



AfCAP
Africa Community Access Partnership



Rural Transport Diagnostic Study in Sierra Leone

Final Report



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Cover Photo: light truck transport freight and people on the Gbondapi-Pujehun town road. All pictures ©Krijn Peters (The use of this picture does not imply ReCAP endorsement of such transport practices).

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Abstract

This study sought to understand the existing public transport systems for communities along and within the catchment areas of selected rural roads in Sierra Leone. The results presented are based on a study of three rural roads. These roads are located in the country's coastal plains zone, interior zone and the interior plateau zone. The rapid rural appraisal methodology was used to gain a deep understanding of the existing rural transport systems based on in-depth qualitative interviews with transport users, operators, regulators and those concerned with socio-economic development. Through this method, reliable 'order of magnitude' estimates were derived, related to movements of people and goods, transport fares and preferences of road users for distances greater than 5 km. The study showed that in all three locations the main modes of transport providing daily rural transport services are motorcycle taxis, and that in two of the three locations there is an additional early morning and late afternoon service offered by car taxis and /or minibuses. No large buses serve the rural communities. On market days, both the number of transport services and the variety of transport modes operating on the road increases. Despite dissatisfaction with high fares, as compared to the other modes of transport, motorcycle taxis are generally praised by rural transport users. They leave instantly, pick up and drop off exactly where the passengers desire, are integrated with mobile phone technology, provide courier services, offer quick transport, and provide emergency services.

Key words

Rural transport services; Transport operators; Rapid rural appraisal method; Motorcycle taxi; Motor-tricycle; Intermediate means of transport (IMT); Road catchment area; Coastal plains; interior zone; interior plateau zone; mobile phones.

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.

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Acronyms, Units and Currencies

AfCAP	Africa Community Access Project
AsCAP	Asia Community Access Project
CSIR	Council for Scientific and Industrial Research
DFID	Department for International Development
DFR	Department of Feeder Roads
e.g.	For example
FrT	Freight
HIV	Human Immunodeficiency Virus
hr	Hour
IFRTD	International Forum for Rural Transport and Development
GPS	Global Positioning System
ICT	Information and Communication Technologies
IMT	Intermediate Means of Transport
Km	Kilometre
Le	Leone, currency
LOS	Level of Service
MoT	Ministry of Transport
N	Number/sample size
n/a	Not applicable
n/d	No data
NMT	Non-motorised Transport
Pax	Passengers
PMU	Project Management Unit
ReCAP	Research for Community Access Partnership
RTS	Rural Transport Services
RTSi	Rural Transport Services Indicator
SLL	Sierra Leonean Leone
SSATP	Sub-Saharan Africa Transport Policy Program
TA	Technical Advisor
TRL	Transport Research Laboratory
UK	United Kingdom
USA	United States of America
USD	United States Dollar
USDc	United States Dollar cent

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Executive Summary

This Sierra Leone country report is based on detailed interviews with public transport users, operators, regulators and local development experts along three representative feeder roads in three diverse geographical and climatic regions in the southern, central and northern parts of Sierra Leone. The main purpose of this study was to better understand and measure 'the adequacy of rural transport services for meeting the access needs of rural people in that country. The three individual 'rural transport survey reports' can be found in the online ReCAP Rural Access Library. In this report, the data derived from the three surveyed road reports is aggregated and more general observations, experiences and lessons learnt are drawn. The report concludes with a number of good practices, recommendations and suggestions for evidence-based policy formulation and for further research to increase the understanding of the opportunities and challenges rural people face in their transport needs.

The survey methodology focused on four groups of transport stakeholders: users, operators, regulators and local development experts, and used the qualitative 'rapid rural appraisal' methodology, based on nearly 75 detailed interviews. The fieldwork brought to the fore many issues concerning rural transport services, which are relevant to local and national stakeholders. A summary of these is presented as follows:

- The motorcycle taxi (MCT) is the most dominant and readily available mode of transport on all three surveyed rural roads by quite some margin.
- The motorcycle taxi sector provides direct jobs (as operators) and indirect jobs (as mechanics and motorcycle washers) to what may be hundreds of thousands of often low-skilled youth.
- Motorcycle taxis are an expensive mode of transportation for rural dwellers, often 2, 3 or even 4 times as expensive (per kilometre) than more conventional means.
- Promoting the use of the cargo motor-tricycle – which can be used in the transport of both passengers and freight – should be further explored.
- Motorcycle taxis are generally very well integrated with mobile phone technology. Further roll-out of mobile coverage in rural areas will therefore facilitate and improve rural transport services.
- The accident rate of motorcycle taxis is high, although their share in the public transport sector is also very high. Further measures should be taken to improve MCT safety for operators and users, including those which can reduce excessive overloading and improve bodily protection for both operators and passengers.
- Taxis and minibuses serve the roads on normal days in limited numbers, mostly with a morning and a late afternoon service. On market days, taxis and minibuses may visit the communities, scheduling an extra service.
- An early morning mini/midi bus service leaving at a fixed time to the main hub and returning in the late afternoon/evening would guarantee rural dwellers at least one non-MCT travel option each day.
- Better roads increase passenger convenience and safety and reduce vehicle operating costs.
- Drainage along roads and water crossings can be a significant obstacle for transport services. Communities can benefit from technical advice when erecting their own water-crossings.
- Upgrading of rural footpaths to motorcycle accessible tracks/trails opens up areas to motorised transport and provides a cash injection into rural communities.
- Track construction is 10 to 20 times cheaper than feeder road construction and can be both complimentary to feeder road construction as well as being an alternative to it, whenever resources are limited.

1 Introduction and Background

This report is based on a detailed study of three representative feeder roads in three diverse geographical and climatic regions of Sierra Leone, namely the coastal plains zone in the South, the interior zone in the centre, and the interior plateau zone in the North of the country. More specifically, the road studies were conducted in Pujehun District (Pujehun town-Gbondapi road), in Bombali District (Batkanu-Makoth road) and Koinadugu District (Kabala-Bafodia road) (see Figure 1). In this report, the data of the three surveyed roads is aggregated and more general observations and lessons learnt are drawn. At the end, the report presents a number of good practices, recommendations and suggestions for further research to increase our understanding of the opportunities and challenges rural people face in their transport needs, and to enable evidence-based policy formulation.



Figure 1 - Map of Sierra Leone highlighting Pujehun, Bombali and Koinadugu Districts

1.1 Brief project background

Sierra Leone is in a phase of post-conflict and post-Ebola recovery. In terms of the Human Development Index, Sierra Leone has one of the highest poverty levels in the world. During the 11-year period of civil war between 1991 and 2002, much of the country's infrastructure was damaged or fell into disrepair. In 2011, the African Development Bank ranked the country 50th out of 53 in the Africa Infrastructure Development Index. The Government of Sierra Leone (GOSL) has made infrastructure recovery a priority focus. There is a need to tackle rural isolation, promote community engagement, and integrate transport infrastructure networks across the country. The Rural Access Index (RAI) (measured by the percentage of the rural population within 2 km of an all-season road), has a score of 65% in Sierra Leone (World Bank, 2010), which is comparable to the RAI in Ghana and Liberia, and significantly higher than many African countries such as Ethiopia (21%). Strengthened and sustainable transport systems are vital for livelihood improvement. In 2011, the Africa

Infrastructure Country Diagnostic showed that infrastructure growth between 2003 and 2007 added only 0.5% to per capita growth.

In the current post-Ebola recovery period, a significant proportion of national and international resources are being utilised in 'Support of the President's Delivery Plan', focusing on water supply, health and related infrastructure, and not on roads and transport infrastructure. Road transport is the most dominant mode of transport and represents about 85% of the entire transport system in Sierra Leone. 95% of the inland transport of passengers and goods is carried out on roads. As part of the effort towards the attainment of its post-war economic development goals, the Government of Sierra Leone is seeking to develop a sustainable rural transport system which is responsive to local transport priorities and needs, in order to address mobility and access challenges experienced in rural communities. Sierra Leone Road Transport Corporation, a government-owned national bus service, provides good public transport along the main national road network. However, transport between villages, markets and service centres, along low-volume rural roads (LVRR) is more of a problem. On these roads, the main means of transport is generally motorcycle taxis, with some rural taxis, minibuses and/or pickups on market days. Young men (and some young women) provide motorcycle taxi services, and this has been a valuable means of employment in the post-conflict period. Rural people require more affordable and timely transport to access markets, health services, education and income-generating opportunities.

The spread of commercial motorcycle taxis started from the early 2000s when the civil war came to an end. During the war, many car taxis were either destroyed or driven to safety and sold in neighbouring countries. Furthermore, road maintenance, let alone road construction, came to a complete standstill. These factors, in addition to the lower purchasing costs of motorcycles as compared to cars and mini-buses, contributed to the introduction and rapid spread of motorcycle taxis, first to the urban areas and later to rural localities. So far, studies on this phenomenon in Sierra Leone have mainly focused on the early years, where it was argued that many of the riders were ex-combatants who had failed to make a meaningful livelihood from their Disarmament, Demobilisation and Reintegration training (Peters, 2007; Denov, 2011). Other publications focused on the role of motorcycle taxis in urban areas (Burge, 2011; Menzel, 2011); and on the role of motorcycle taxi unions (Richards et al., 2004; Baker, 2006; 2008). However, while the economic impact of rural road construction is fairly well understood in Sierra Leone (Casaburi et al, 2013) the socio-economic impact on rural communities as a result of the introduction of rural motorcycle taxi services has been hardly researched, let alone quantified.

Available and worthwhile literature on rural transportation in general, and feeder roads in particular, is limited in reference to Sierra Leone. There are two main studies that cover this topic, namely: the "Socio-economic and Environmental Impact Assessment of Feeder Roads in Sierra Leone", funded by the World Bank and conducted in 2003 and 2004 (Mustapha and Sesay, 2004); and the "Environmental Impact of Feeder Road Rehabilitation in 4 Districts in Sierra Leone", again funded by the World Bank and undertaken between June and July 2010 (Mustapha et al, 2010).

The 'General Transport Sector Study', which was undertaken in 1993 by Faux and Mustapha and funded by the World Bank, highlighted the role and operational significance of feeder roads in Sierra Leone's economic development efforts. This study formed the basis for the "Transport Sector Project", which sought to rehabilitate existing dilapidated transport infrastructure, including feeder roads, in all 12 districts in Sierra Leone. The Transport Sector Project was succeeded by the Infrastructure Development Project and Investment Plan which has itself been succeeded by the Transport Infrastructure Development Project located in the Ministry of Transport and Aviation.

The “National Traffic Census”, which was carried out in 2010 by Mustapha and Pearce on behalf of the Sierra Leone Roads Authority (SLRA) and the Government of Sierra Leone, identified key feeder roads which had suffered extensively from neglect due to the civil conflict (1991-2002), and which needed to be rehabilitated to facilitate rural transportation.

Occasional papers prepared by staff from the Sierra Leone Roads Authority (SLRA) are available, but do not adequately cover rural transportation. The Ministry of Transport and Aviation has paid limited attention to rural transportation, concentrating on intra-urban and inter-urban transport.

The 2011 National Rural Feeder Roads Policy, formulated by the Ministry of Works, Housing and Infrastructure, is arguably the most important document in guiding feeder roads construction and maintenance. However, most of its contents are framed as ‘policy directions’ rather than ‘hard’ policy. Primarily, it deals with feeder road construction and maintenance rather than rural transport services, and implicitly assumes that rural transport will sort itself out once roads are constructed. There are two key issues worth flagging up here. Firstly, the categorisation in feeder roads: Type F1 (6 m wide carriageway with hard shoulder and 150 mm thick wearing surface); Type F2 (6 m wide carriageway without hard shoulder and 100mm thick wearing surface) and Type F3 (4.5 m wide carriageway with no hard should with laterite/earth surface). Traffic volumes are defined as follows: F1 maximum of 100 passenger car units (pcu) per day; F2 maximum of 50 pcu per day; F3 no set maximum but understood as below F2. Secondly, 20% of the Road Fund, established for the maintenance of all roads in Sierra Leone, will be allocated to the maintenance of rural roads. Further financing comes from consolidated revenue and donor funding.

This study is therefore timely and essential, since it will provide information which will assist the Government of Sierra Leone to formulate and implement meaningful policy on rural transportation.

1.2 Project objectives

The overall objective of the project was to understand the existing rural transport systems in Sierra Leone based on understanding the needs and perspectives of different transport users, transport operators, transport regulators, and those responsible for socio-economic development with the view to identifying constraining factors and relevant topics and to influence improvements in Sierra Leone's rural transport services, policies and practices. The other project objectives covered research, capacity building, uptake, and embedment.

1.2.1 Research objectives

The research objectives are:

- To explore the current state of rural transport in Sierra Leone in light of the changing rural environment, against the background of increased access to motorcycles, widespread use of mobile phone coverage, and changes to rural governance structures and economic foundations.
- To explore the reality of how rural communities organise their access to markets, services and opportunities.
- To explore the current practices of transport service providers in terms of operating costs, charges, service frequency and quality, regulatory compliance and customer satisfaction, with a view to identifying scope for improvements in service provision.
- To identify gaps in understanding of current rural transport needs and preferences for rural people (of different genders, age, occupations and abilities) for dependable and affordable passenger and small freight transport.
- To highlight opportunities for evidence-gathering, policy changes, strategic planning and practical ways of improving rural access and mobility in Sierra Leone.

- To provide a platform on which further research, policy changes and practical improvements can be based.

1.2.2 Capacity building

Capacity building and knowledge dissemination are integral parts of the AfCAP programme. The Consultants were therefore to engage with the assigned counterpart staff of the Sierra Leone Road Safety Authority to ensure that the knowledge acquired throughout the project was transferred and entrenched within the agency. The rural transport surveys were also to provide opportunities for engaging with local stakeholders, including transport operators and local authorities and organisations, particularly during the data collection stage.

1.2.3 Uptake and embedment

Uptake and embedment are key targets for AfCAP and were so for this project. The Consultant was to ensure that the implementation and outputs of this diagnostic study facilitated the uptake and subsequent embedment of improved practices, policies and strategies. The uptake and embedment related to policy and regulatory reforms in rural transportation in Sierra Leone (at national and/or local levels), and/or operational practices of transport operators and other actors. The study was to support the acquisition of knowledge and improved capacity of trained technical staff which was required for delivery of the development of the rural transport sector.

