both Kenya in Tanzania. In Kenya, the cause was political instability which resulted in difficulties arranging stakeholder meetings. In Tanzania, the cause was the transition of the AFCAP partner institution from PORALG to TARURA which has resulted in delays in being able to officially introduce the project to stakeholders.	We moved the start of the Research Phase to January 2018, giving more time for stakeholder engagement and gathering information on the existing situation.  In Kenya, the political situation is now a little calmer, and stakeholder meetings are possible.  In Tanzania, our Team Leader is planning to meet with PORALG and TARURA. With our Team Leader being based in Tanzania, we have excellent relationships with all government stakeholders, and all stakeholders know of Transaid and Amend's interest and previous work with motorcycles and 3-wheelers in rural areas.		
A3: Strong general opposition towards motorcycles and motorcycle taxis	M	M	Decision-makers tend to live in urban areas and so have a stronger understanding of urban issues than of rural issues. In urban areas in many African countries, motorcycles are commonly associated with	We will strive to obtain and present a full understanding of transport issues based on data, thereby aiming to enable decision-makers to make policy based on fact rather than on their personal perceptions.		

<sup>1</sup> **Probability** = the likelihood of this risk occurring despite the management and mitigation activities being in place. **Impact:** = the effect on the ability of the programme to achieve its objectives without major revision or review.

Programme Risk Assessment and Mitigation Matrix			Very High	High	Medium	Low
Potential Risk	Risk Grading <sup>1</sup>		Description of risk	Proposed Management and mitigation actions		
	Probability	Impact				
			crashes and injuries and crime.			
A4: Assignment consolidates existing data and does not contribute 'new research and evidence'	M	L	The Terms of Reference imply a large dependency on secondary data.	Through the agreed research activities, we will obtain primary data in all four countries, as well as reanalysing existing data in Ghana.		
<b>B. Risks identified since project commencement</b>						
B1: Delays due to in-country instability	M	M	<p>During the Inception Phase, we have seen how political instability related to the general election in Kenya forced the postponement of the Team Planning Meeting and has made stakeholder meetings difficult.</p> <p>We are also aware that the World Health Organization is putting in place precautionary measures in Kenya and Tanzania related to the recent outbreak of plague in Madagascar.</p>	<p>We are continuing to monitor the political and health situation in all project countries, using the UK Foreign and Commonwealth Office and WHO websites as well as our network of in-country contacts.</p> <p>We will warn our team members of any risks that could affect them and will not ask anyone to perform any tasks that could put them at risk.</p>		

Programme Risk Assessment and Mitigation Matrix			Very High	High	Medium	Low
Potential Risk	Risk Grading <sup>1</sup>		Description of risk	Proposed Management and mitigation actions		
	Probability	Impact				
B2: Risks associated with working in rural areas	M	L	There are numerous potential risks associated with working in rural areas in Africa. These include risk of road traffic crashes, security risks, health risks and more.	<p>Transaid, Amend and TRL have significant experience of managing projects in rural areas in Africa. All of our team members have experience of working in rural areas.</p> <p>We will not ask any members of the team to travel to areas that are deemed high risk by the project team. We will ensure that all team members required to work in rural areas take all reasonable precautions including, for example:</p> <ul style="list-style-type: none"> <li>- Using only vehicles hired from reputable companies with professional drivers, and vehicles in excellent condition</li> <li>- Staying in accommodation with adequate security</li> <li>- Staying in groups of no less than two at all times</li> <li>- Maintain regular communication</li> <li>- Only drinking bottled water</li> </ul> <p>We also require consultants to follow the standards from their respective companies (where this is applicable) and also to adhere to Transaid’s code of conduct which all team members must sign.</p>		
B3: There is a risk that the survey will not be completed in the timeframe available	M	H	It has been agreed that a survey will be conducted across the four countries. This requires design, focus groups, ethical approval, training of research teams, data entry, analysis and report writing. There is a risk that the survey will not be completed in the timeframe available.	<p>Mitigating actions will include:</p> <ul style="list-style-type: none"> <li>- Careful planning of the critical path and all dependencies</li> <li>- Early submission for ethical approval – it could take up to three months for ethical approval to be granted.</li> </ul>		