1.2.4 Scope of study

The tasks carried out to achieve the project objectives were/are as follows:

1. Literature review of previous international and national works relevant to the rural transport study in Sierra Leone.
2. Selection of candidate feeder roads based on the hub and spokes method for the assignment.
3. Ensuring smooth community entry by clearly explaining the study objectives to the community leaders for their maximum support, identifying and hiring interpreters where necessary for the interviews.
4. Conducting the interviews with the community dwellers along the identified routes and with those in the catchment areas, bearing in mind the need for gender balance and having road users of different occupations, ages and abilities; and with transport operators, regulators and development-related persons.
5. Geo-referencing of all survey locations, using Geographical Positioning System (GPS) and carrying out prompt triangulation of field data to ensure consistency and accuracy of the data.
6. Hiring and training enumerators for the classified traffic counts. The traffic categories included conventional motorised vehicles such as car taxi, mini- and midi- buses, medium trucks, etc., and intermediate modes of transport (IMT) such as motorcycle and motor-tricycle and non-motorised transport (NMT) including bicycles and pedestrians. The traffic counts were conducted on market and non-market days on selected representative spokes.
7. Undertaking field data entry and cleaning of data using standard Excel Spreadsheets.
8. Carrying out detailed analysis to establish the 'rural transport premium' for each study area and transport users' preferences and needs.
9. Submission of three Survey Reports, one for each study area, and a Draft Final Report describing the methodology and key findings and initial recommendations.
10. Conducting a stakeholder consultative workshop (December 2017) to discuss the draft final report and the three rural transport services survey reports to agree on the recommendations and policy-related issues for improved rural transport services and writing a Stakeholder Workshop report (see Annex A).

11. Submission of a Final Report based on the draft final report and the discussions to be held at the stakeholder workshop (December 2017)
12. Submission of a Policy Brief summarising the rural transport services situation observed and key issues relating to policies and practice and circulating the material in Sierra Leone and elsewhere (January 2018).
13. Submission of an academically-oriented research paper fit for an internationally peer-reviewed scientific publication (January 2018).

1.2.5 Approach and methodology

This section describes the approach and methodology adopted to fulfil the aims of the study. The survey methodology used by the team was based on the methodology developed by Starkey et al. (2013a; 2013b). To date, this is arguably the best methodology to assess rural transport services rapidly and at low cost, and has been designed and tested in a number of Sub-Saharan countries. Furthermore, this allows policy makers to easily compare the Sierra Leone data and findings with data and findings from other Sub-Saharan countries (e.g. the Technical Assistant (TA) has been involved in a similar rural transport services study in Ghana). As for all its uniqueness and context specificity, there are also considerable similarities between the various African countries and lessons that can be learned from neighbouring countries.

The survey methodology focused on four groups of transport stakeholders: users, operators, regulators and development personnel. The methodology is based on the 'rapid rural appraisal' methodology and is qualitative in nature (Starkey et al., 2013a; Starkey et al., 2013b; Njenga et al., 2013; Kentsop and Starkey, 2013; Willilo and Starkey, 2012; Starkey, 2007a; Starkey, 2007b). It provides a detailed and in-depth understanding of the needs and experiences of the various transport stakeholders, rather than a narrower perspective and understanding gained by large quantitative studies of transport needs (for the four different questionnaires, see Annex B, C, D and E). Nevertheless, once the interview numbers of the three separate road studies were aggregated, this resulted in fairly sizeable numbers, with the 'user' category being based on nearly 75 detailed interviews. The methodology further allowed for a proper gender-balance in respondents, where appropriate. That is, while in the 'user' category the team ensured that men and women were interviewed in equal numbers, the 'operator' profession is completely male-dominated, and hence, no women were interviewed. The more qualitative approach also allowed researchers to hear the perspectives and understand the experiences of user categories which are sometimes overlooked in large random sampled studies, such as the elderly or disabled persons.

Questions asked to the various transport users ranged from satisfaction levels regarding fares, journey time, service frequency and service predictability to satisfaction levels regarding safety and security, comfort, environment and access for vulnerable people. Another important topic for which responses were gathered concerned satisfaction levels for medium and large freight, which is often of key importance to rural transport users. The questionnaires further distinguished various modes of transport, including motorcycle taxis, car taxis and mini- and midi-buses, and the costs of fares for both passenger and freight were asked for, in addition to the duration of roadside waiting times. An important feature of the rapid rural appraisal method is that in addition to 'ticking boxes' and 'producing figures', views, experiences, beliefs, and opinions can be recorded. Whether or not these are based on 'facts', they do provide further insight as they have an impact on real-life behaviour: for instance, respondents recognise that motorcycle use can be more accident prone, but that, despite this, there are still even greater benefits from the flexible mobility and door-to-door service they provide. There is also the perception that a shared crash helmet can transmit diseases, despite academic studies not necessarily backing this up.

In addition to the user interviews, which made up the bulk of the interviews, for each surveyed road the team interviewed operators of the various modes of transport. Questions were focused on fares, frequency and disruptions and an additional set of questions highlighting access to capital, security and regulatory issues (examples of the survey forms/ checklists are attached). Some data on Vehicle Operating Costs were also gathered, although this often proved to be difficult with operators not recalling all (maintenance) costs over a year long period or because of lack of clarity in who pays for what when a mode of transport is owned by one person but operated by another. Regulators were also interviewed and asked to comment on various aspects of compliance, including technical, operational and fiscal compliance. As with the users and operators, the regulators were asked to break down their answers for the various modes of public transport providers. For the purpose of this study, we considered transport union personnel as regulators, although we acknowledge that they have a specific mandate and interest. A final category of interviewees was asked to comment on 'development-related issues'. Again disaggregated for the various modes of transport, these persons – ranging from local authorities, to nurses to primary and secondary school headmasters – were asked to indicate the contribution of the transport modes to issues such as agricultural development, health needs, gender empowerment, and educational needs.

The data gathered via the interviews was complemented by traffic count data for each surveyed road. For each road a twelve hour (06:00 to 18:00) traffic count was conducted, at two or three strategically chosen locations, so that all traffic using the road – rather than traffic within the community – was counted. Furthermore, these traffic counts were conducted on a non-busy (normal) day and a busy (market) day. The team ensured that the normal day traffic count always fell on a week-day (see Annex F for the traffic count sheet).

The survey work on these Sierra Leonean rural roads has brought to the fore many issues concerning rural transport services, which are relevant to local and national stakeholders. A summary of these is presented in the following sections of the report. More detailed statistics and observations, with regard to each surveyed feeder road, are presented in the annexes of this report, and the reader is urged to look at these as well, to better appreciate and understand the opportunities and challenges for rural transport services in Sierra Leone.

2 Overview of the three roads surveyed

The conceptual framework underpinning this research is the *hub and spokes* model. This framework uses the idea of the bicycle wheels and spokes to illustrate the convergence or divergence of road networks from a settlement (Starkey et al., 2007a). Akin to the bicycle wheels, the hubs are the settlements which can range from a small village to a national capital while the spokes are the road (route) networks which can range from a footpath as the lowest order to a highway as the highest order. The concept of hubs and spokes is assumed to have a catchment area, with hierarchical structured interactions between smaller and larger units. For this study, operators, regulators and local development experts residing along the main feeder roads and in the hubs were interviewed, as well as respondents living off the main road but within the catchment area of the selected road. Candidate roads were selected following discussion between the Consultants and the Department of Feeder Roads. The ultimate decision was taken in the field, after assessing the candidate roads for suitability in light of the required parameters.

The rural transport diagnostic study was carried out in three ecological zones to appreciate the movements of passengers and small freight on selected rural roads in the three broad geographical areas of Sierra Leone. The three ecological zones are the low-lying coastal plains zone in the southern part of the country, the flat *boli-land* zone in the interior zone in the central part of the country, and the hilly/mountainous interior plateau zone in the northern part of the country. Figure

2 shows the three districts which represent the ecological zones. Spatially, one rural road was surveyed in the Pujehun District to represent the coastal plains zone, a second road was surveyed in Bombali District to represent the interior zone, and a third road was surveyed in Koinadugu District, to represent the interior plateau zone.

2.1 Batkanu-Makoth road, Bombali District, Sierra Leone

The surveyed road runs from Batkanu, the chieftdom headquarters town of Libeisyagahun Chieftdom, to Makoth. Makoth is situated on the Makeni-Lunsar highway, just under 20 km south of the capital of the Northern Province. The road is a gravel road, on average 3 to 4 metres wide. There are no signs of recent maintenance on the road, and there are many potholes. The road is in the flat ‘*boliland*’ region, with extensive rice farms on both sides. Villages along the road are built on natural elevations, and some sections of the road also follow slightly higher areas (approximately 1 m higher). During the rainy season the agricultural lands, and some of the lowest sections of the road, become flooded. There are no large river crossings, and there are only a handful of culverts. Batkanu has a number of services available, ranging from a health clinic, police station and secondary school as well as the seat of the chieftaincy. Travelling toward Makoth, one passes a number of villages. Most people along the road are dependent on semi-subsistence agriculture. Crops include rice, maize, groundnuts, and vegetables like pepper and okra. Orange and mango trees are also common. Livestock is in the form of chickens, sheep, and goats.

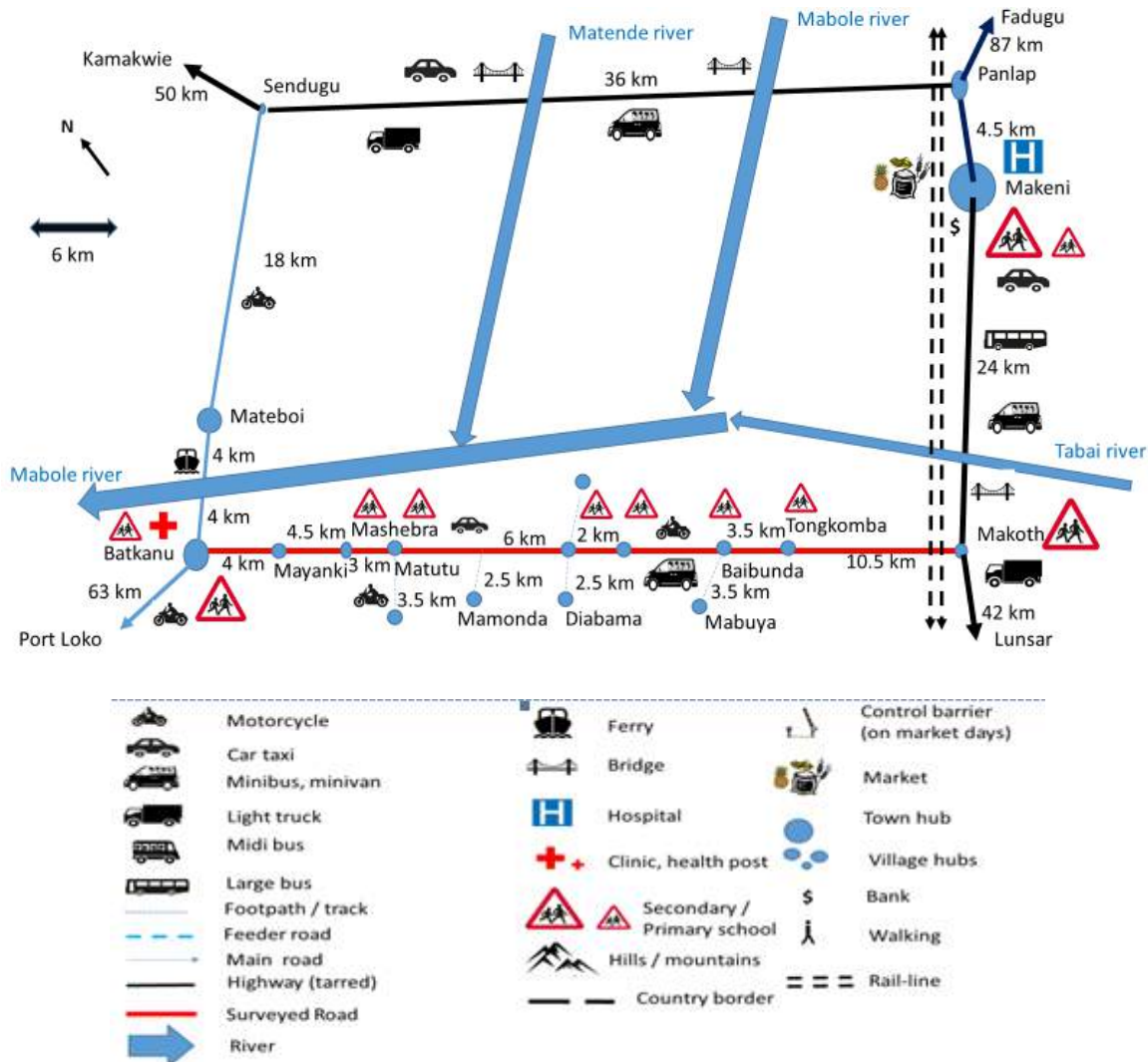


Figure 2 – Batkanu-Makoth road showing the main road features

Batkanu, despite being a Chiefdom headquarters town, is a town with limited facilities and a low population. During the colonial era, it was the seat of the colonial district commissioner for the North, but its central position has long been lost. It is located halfway along the Port Loko-Kamakwie road, but traffic going from Port Loko to Kamakwie or vice versa will take the Lunsar-Makeni highway. This is a significant detour, but is still much faster because of the better quality of the road (paved versus gravel) and the absence of ferry crossings. Batkanu acts as a local hub for the villages around it. From Batkanu, transport services leave for Makeni, which is the main hub in the North and a city with a full range of facilities. To reach Makeni, people leaving from Batkanu have to travel the 43 km road to Makoth. Here, they either continue with the same transport mode, or change and hop on one of the frequently passing public transport providers, whether MCT, car taxi or mini-bus. Makoth itself is a small community and mainly developed because it is at the intersection between the Freetown-Lunsar-Makeni highway and the road to Batkanu. Most transport movements are made by motorcycle taxi, of which there are about 15 riders present in Batkanu. Furthermore, most of the villages along the surveyed road have a few resident motorcycle taxi riders present as well. Every morning a car taxi leaves at around 6.30 from Batkanu for Makeni, followed by a mini-bus at around 7.00 am. This early morning service is possible because the drivers stay overnight in Batkanu. The mini-bus normally travels to Makeni, but trips to Freetown have also been reported, depending on the time of the year. MCT riders normally take the passengers all the way to Makeni, if they know that there are no police-checkpoints between Makoth and Makeni.

Transport services along the road were documented by a two-day traffic count – with one counting station close to Makoth and another close to Batkanu. A third traffic count location was on the ferry between Batkanu and Mateboi. Although this third location was not on the feeder road under scrutiny, it did provide important insights into the wider picture of transport movements around the Batkanu hub. It is evident from the following table that public transport services are overwhelmingly provided by motorcycle taxis.

Table 1 - Annual share (%) of passenger and small freight by mode on Batkanu-Makoth road

Major transport mode	Annual share (%) of passenger transport	Annual share (%) of small freight transport
Car Taxi (saloon/estate)	1.5%	2.7%
Mini-bus	4.5%	8.1%
Motorcycle taxi	94.0%	89.2%

2.2 Kabala-Bafodia road, Koinadugu District, Sierra Leone

The surveyed road runs from Kabala, the capital of Koinadugu district, to the chiefdom district capital town Bafodia. The road is a gravel road, on average 3 to 5 metres wide. On some sections maintenance has been conducted fairly recently, starting from 2012. Other sections still need to be maintained. The road is located in a mountainous region, with significant differences in elevation. As a result some deep run-off channels in the middle of the road have emerged in the steeper sections. There are no large river crossings and only a handful of culverts. As the district capital, Kabala has a number of services available, ranging from a hospital and secondary schools to government buildings and a bank. Travelling toward Bafodia one passes a number of villages and a T-junction where one can go left to Bafodia or right to the market village of Sakuta. Most people along the road are depending on semi-subsistence agriculture. Crops include rice, millet, maize, groundnut, and vegetables like pepper and okra. Pineapples and mango and orange trees are also common. Livestock is in the form of chickens, sheep, goats and cows, with the latter being a safety concern for travellers, because of their size and the fact that they are roaming freely along the roads.

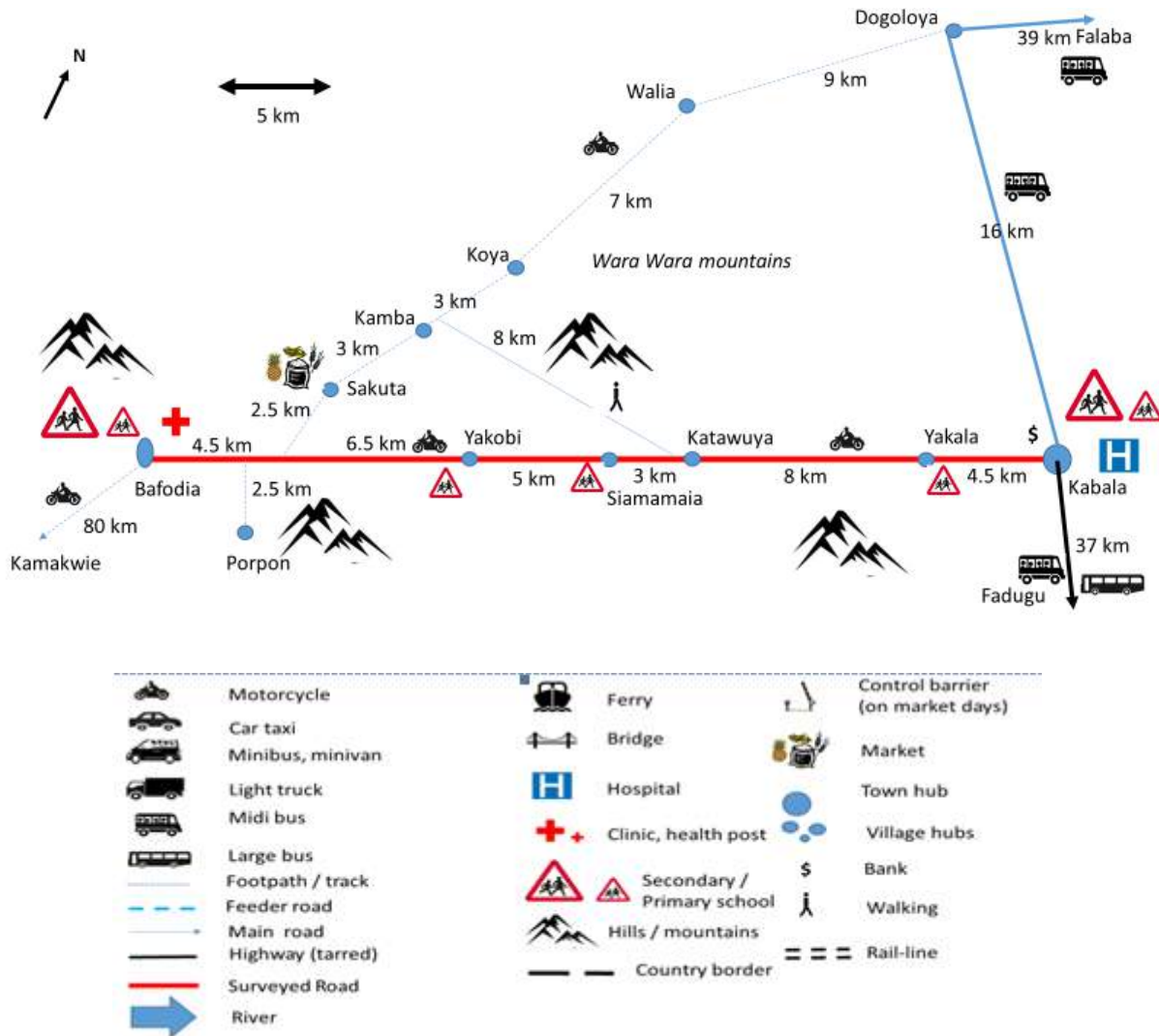


Figure 3 – Kabala-Bafodia road showing the main road features

Kabala, the district capital of Koinadugu, is a significant town. Although the population density in the North is lower than in other areas of Sierra Leone, Koinadugu is the largest district of the country. The road between Kabala and Makeni, Sierra Leone’s third largest city (after Freetown and Bo), which is experiencing a post-war economic boom as a result of mining activities, is paved and in good condition. The 113 km separating the two towns can be covered in a 90 minute to two hour drive. From Kabala the road continues to the Guinea border at Gberia Fotombu – another 65 km or so. But given the bad state of this road, this is not a major border crossing point. From the Kabala car park most car taxis and mini/midi buses leave for Makeni, with only a few leaving for the towns and villages within Koinadugu district. As is the case for our surveyed road, most of the journeys to the Koinadugu towns and villages from Kabala are now undertaken by motorcycle taxis. Bafodia, at the other end of the surveyed road, is not a major transport hub. It is very much at the end of the line, serving as a hub for surrounding villages. However, work is currently taking place on the Bafodia-Kamakwie road. A good connection between Kamakwie and Kabala, although unlikely to result in huge transport movements, will beyond doubt be beneficial to the smaller communities in between. Another road between Bafodia and Kabala, passing through Sakuta and Dogoloya, cuts out most of the steep ascents and descents, although it is nearly twice the length. Just beyond Kamba there is a path branching off to Kabala, which has the advantage of being both relatively flat and cutting off many miles of the Bafodia-Dogoloya-Kabala road. Unfortunately, this path is currently only navigable

for people on foot, although there are plans by the communities to upgrade this to a track that can be navigated by two wheeled vehicles. Nearly all transport requirements on non-market days are met by motorcycle taxis, although there are a few pickup trucks on the road offering their services on a hire-basis. Bafodia has its own motorcycle taxi hub and residential MCT riders, situated in the centre of the village. Most of the villages along the surveyed road also have at least a few resident MCT riders.

Table 2 - Annual share (%) of passenger and small freight by mode on Kabala-Bafodia road

Major transport mode	Annual share (%) of passenger transport	Annual share (%) of small freight transport
Pick-up truck	12.4%	13.8%
Motorcycle Taxi	87.6%	86.2%

Transport services along the road were documented by a two-day, twelve hour (06:00 to 18:00) traffic count – with one counting station close to Kabala and another at Sakuta junction close to Bafodia. It is again evident from Table 2 that public transport services are overwhelmingly provided by motorcycle taxis.

2.3 Pujehun-Gbondapi, Pujehun District, Sierra Leone

The surveyed road runs from Pujehun town, the capital of Pujehun district, to the river-side village of Gbondapi. The road is a fairly narrow gravel road, on average 3 to 4 metres wide. Maintenance has not been conducted for several years now, and the road is full of potholes. Side brushing, and the clearing of drainage channels, is also limited, except for a few sections close to villages. This, in combination with an already narrow road, results in potentially dangerous situations, particularly around corners. As it is located in the coastal plains, the road hardly has any difference in elevation. There are no river crossings and only a handful of culverts. Nevertheless, during the peak rainy months large sections of the road become flooded, which makes navigating the road difficult if not impossible for mini-buses and car taxis. Furthermore, the flooding increases the risk of vehicles getting stuck in the mud and blocking the road for days. The district capital, Pujehun town, has a number of services available, ranging from a hospital and secondary schools to government buildings and a bank. Travelling toward Gbondapi one passes a number of villages and some intersections with feeder roads leading to further away villages. The road terminates at Gbondapi, a quiet village for most of the days of the week. However, on Tuesday and Wednesday, it becomes a bustling market town with trucks and mini-buses arriving from Pujehun, Bo, Kenema and from as far as Waterloo, Freetown and Liberia. On Tuesday, the Gbondapi market trades in agricultural products and manufactured items, while on Wednesday it becomes a fish market. Outboard engine powered boats bring people from the vast and fertile plains and fish-rich rivers and deltas between Gbondapi and the Atlantic Ocean, while others come from as far as Bonthe: a 20 hour boat journey over the Malen, Waanje and Kittam rivers.

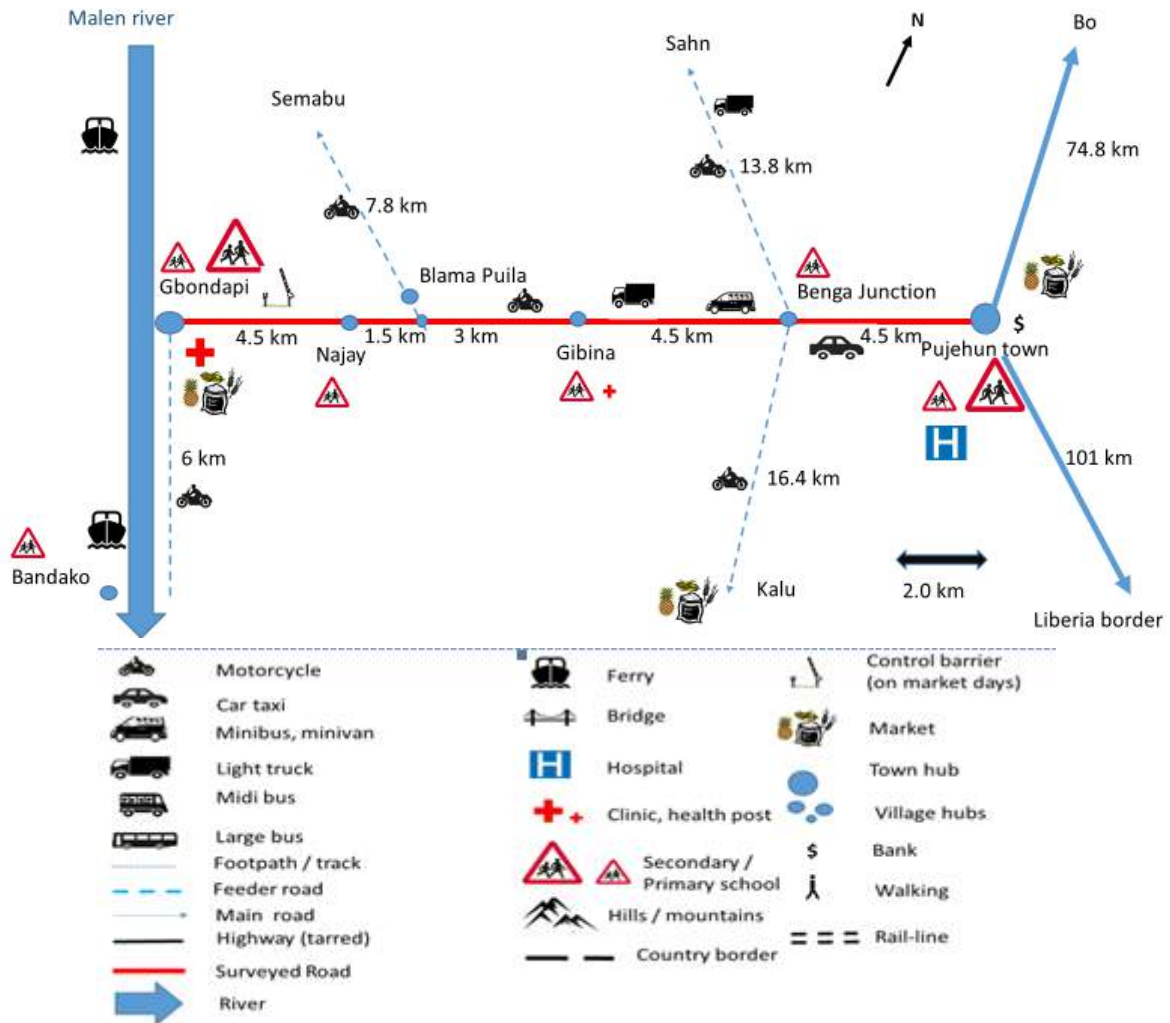


Figure 4 - Pujehun-Gbondapi road showing the main road features

Pujehun town, despite being the district capital of Pujehun district, is a small town. This can be partly explained by the fact that it is not along a main route of trade. The road from Bo – Sierra Leone’s second city after Freetown – to the Liberian border crossing at Bo-Waterside, passes Pujehun town about 24 km to the North. This road is currently being turned into a paved highway under an approximately € 100m construction project, and it is likely that Pujehun town will be connected to this road in the near future. At the moment, the trucks and mini-buses visiting the Gbondapi market from Bo, Kenema and further afield, in many cases bypass Pujehun town and instead use the Koribundu–Sahn road, joining the Pujehun–Gbondapi road at Benga. This bypass is maintained by a company which has a large palm oil factory near Sahn and is in good order. On non-market days few if any trucks or car taxis travel on the surveyed road. There is one mini-bus travelling from Gbondapi to Pujehun town in the morning, returning in the evening. Nearly all transport requirements on non-market days are met by motorcycle taxis. Gbondapi has about 15 resident motorcycle taxi riders for this purpose and almost all the villages along the road, plus many of the villages along feeding roads to the surveyed road have resident motorcycle taxi riders, albeit fewer in number. Traffic numbers, for all modes of transport, increase dramatically during the market day in Gbondapi. At the end of the Wednesday market (early afternoon) some of the traders travel to Pujehun to attend the Thursday market there.

Table 3 - Annual share (%) of passenger and small freight by mode on Pujehun-Gbondapi road

Major transport mode	Annual share (%) of passenger transport	Annual share (%) of small freight transport
Mini-bus	29.3%	25.8%
Light truck	8.1%	16.3%
Motorcycle taxi	62.6%	57.8%

Transport services along the road were documented by a two-day, twelve hour (06:00 to 18:00) traffic count – with one counting station close to Pujehun town and another close to Gbondapi. Despite motorcycle taxis again being responsible for moving around the majority of annual passengers and freight, the picture is somewhat different from the other two locations. This is because the Gbondapi market, stretching over two days, is very large in size, attracting buyers and sellers (with their freight) from further afield. This has a noticeable impact on the annual passenger and freight shares.

2.4 Summary transport characteristics of the three surveyed roads

Table 4 presents the summary transport characteristics of the three surveyed roads and the main market centres which serve as major transport hubs. The table describes the type of road (all surveyed roads were unpaved gravel roads), the existing road conditions and main rural transport modes operating along the surveyed roads. Generally, unpaved gravel roads become more difficult to pass during the rainy seasons. Low-lying sections of the roads get flooded, muddy and slippery and potholes fill up with water, resulting in disrupted rural transport services. Steeper sections of the road (for the Kabala-Bafodia road) become slippery and dangerous. There are days where no conventional transport can pass. Motorcycle taxis can often manage, but with reduced loads and more travel time. Pick-up trucks and light trucks too can often continue to operate during the peak of the rainy season. All three roads suffer from a lack of regular maintenance, although current maintenance activities are ongoing on the Kabala-Bafodia road. Furthermore, some respondents raised questions about the quality of the maintenance, if it takes place, with repaired/maintained sections quickly deteriorating.

On all three roads, the main transport mode for both people and freight is the motorcycle taxi. For the surveyed roads these have partly replaced and partly complemented more conventional modes of transport. For the roads/footpaths feeding into the surveyed roads, the MCTs are nearly always the first mode of motorised transport. In addition, car-taxis; pick-up trucks; mini buses and light trucks are operating on the roads. These are generally low capacity vehicles, with passenger occupancy ranging from one or two for the motorcycles to a maximum of twenty or so for the midi buses. No large buses, with capacity greater than 25 passengers, serve the rural communities, perhaps reflecting the limited density of demand for transport in these relatively small communities. Only the state-run Sierra Leone Road Transport Corporation operates large buses, but these are limited to routes between Freetown and other major towns.

Table 4 - Summary characteristics of surveyed rural roads and their transport systems by ecological zone

Ecological Zone	Rural Road Name and Length	Province	District Name (Capital)	Road Type and condition	Main Market Centre and Market Days	Main Rural Transport Modes
Coastal Plains / Mangrove	Pujehun - Gbondapi 18.3 km	Southern	Pujehun District (Pujehun)	Fairly narrow unpaved gravel road with potholes; disrupted services during rainy season	Gbondapi; Tuesdays and Wednesdays	Motorcycle taxi; car taxi; mini-bus; light truck
Interior zone / Boli lands	Batkanu – Makoth 43.6 km	Northern	Bombali District (Makeni)	Fairly narrow unpaved gravel road with potholes; disrupted services during rainy season	Makeni; Continuous	Motorcycles taxi; car taxi; mini-bus
Interior Plateau zone / Mountainous	Kabala – Bafodia 31.3 km	Northern	Koindagugu District (Kabala)	Unpaved gravel road with some sections in fairly good condition; disrupted services during rainy season	Sakuta & Kabala; Weekly and continuous, respectively	Motorcycle taxi; pic-up truck

3 Key observations from the four survey perspectives

3.1 User perspectives

The majority of the survey interviews carried out at the three different feeder roads were with users. On average, about 20 to 25 users were interviewed per surveyed road, more or less equally divided among the two genders.

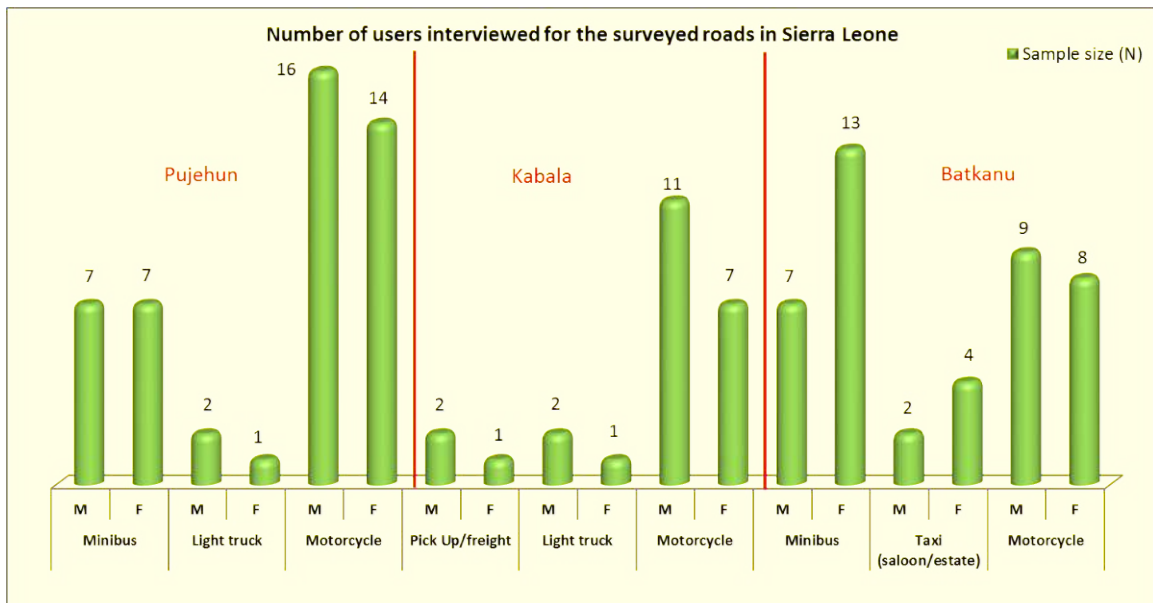


Figure 5 - Number of users commenting on each mode of transport for the surveyed roads in Sierra Leone

Many users had experiences with two different modes of transport; the sample size for the various modes of transport is larger than the total number of users interviewed. Since users were asked to comment on the mode of transport they frequently used – so not on an occasional trip by truck for instance – the popularity of a particular mode of transport can be easily observed from Figure 5, in addition to the gender split.

Users interviewed ranged from young adults to elderly people. They were randomly selected in the community, in clinics and schools, at markets, at public transport waiting areas, etc. The majority of the users were farmers, but traders, students, health users, maternal health care workers, elderly, disabled and those using transport for cultural or religious reasons, to access employment and financial services, were also targeted. In many cases people fell into more than one category, that is, a farmer is often also involved in trading, or an elderly person may also travel for cultural reasons (e.g. to attend a funeral). However, in such cases they still ‘occupy’ only one count in the above figure.

3.1.1 Passenger transport fares

Table 5 shows that the fares per kilometre converted to USD cents,¹ range from USDc 4 for a light truck on the Gbondapi road to USDc 24 for a motorcycle taxi on the Bafodia road. As can be expected, the modes of transport with the largest people carrying capacity have the lowest fares: the personalised nature of motorcycle taxi transport makes it relatively expensive. The fares are highest on the Kabala-Bafodia road, most likely reflecting the many steep hills that need to be ascended and descended. This will naturally limit the load capacity (of both passengers and freight) and result in higher fares for the remaining passengers. As a result, inhabitants of Bafodia pay a huge premium for their transport needs – for motorcycle taxis this is twice the amount as what their counterparts in Pujehun pay, and for four-wheeled transport it is triple the amount that is paid in Pujehun.

Table 5 - Fares per passenger kilometre (USDc) on surveyed road by mode

Major transport mode	Fares per passenger km in USDc for surveyed road		
	Gbondapi road	Batkanu road	Bafodia road
Mini-bus	8	10	n/a
Car Taxi (saloon/estate)	7	13	n/a
Pick-up truck	n/a	n/a	20
Light truck	4	n/a	n/a
Motorcycle	12	15	24

Again, one should be aware that the table above can be easily misinterpreted: although it seems that all locations have two if not three modes of transport plying the road, in reality rural dwellers have little to pick and choose. The larger capacity and cheaper modes of transport either only operate on market days or provide only a very limited number of services. Generally, rural transport needs are met with the motorcycle taxis.

¹ 1 United States Dollar (USD) = 7,515 Sierra Leonean Leone (SLL). Exchange rate dated 1st May 2017.

3.1.2 Average travel speed

The average travel speed of a transport mode is measured in kilometres per hour (km/hr) and is derived from the distance travelled in kilometres divided by the total time taken in hours. It does not simply show how slow or fast vehicles travel on the road, because stopping time during the journey to load or off-load passengers/freight significantly reduces the average speed figures. The average travel speed is a measure of the level of service (LOS) experienced by passengers on the road. The higher the average speed the better the LOS and vice versa. From Table 6 it is clear that passengers on the Gbondapi road experience a better level of service (as far as speed is concerned) than those on the Batkanu and Bafodia road, except when taking a motorcycle taxi. Particularly noticeable is the high average speed of the light truck on this road, which can be explained by the very few times these stop to pick up passengers along the road and because they are less affected by potholes. The car taxi is generally quicker than the mini-bus, again explained by the shorter and fewer stopping times while driving down the road. Generally, motorcycle taxis are quicker, but part of their faster service they offer is because they leave instantly and do not stop in between. The actual speed with which they travel is normally higher than more conventional modes of transport (or at least on gravel roads not regularly maintained) but less than the figures in Table 6 might suggest

Table 6 - Average speed (km/hr) on surveyed road by mode

Major transport mode	Average speed in Km/hr on normal days		
	Gbondapi road	Batkanu road	Bafodia road
Mini-bus	19	10	n/a
Car Taxi (saloon/estate)	27	19	n/a
Pick-up truck	n/a	n/a	11
Light truck	37	n/a	n/a
Motorcycle	18	22	25

3.1.3 Frequency of service by mode and location

Transport frequency is a measure of the number of opportunities for a passenger to travel by a transport mode on the surveyed road on a given normal day. It is also a measure of the availability of a transport mode to the public. It is clear from Table 7 that on all roads, motorcycle taxis offer the most travel opportunities. All hubs (6 in total) had their own motorcycle taxi park (and their own MCT unions), with those in Kabala and Pujehun being particular sizeable. In practice this means that people residing in the hubs can travel anytime they want. This picture changes considerably for people living along the road, particularly if they do not have their own resident MCT operators. While a car taxi or minibus may pass with still one or two places available, most of the MCTs only ride along these rural roads when carrying a passenger. In some cases, a person waiting for transport may be able to still flag down the MCT and negotiate with the operator and passenger already on the motorcycle for a lift. Again, the transport opportunities for the more conventional modes of transport are not equally spread over the duration of the day, but tend to take place in the morning and evening.

Table 7 - Number of transport opportunities available on normal days by mode

Major transport mode	Number of transport opportunities available on normal days		
	Gbondapi road	Batkanu road	Bafodia road
Mini-bus	n/d	3	n/a
Car Taxi (saloon/estate)	n/d	3	n/a
Pick-up truck	n/a	n/a	2
Light truck	n/d	n/a	n/a
Motorcycle	19	35	22

3.1.4 Summary of user satisfaction for motorcycle transport services

Motorcycle taxis have undergone an exponential growth in many countries in Sub-Saharan Africa. Where 10 or 15 years ago one could see an occasional motorcycle in rural areas, perhaps from an NGO worker or a successful master farmer, they are now omnipresent, navigating rural roads and in many cases offering the only motorised access to rural dwellers. Nowhere is this more true than in Sierra Leone (and neighbouring Liberia). In all three locations, MCTs are responsible for the majority of people and freight transport. With the exception of market days, it is difficult to spot another mode of transport providing public transport services, except perhaps for an early and evening run by a car taxi or minibus. But how are the omnipresent MCTs perceived by passengers?

Satisfaction levels of users were defined on a scale of 1 to 5 where 1 represented 'very dissatisfied', 2 being 'dissatisfied', 3 being 'moderately satisfied', 4 as 'satisfied' and 5 being 'very satisfied'. Figure 6 shows that across the three sites, users were generally dissatisfied to moderately satisfied with the services offered by the motorcycle taxis.

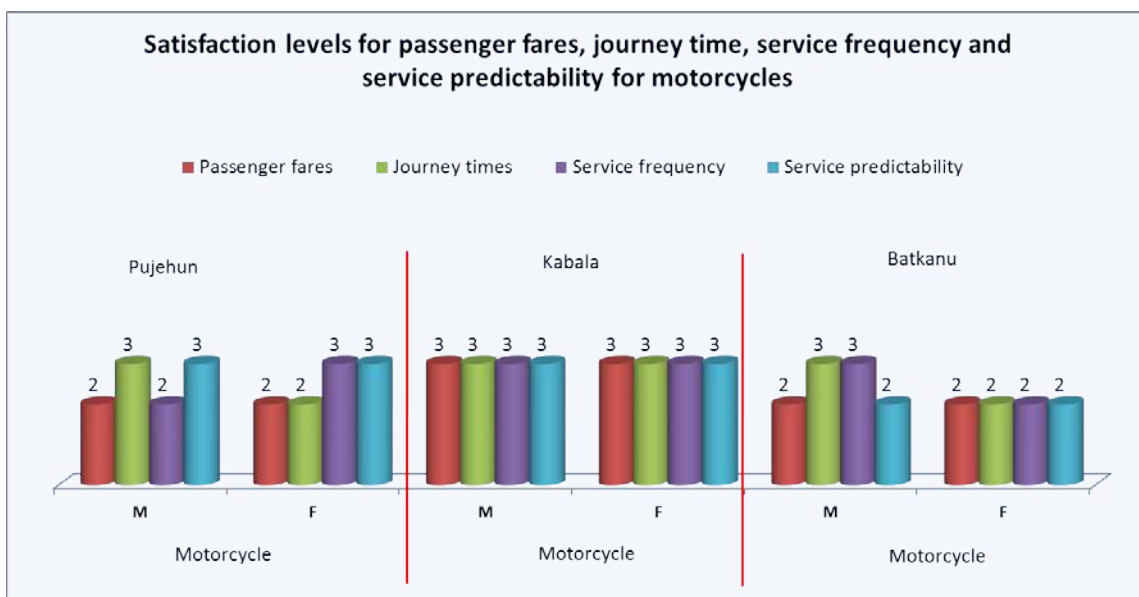


Figure 6 - Satisfaction levels for passenger fares, journey time, frequency and predictability for motorcycles

There is also no noticeable difference (that is more than just 1 satisfaction level difference) between the two genders. If we compare MCTs with the other modes of transport (see hereafter), it becomes clear that the scores of the MCTs are slightly higher than those of the minibus in Batkanu and Pujehun (no minibuses operated in Kabala). For Batkanu, the car taxi on average receives a slightly higher satisfaction score, as compared to the MCT.

Motorcycles are ideally suited to transporting small freight. Some can be spotted transporting surprisingly large and/or heavy freight as well, although operators who own rather than rent the motorcycle tend to be more reluctant to do this. The users on the Bafodia road appreciate the freight services of the MCT the most, but there is little alternative for them besides an occasional pick-up truck going up and down. In both Pujehun and Batkanu, the users have more options and may therefore be a bit more critical of the freight services (see Figure 7).

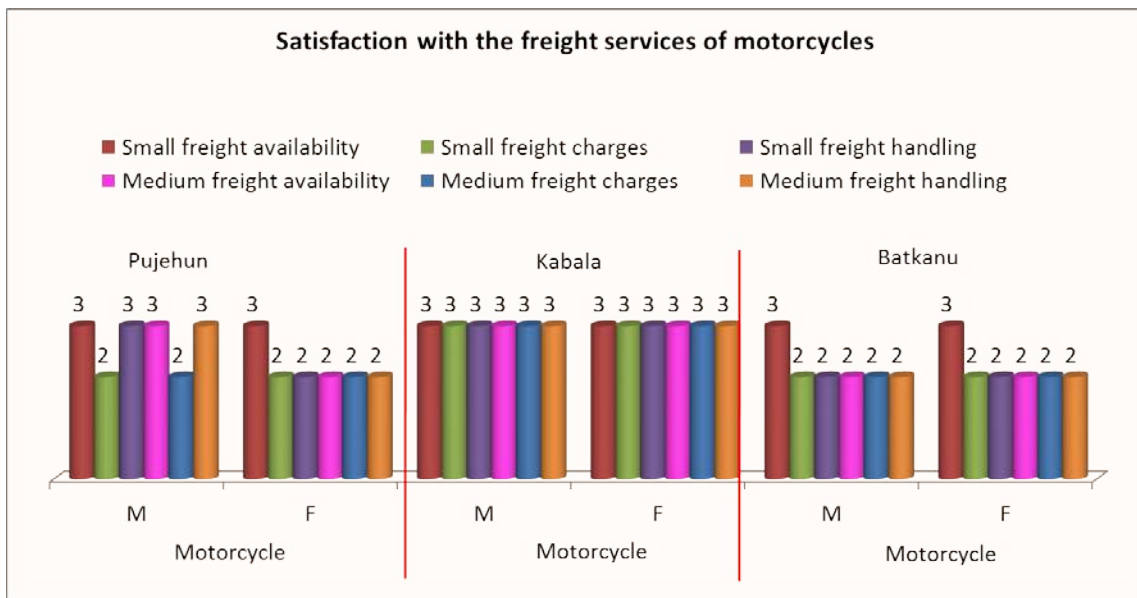


Figure 7 - User satisfaction with motorcycle freight services

Satisfaction levels for safety, security, comfort, environment and access for vulnerable people again do not show significant differences across the three sites. It does seem from Figure 8 that the MCT users on the Batkanu road are generally the least satisfied, while the users on the Bafodia-Kabala road indicated that they were satisfied across the board. Again, the differences are small and there is no clear gender difference either. So far, the Kabala users are the most 'satisfied' with the MCT services across Figures 5 to 7. The fact that prior to the arrival of the MCT villagers in this area had generally no other option than to walk to their destination, may have something to do with this.

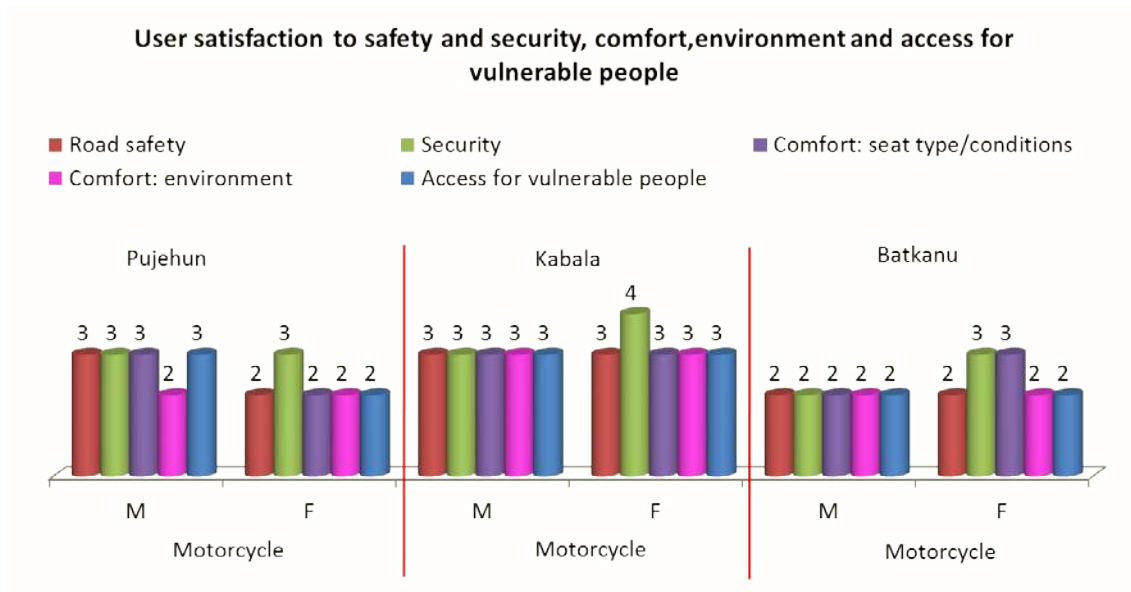


Figure 8 - User satisfaction to safety and security, comfort, environment and access for vulnerable

3.1.5 Summary of user satisfaction with minibuses

The minibus is often referred to as *poda-poda* and operates across the country, although clearly not on all roads. Once the Bafodia-Kamakwie road opens up, it would be interesting to see what mode of transport will start to serve this road: will it be populated by even more MCTs or is there a demand for four wheeled vehicles? Of course, the new road and the surveyed road should be navigable by minibuses in the first place – something that is currently not the case. For the two surveyed roads where they do operate, Figure 9 provides user satisfaction levels about some key indicators. It is evident that they are not considered to deliver satisfactory services by the users. As mentioned, the services offered by the minibuses on the Gbondapi and Batkanu road are ranked slightly lower than those offered by the MCTs on the same roads.

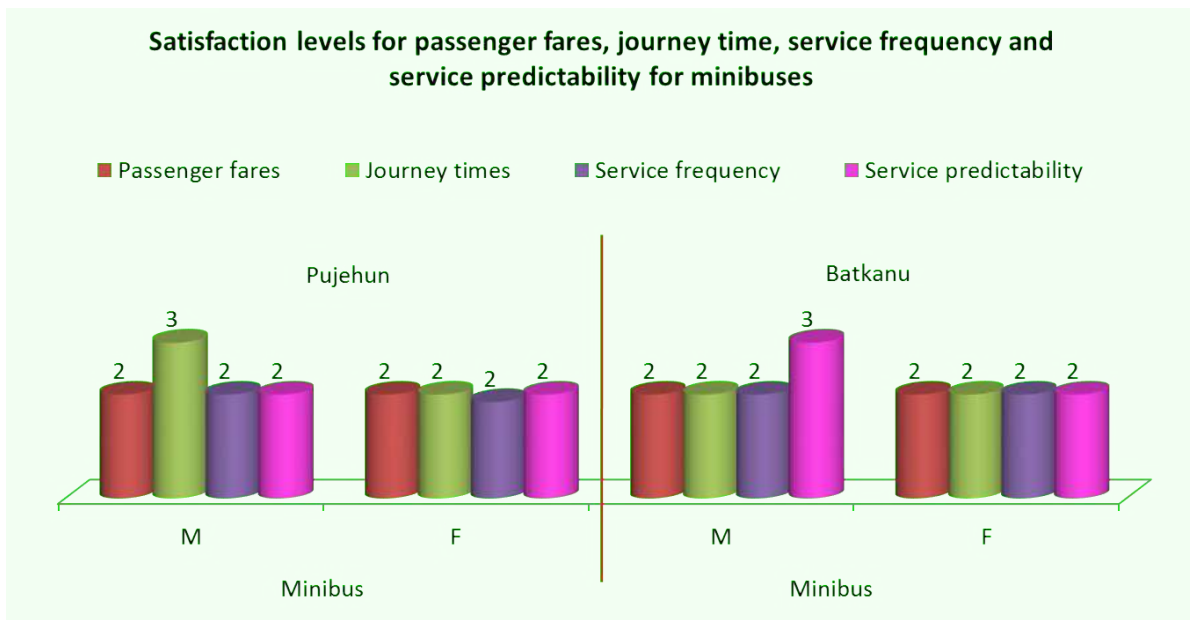


Figure 9 - Satisfaction for passenger fares, journey time, service frequency and predictability

Despite being significantly cheaper than the MCTs, the passenger fares are still deemed unsatisfactory by the users. Clearly, users do not just look at the amount they have to pay, but put

that in perspective with the service they get in return. Despite leaving each morning around the same time from Batkanu, the service predictability is still deemed unsatisfactory. Perhaps this is because the time of the return journey is more erratic.

There are some gender differences when considering freight services, although these are not necessarily significant. However, it may be that women are more likely to transport perishable goods (fresh food items) to and from markets, while men may tend to transport more non-perishable goods. This in turn may explain the slight differences in perceptions related to freight transport (see Figure 10).

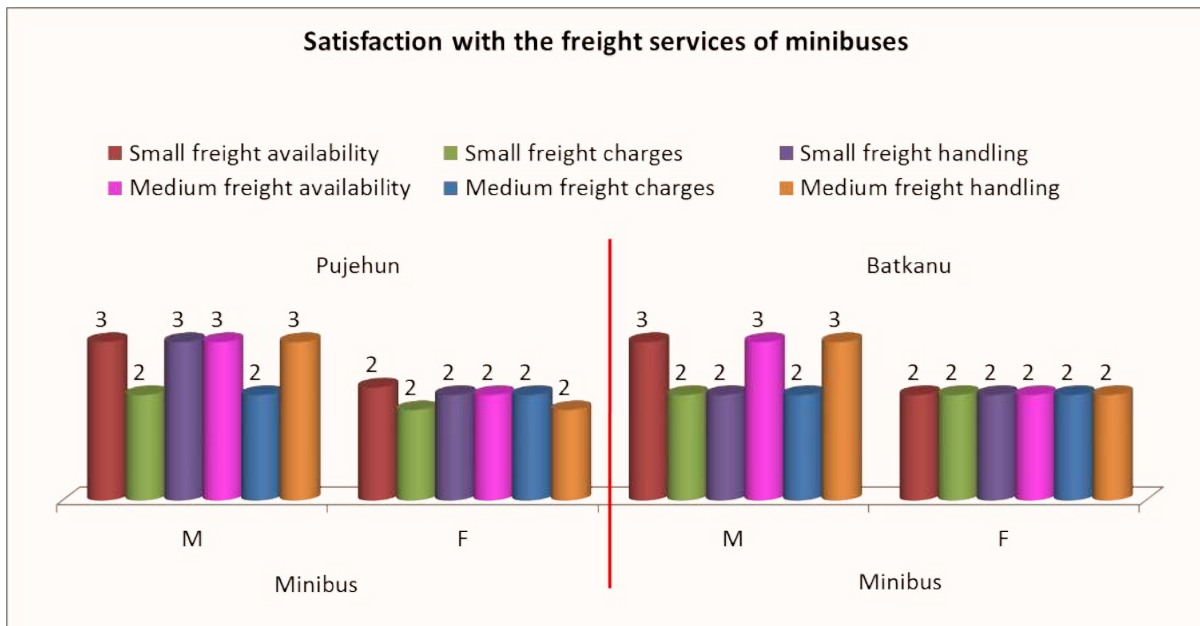


Figure 10 - Satisfaction with freight characteristics for minibus

Road safety and security for minibuses is averagely satisfactory (see Figure 11). Users indicated that they feel better protected inside minibuses in case of an accident, as compared to being on a MCT. There were also no security incidents reported for the minibuses, while some motorcycle jacking cases were reported. Minibuses are ‘beasts of burden’ in rural areas and are often overloaded with both people and freight. It is therefore not a surprise that comfort scores low. Given that it is the oldest and must run down vehicles that operate on the unpaved rural roads, comfort scores can be even more affected.

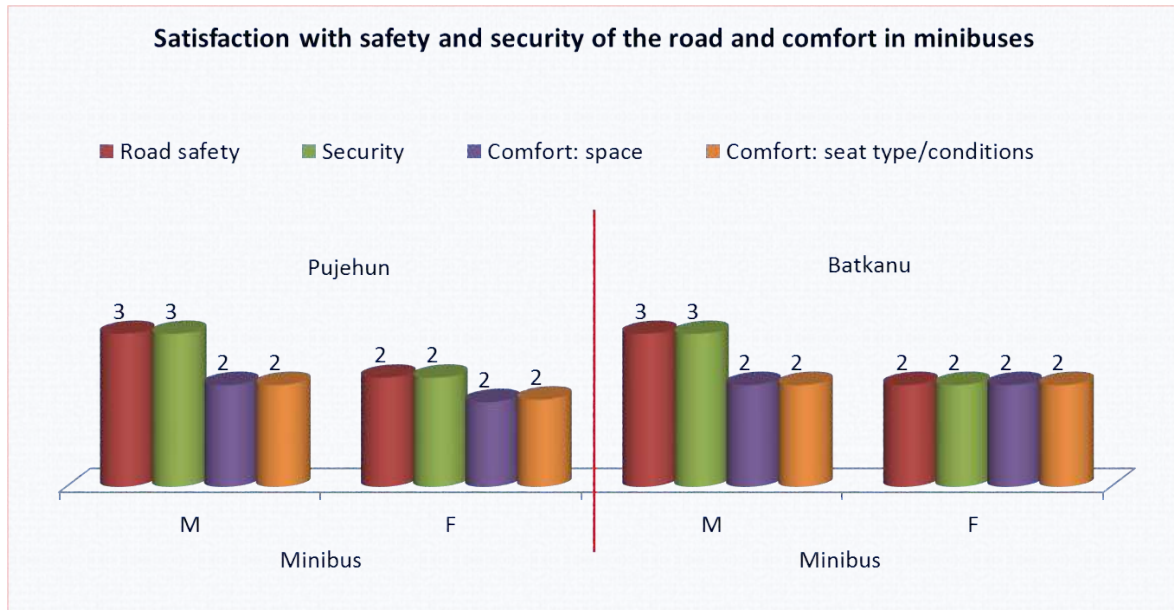


Figure 11 - Satisfaction with safety and security, and comfort for minibus

Comfort, regarding baggage and environment (noise, pollution, dust, etc.) is mainly deemed unsatisfactory. The old vehicles may not give full protection against the elements or the noise and exhaust gases produced by the minibuses themselves. Access for vulnerable people is deemed to be moderately satisfactory by the male respondents but unsatisfactory by the female users, as is evident from Figure 12.



Figure 12 - Satisfaction with comfort and access for vulnerable for minibus

3.1.6 Summary of user satisfaction with car taxis

Car taxis did not operate on the Bafodia road, where the majority of transport took place by motorcycle taxis, in addition to the occasional pick-up truck. Car taxis also did not regularly operate on the Gbondapi-Pujehun road, however a small van did make the journey quite regularly. Hence, for Figure 13 only the result from the Batkanu-Makoth road is presented. The starkest gender

difference is in how ‘service predictability’ is ranked. This may be explained by the fact that the male users who indicated that they use the taxi were both interviewed in Batkanu. This is where the car taxi leaves each morning approximately at the same time. Some of the women we interviewed, who indicated that they were users of the car taxi, were interviewed along the road, about half-way. At that point the predictability of the car taxi becomes more difficult and people trying to board it may have to wait an hour or so (because the car taxi is already full by the time it reaches half way along the road).



Figure 13 - Satisfaction for passenger fares, journey time, service frequency and predictability

Again, for freight services, there is remarkable gender difference. Women tend to be significantly less satisfied with both small and medium freight services of the car taxis (see Figure 14). The above provided explanation of perishable versus non-perishable goods (Figure 10) may come into play here.

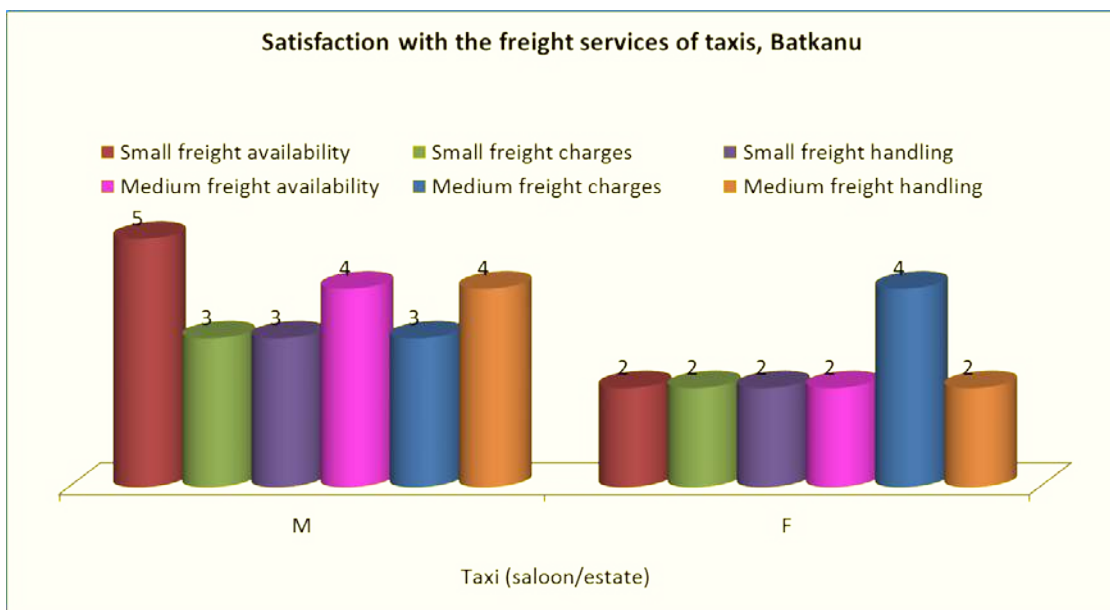


Figure 14 - Satisfaction with freight characteristics for taxis

There is a significant gender difference in how road safety and security for car taxis are perceived by users on the Batkanu road for car taxis (see Figure 15). Unfortunately, the researchers were not able to follow up on why this is exactly the case. None of the users recalled an accident involving a taxi in the last year, although this does not mean that they consider the road as being safe for this particular mode of transport.

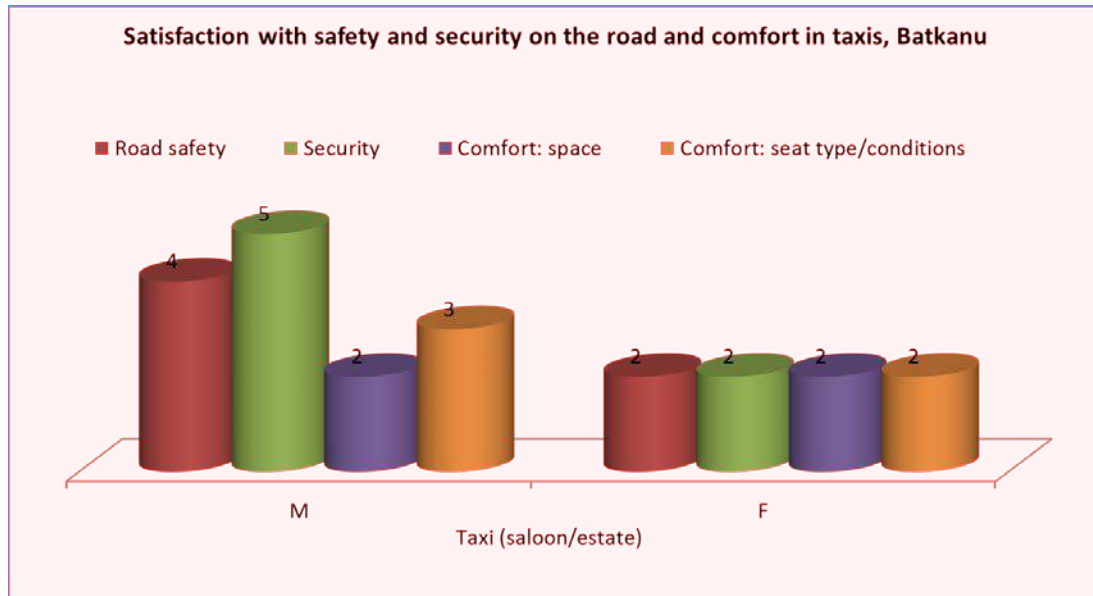


Figure 15 - Satisfaction with safety and security, and comfort for taxis

While comfort levels are deemed as unsatisfactory to moderately satisfactory across the two genders for the car taxi, the outlier is the ‘very satisfactory’ score for ‘access for vulnerable people’ awarded by the male users (see Figure 16). Again, the number of male respondents regularly using car taxis was particularly small (n=2) so we should be careful to read too much into the gendered experience here. The general observation is that for some vulnerable people a car taxi offers a good travel means, but for others it is inconvenient. This very much depends on the nature of the vulnerability.

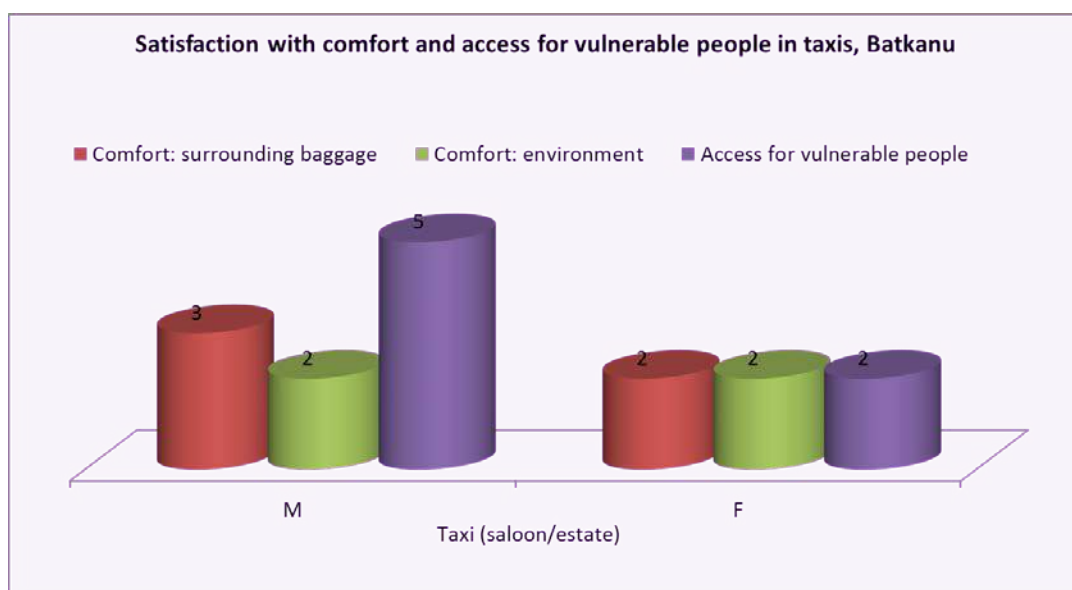


Figure 16 - Satisfaction with comfort and access for vulnerable for taxis

3.1.7 Intermodal Connectivity

The intermodal connectivity ranged between dissatisfactory to satisfactory. Travelling to the feeder roads or hub has changed since the introduction of the MCT, or at least if there is mobile phone coverage or if there is a residential MCT operator in the village. Travelling onward from the hub to other, more major places, by mini or midi bus, often requires careful planning and a very early departure, if possible. Again, since the introduction of the MCT one can have tailor-made transport. For instance, if one needs to catch an early minibus from Kabala to Makeni, it is possible to arrange for a MCT operator to ride from Bafodia to Kabala at, for instance, 4am. Prior to the introduction of the MCT it often meant that one had to travel the day before to the town.

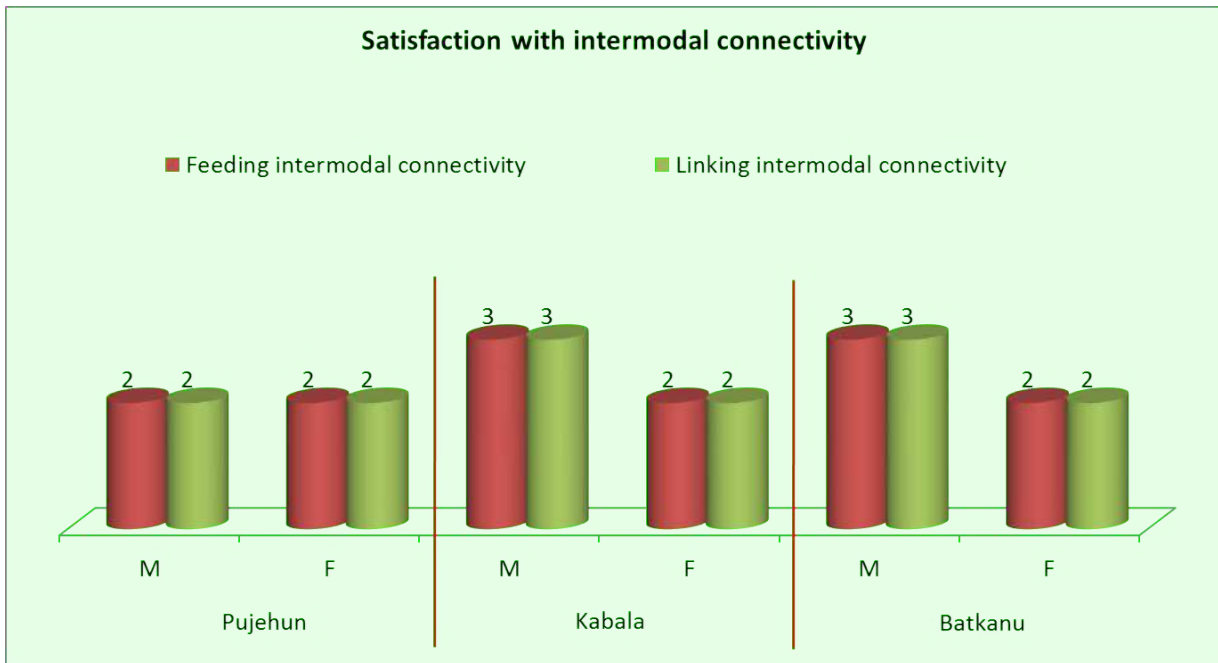


Figure 17 - Satisfaction with intermodal connectivity

3.1.8 Overall assessment of all transport modes

User satisfaction levels with rural transport services is low. This is across the three locations – which are, the researchers believe, representative of Sierra Leone more generally – and across the various modes of transport. The 15 or so indicators, for which users are asked to indicate their satisfaction level, again show a general dissatisfaction. Of course there are some positives, as shown above, but these are unfortunately quite limited. Are rural dwellers too pessimistic or even unrealistic in what they can expect? Public transport is provided by the private sector, so it is not a state-run service. Basic economics tell us that the private sector does respond well to the market and its demands, and in the absence of monopolies, offers a competitive service. But it also needs to make a profit, and making a profit in the transport sector in rural Sierra Leone is not easy. Roads are generally bad, resulting in slow journeys and high maintenance costs. Demand is limited, resulting in either running with a half-loaded vehicle or waiting one or two (or three) hours to have a fully loaded vehicle and thus being able to make a profitable trip. Providers have to transfer these costs to the users, which normally means high fares per kilometre; overloading; running uncomfortable and run down vehicles; or some combination of these factors.

The introduction and spread of motorcycle taxis in rural Sierra Leone is still a fairly recent phenomenon (post-civil war). Again, these follow the same logic described above but with less capacity to overload and operate run-down vehicles (the life-span of an MCT in rural areas tends to be so short that they are generally discarded before the rest of the motorcycle is worn down), it is

the fare that has to go up to still make it profitable for the operator. Hence, the MCT premium can be anywhere between 2 and 4 times as much as for the more conventional forms of transport. Nevertheless, rural dwellers have embraced the motorcycle taxi, which is above all an indication of the dire need for motorised transport.

3.2 Operator perspectives

The team interviewed a total of 27 operators across the three locations. The exact numbers are provided in Table 8. Given the dominance of the MCT among the transport modes, it is no surprise that this was the category we looked at in most detail. For some of the other categories it was actually quite difficult to find sufficient numbers of operators (or operators who had the time to talk to us).

When the MCT phenomenon started in Sierra Leone straight after the end of the civil war, the most common set up was that of an urban-based businessman purchasing one or more motorcycles. These would in turn be rented out for a daily or weekly fee – often on hire purchase terms – to an operator (*master-biker*). In many cases the operator assembled one or two additional operators to keep the MCT on the road for long hours each day, to maximise profits and meet the repayment arrangements. Having paid back the full amount of the agreement – which normally takes between 8 and 12 months – the operator becomes the owner of the motorcycle (*owner-rider*). Again, the new owner may choose to rent out his motorcycle occasionally to a friend, if he has other business to attend to. These operators without a motorcycle (*winers*) rent the MCT for a daily fee, but in the end hope to save enough to buy a motorcycle of their own. MCTs in rural areas have a limited life-span (2-3 years is not uncommon) and maintenance costs rise quickly. On the other hand, this allows a *winner* to pick up an old motorcycle quite cheaply and to take a first step in becoming an *owner-rider*.

Apart from trucks, where the operators are not the owners, the picture is somewhat mixed for the other modes of transport regarding ownership. In some cases the operator is the owner, in other cases the operator hires the vehicle from someone else and pays a daily or weekly amount for this. In both cases, but in particular for the owner/operator system, vehicle operating costs (VOCs) are notoriously difficult to get right in light of limited book-keeping, irregular maintenance, complicated owner-operator arrangements, and second hand-vehicles, combined with inflation.

Table 8 - Number and type of operators interviewed

Road Name	Motorcycle		Pick Up / Freight		Taxi (saloon/estate)		Minibus		Light truck		Total
	Owner	Operator	Owner	Operator	Owner	Operator	Owner	Operator	Owner	Operator	
Pujehun	1	2	0	0	1	0	2	1	0	3	10
Kabala	3	4	1	0	0	0	0	0	0	0	8
Batkanu	1	5	0	0	0	3	0	0	0	0	9

What the researchers did notice was the regular maintenance of privately-owned vehicles, as compared to the limited maintenance of vehicles which were operated by someone other than the actual owner. An operator is interested in maximising profit, often through overloading and less-frequent maintenance (fewer oil changes for instance) while an owner is mainly interested in extending the durability of the vehicle as long as possible, so that it keeps providing an income month after month, year after year.

Nearly all operators, except for the owner/operator of a pick-up truck in Bafodia, indicated that accessing work capital is difficult. Regulatory disincentives, such as having to pay a bribe at a checkpoint, range between dissatisfied to moderately satisfied. For the motorcycle taxi at Batkanu, this was actually ranked satisfactory, as there were no checkpoints on the surveyed road. Regulatory incentives, such as tax exemption for offering a public service, were generally non-existent. Finally, the security risks were deemed to be (very) satisfactory for all three locations, with the exception of the car taxi in Pujehun (see Figure 18).

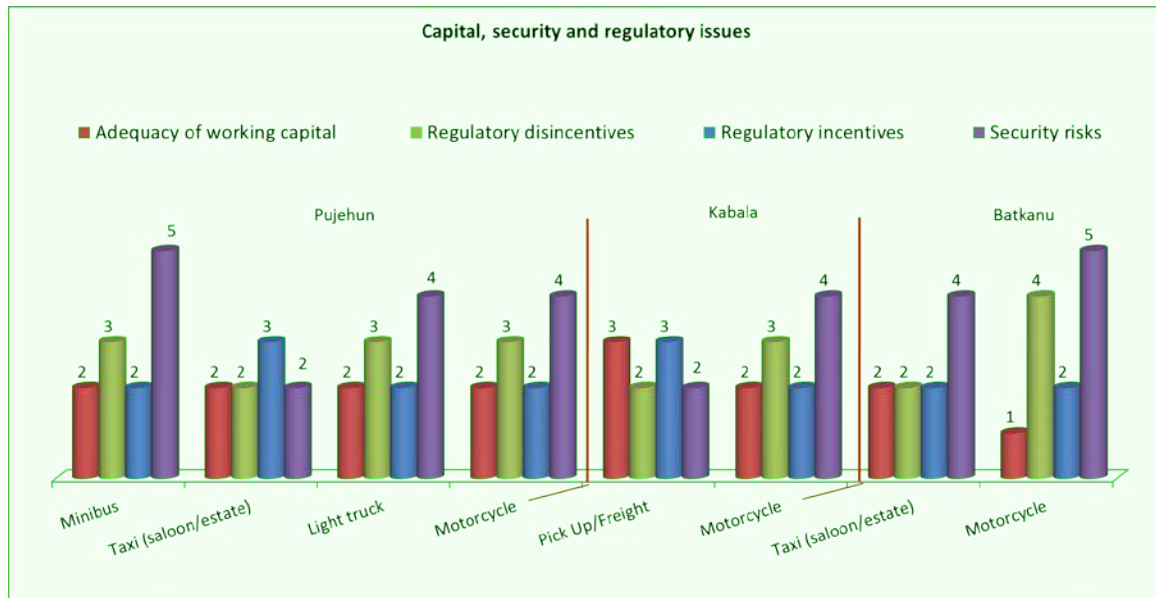


Figure 18 - Capital, security and regulatory issues

As can be expected, and as discussed above, the fare per kilometre is the highest for the motorcycle taxi. Regarding number of days with disrupted service, the road in Pujehun had the most disrupted days (the South-Eastern corner of the country has a particularly intense and long rainy season). But the road in Koinadugu is the longest without a transport service. While the rainy season may not be particularly intense or long, the Bafodia-Kabala road has some steep gradients which become impassable during the rainy season.

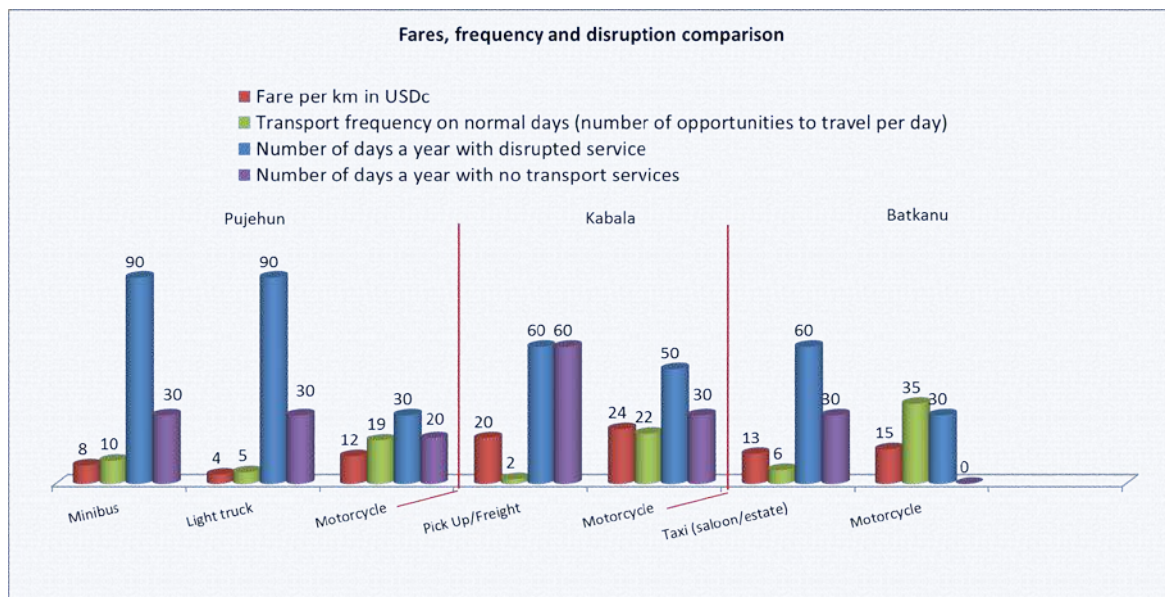


Figure 19 - Fares, service frequency and service reliability

3.3 Regulator perspectives

For each road, the researchers interviewed two or three regulators. These were often police officers, but the team also interviewed MCT and transport unions. With the introduction of motorcycle taxis, MCT unions started to emerge. These represent the interests of their members, providing a number of benefits which often include hospital costs and negotiating with the police whenever a motorcycle is confiscated. They sometimes provide training programmes for their members as well. Some unions function better than others. Some of the unions in the large cities have significant power, as is evident from politicians attempting to co-opt them for their own interests. In rural areas the unions are by definition smaller. Also, not all MCT operators within a community are necessarily members of the union. In addition, there may be MCTs operating on the road who are not based in the area: a common strategy of MCT operators who normally work in the town is to provide their services in more remote locations, whenever they are in trouble with the urban police (for riding without a licence for instance).

Table 9 - Summary of regulatory perspectives

Means of transport	Pujehun					Kabala		Batkanu				
	Midi-bus	Minibus	Taxi (saloon/estate)	Light truck	Motor cycle	Light truck	Motor cycle	Minibus	Taxi (saloon/estate)	Pick Up / Freight	Light truck	Motor cycle
Vehicle technical compliance	3	3	3	3	2	2	3	4	3	3	4	4
Vehicle fiscal compliance	4	5	5	4	2	2	2	3	3	3	3	4
Insurance compliance	4	5	5	4	2	2	2	3	3	2	2	3
Operational compliance	4	4	3	4	2	1	1	2	2	2	2	2
Safety compliance	3	3	3	3	2	1	1	2	2	2	3	2
Environmental compliance	4	4	3	3	3	3	2	2	2	2	2	2
Regulatory planning framework	4	4	3	3	3	1	2	2	2	2	2	2
Safety of the road	2	3	-	2	2	-	-	3	3	-	3	4
Un-weighted Average	3	4	4	3	2	2	2	3	3	2	3	3

5= Very satisfied, 4= Satisfied; 3= Medium satisfied; 2= Dissatisfied; 1=Very dissatisfied

From Table 9, it is clear that in general the MCTs have the lowest scores across the board. Compliance levels are low. If there is a trend to be noticed, it is that the more remote the location where the mode of transport operates, the more likely it scores low on compliance. For instance, minibuses are likely to start or end their journey in a major hub, where compliance checks are more likely, and thus have higher compliance levels. But a pick-up truck may just go up and down the road without regularly visiting the major hub, or at least not the car park where it is more likely to be checked.

This line of argumentation can also be extended to the roads more generally. The Bafodia-Kabala road is in a somewhat remote area of the country with low population densities. There is no police checkpoint or strong presence of the Sierra Leone Road Safety Authority Compliance is deemed to be the lowest of the three roads. The Batkanu-Makoth road is in a more densely populated area and not too far off a major city in Sierra Leone – Makeni. However, the surveyed road terminates at a junction at the highway, and not all transport providers actually continue their journey to Makeni (where they would encounter police and union representatives). Hence, compliance is higher than in the remote Koinadugu district but lower than in Pujehun. The Gbondapi-Pujehun town road in Pujehun district is a fairly short road and terminates (or starts) in the District Capital. Hence, almost all modes of transport are likely to be exposed to checks on a regular basis. That said, the MCT still scores low for the compliance indicators in the Pujehun area.

3.4 Development perspectives

The team interviewed a number of persons in each location who could provide a somewhat authoritative perspective on the contributions of the various transport modes of transport to socio-economic development in the local communities. The term ‘development’ in our surveys covers a

range of issues, including contributions to agriculture, trade, education, health, youth and women’s empowerment, etc. The development ‘experts’ interviewed included primary and secondary school headmasters and senior health personnel at local clinics and hospitals. Respondents for the development perspectives also included the local chiefs of the surveyed communities. All interviewees for this category were educated and able to reflect in a more comparative manner on the impact of various modes of transport on development.

Overall, all modes of transport facilitated in a satisfactory manner (ranging from medium to very satisfactory) both agriculture and enterprise development. Integration with mobile phone technology was particularly high for MCTs – which can in many cases be called or booked by phone – except for the Bafodia location. Here, no mobile phone signal was available, although at the time of the survey a major mobile phone provider was installing a mast. Both agricultural and trade facilitation ideally should be disaggregated, or at the very least, it should be acknowledged that there can be significant differences within these two activities. For example, an MCT is perfect for carrying a bag of cocoa or coffee to the market, but would struggle during the peak harvest time to transport produce to the market. The same is true for trade facilitation. Rural women have embraced the MCT as it gives them the opportunity to easily obtain items from town and trade these in the villages (oftentimes they obtain the items using the MCT as a courier rather than travelling themselves). Actually, in many villages MCT operators have become money-lenders to women involved in trading, but with the key difference that the turnaround of the loans is days rather than months, which was often the case for the more traditional money lender. But for some enterprise activities the MCT is just not suited and larger freight capacity vehicles are needed.

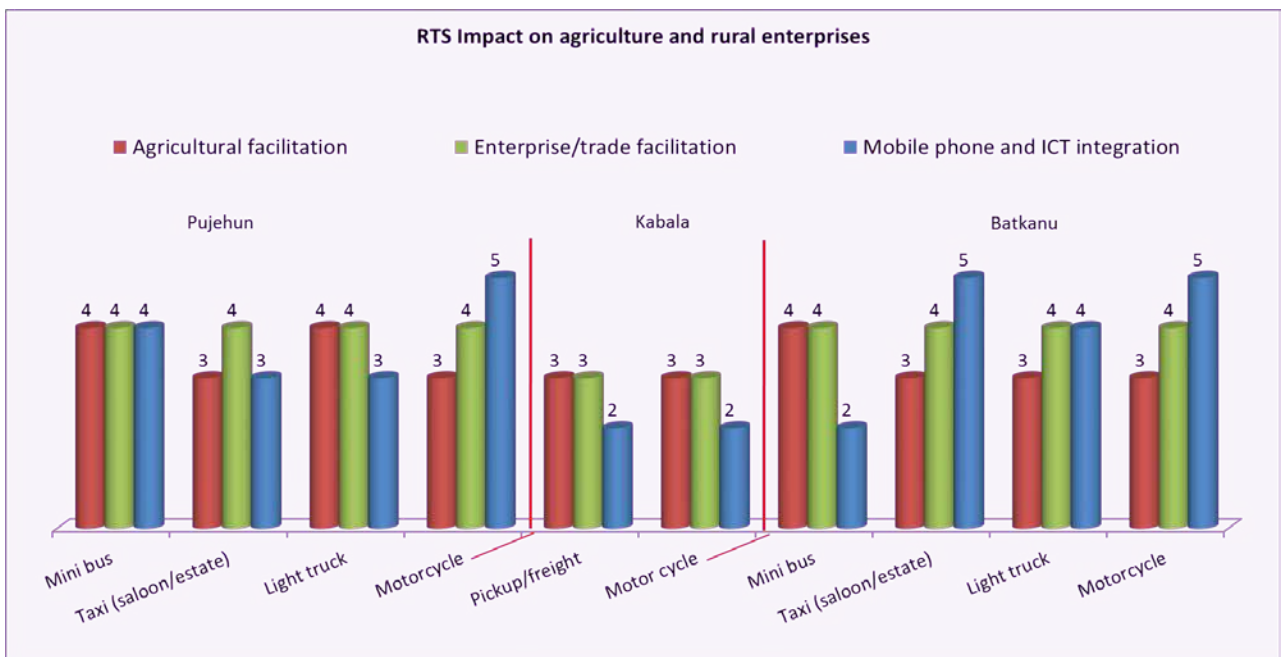


Figure 20 - RTS Impact on agriculture and rural enterprises

Other development indicators – and how different modes of transport contribute to these – are provided in Table 10. There are different ways to look at the table – comparing one mode of transport to another; comparing one location to another; or identifying which development indicator is positively supported by a particular type of transport. Given that in all three locations MCTs are the major transporter of both people and freight, special attention (and scrutiny) should be paid to this mode. Across the three locations, the MCT does score the highest average scores. In fact, there are only three occasions where the MCT was awarded a dissatisfactory score: In Pujehun

for its impact on HIV/AIDS (the line of reasoning here is that MCT operators have money in their pocket and may have ‘girlfriends’ in several places, running the risk of spreading HIV/AIDS (but note that the dissatisfactory score for this indicator was given to all modes of transport in Pujehun). In Bafodia the MCT scored a dissatisfactory score for mobile phone integration (see explanation earlier and note that the pick-up truck had of course the same score). Finally, for Batkanu the MCT was awarded a dissatisfactory score for the ‘empowering disabled people’ indicator. Earlier in this report it was discussed how MCTs are of little use for people with certain disabilities, although they can be useful for people with other types of disabilities.

Table 10 - Development perspectives opinions for the surveyed roads

Means of transport	Pujehun				Kabala		Batkanu			
	Mini bus	Taxi (saloon/estate)	Light truck	Motorcycle	Pickup/freight	Motor cycle	Mini bus	Taxi (saloon/estate)	Light truck	Motor cycle
Agricultural facilitation	4	3	4	3	3	3	4	3	3	3
Enterprise/trade facilitation	4	4	4	4	3	3	4	4	4	4
Women’s empowerment	4	5	4	4	3	4	4	5	5	5
Disabled people’s empowerment	4	3	2	4	3	3	4	2	2	2
Young people’s empowerment	3	4	4	5	4	4	2	4	5	5
Maternal health needs	3	3	2	4	3	3	2	2	2	3
Medical service transport	3	3	2	4	3	4	-	3	3	4
Education-related transport	3	3	2	4	2	3	2	4	3	4
Mobile phone and ICT integration	4	3	3	5	2	2	2	5	4	5
Average of the above nine issues	3	3	3	4	3	3	3	4	4	4
Cultural impact	3	4	4	4	3	3	-	4	4	4
Environment impact	3	3	3	3	3	3	3	3	3	3
HIV/Aids impact	2	2	2	2	3	3	2	3	3	3
Average of the above three issues	3	3	3	3	3	3	3	3	3	3

4 Conclusions

Over the period of a month, the team has toured the rural roads of Sierra Leone, from the coastal plains in the South-East (Pujehun) to the *boli-lands* in central interior zone (Bombali) to the mountainous interior plateau region in the North (Koinadugu). During this time, the researchers have spoken with eighty or so transport users. Furthermore, a dozen development ‘experts’, about ten regulators and thirty operators were interviewed. In addition, two twelve hour traffic counts (06:00 to 18:00) were conducted at each surveyed road to cover a market (busy) day and a non-market (normal) day, positioning the traffic count teams at two or three different locations per road. It cannot be claimed that the findings are representative of the whole of Sierra Leone – after all the study was undertaken in three out of Sierra Leone’s 13 Districts – and even within a district there may be considerable differences in rural transport service provision. Nevertheless, valuable insights into the challenges and obstacles of rural dwellers in accessing rural transport services have been gained, and these insights can be used in helping to formulate evidence-based policy. The first two observations below concern non-conventional public transport (motorcycle taxis) and conventional public transport (car taxis and mini/midi buses).

Since the introduction of the motorcycle taxi after the end of the civil war, the provision of public transport services has changed beyond recognition. Within two or three years all urban centres in the country had a flourishing MCT sector (which in turn created a number of challenges). It did not take long before the MCT started to venture out into the rural areas. It is here where it genuinely has transformed transport. While in the urban areas MCTs replaced the yellow taxis and *poda-podas*, in rural areas they were often the first regular means of motorised transport to service a village or rural hub. They have allowed rural areas to better and more fully integrate into the market economy and provided easier access to educational and health facilities and public services. While urban centres

seem to be saturated with MCTs, there is still ample space for the further expansion of the MCT sector in rural areas. MCTs have multiple benefits and are generally praised by rural dwellers, but they also bring their own set of challenges. First and foremost they are a relatively expensive form of transport. In the executive summary and in the case study reports, some suggestions have been made as to how this can be addressed. But in the end, tailor-made transport services with limited capacity will always be expensive. MCTs are considered to be *Intermediate Means of Transport*, which somewhat suggests that with further economic development these means will be replaced by more conventional and expensive (to purchase) means of transport. If anything, Sierra Leone will soon have the opposite movement taking place: MCTs have replaced more conventional transport means. The challenge is to work with, and not against, this market driven phenomenon.

Car taxis, vans and minibuses offer mass public transport opportunities, and often have much lower fares per kilometre than MCTs. However, a limited number of travel opportunities (one or two each day and sometimes only during market days), plus long waiting times, are real drawbacks. Users indicated that waiting for several hours is not uncommon, and even then they were not sure if there would be a place for them in the next car taxi or minibus. In one location, the car taxi/bus service left each day at a set time (early morning), which at least gives rural dwellers the opportunity to travel more cheaply. In other words, there is no complete monopoly by the MCTs.

A final comment concerns rural road construction itself. In light of the dominance of the MCT in rural Sierra Leone, there is an opportunity and need to respond to this with the country's feeder road policy. As is detailed in the Bafodia-Kabala road report, the upgrading of footpaths into motorcycle accessible tracks is worth considering. A pilot project in Libera (see Jenkins & Peters, 2016) was enthusiastically perceived and is now included in the draft national transport plan. Track construction uses local labour and local materials, providing a further cash injection in rural communities, in addition to opening up areas to motorised transport. Furthermore, track construction is 10 to 20 times cheaper than feeder road construction, and just doing spot improvements (replacing stick-bridges with engineered wooden bridges; gravel slippery sections, etc.) would further reduce the costs per kilometre. Track construction can be both complimentary to feeder road construction as well as being an alternative to it, whenever budgets are limited.

4.1 Observations and Recommendations

The following observations and recommendations further support the spread of MCTs to remote rural areas where conventional four wheeled transport services do not operate, in order that they can contribute to socio-economic development and growth in rural communities, while recognising that they may not be accessible to the lowest income households as a result of their fare structure:

- The motorcycle taxi is the most dominant and readily available mode of transport on all three surveyed rural roads by quite some margin. It takes the largest share in both passenger and freight transport on an annual basis, ranging from a 'modest' 63% passenger and 58% freight share for the Gbondapi-Pujehun road, to a staggering 94% passenger and 89% freight share for the Batkanu-Makoth road, with the latter just outdoing the Bafodia-Kabala road. They navigate feeder roads (and feeding roads/footpaths) each day and on market days their numbers and number of journeys often further increases.
- The motorcycle taxi sector provides direct jobs (as operators) and indirect jobs (as mechanics and motorcycle washers) to what may be hundreds of thousands of often low-skilled youth. Further expansion of the Motorcycle Taxi (MCT) into rural areas will add many more jobs. This should not be underestimated in light of a decade-long civil conflict where marginalised (rural) youth with few economic prospects were readily recruited into armed factions.

- Motorcycle taxis are an expensive mode of transportation for rural dwellers, often 2, 3 or even 4 times as expensive (per kilometre) than more conventional means. However, the omnipresence of motorcycle taxis in rural areas, where in many locations they have replaced car taxis or minibus services, shows a strong demand for travel by MCT and a willingness to pay this premium.
- Promoting the use of the cargo motor-tricycle – which can be used in the transport of both passengers and freight – should be further explored. These vehicles have the advantage of being relatively cheap to buy and operate, while having a significant payload. This would result in cheaper fares, combatting a main issue for the MCTs.
- Motorcycle taxis are generally very well integrated with mobile phone technology. Further roll-out of mobile coverage in rural areas will therefore facilitate and improve rural transport services.
- The accident rate of motorcycle taxis is high, although their share in the public transport sector is also very high. Further measures should be taken to improve MCT safety for operators and users, including those which can reduce excessive overloading and improve bodily protection for both operator and passenger(s), ideally working through unions and in collaboration with the police and the Sierra Leone Road Safety Authority (SLRSA). Policies should reflect the daily realities of the rural poor, who are often willing to accept a small risk of injury in exchange for all the benefits the MCT has brought.
- Taxis and minibuses serve the roads on normal days in limited numbers (or not at all on the Bafodia-Kabala road), mostly with a morning and a late afternoon service. On market days, taxis and minibuses may visit the communities, scheduling an extra service.
- By way of further improvement of rural transport services by other modes of travel aside from the MCT, an early morning mini/midi bus service leaving at a fixed time to the main hub and returning in the late afternoon/evening would guarantee rural dwellers at least one non-MCT travel option each day. Fares can be considerably cheaper than MCT fares, and because it is scheduled, travellers do not have to waste time with the vehicle having to fill up. Seats not filled at the origin of the journey will likely become occupied while passing through villages along the way.
- Regular road maintenance should always be carried out, both from a convenience and safety perspective. Better roads reduce maintenance costs for operators, which ultimately translates to more competition, lower fares or better quality vehicles, giving rural transport users more value for money.
- Drainage along roads and water crossings can be a significant obstacle for transport services, and the severity of the problem naturally fluctuates with the seasons. It was not clear to the team whether there is a clear policy on dealing with this, which in many rural areas can render roads impassable for car taxis and mini-buses for weeks if not months. Communities can definitely benefit from technical advice when attempting to build their own water-crossings, with the advisor taking perhaps not too dissimilar a role as that of an agricultural extension officer for farming matters.
- In light of the dominance of transport provision by MCTs, the upgrading of rural footpaths to motorcycle accessible tracks/trails (which are currently being piloted in northern Liberia) should be implemented in Sierra Leone. Track construction uses local labour and local materials, which provides a further cash injection into rural communities, in addition to opening up areas to motorised transport.
- Track construction is 10 to 20 times cheaper than feeder road construction, and the implementation of spot improvements (replacing stick-bridges with engineered wooden bridges; gravel slippery sections, etc.) would further reduce the costs per kilometre. Track construction can be both complimentary to feeder road construction as well as being an alternative to it, whenever budgets are limited.

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Annex A: Stakeholder Workshop Report

Workshop report

Location: Sierra Leone Road Safety Authority (SLRSA), Freetown

Date and time: 6 December, 10.30 to 12.30

List of Participants

Dr Sarah Bendu
Mrs Memunatu Koroma
James Stevens
Lamin Kamara
Abdul k. Dumbuya
Major Thomas Sandy
Ambrose Tucker
Ibrahim Labor Fofana
Alusine Dumbuya
Eric Sam
Abubakarr Turay
Daniel Bongoh
Franklyn Moiwo
Mariama Lemon
Dauda Kargbo
Abdul Jalloh
John Gbaibai
Alpha Kamara
Foday Kamara
Lamin Turay
Bernadette Mattia
Kumba Lamin
Victor Kobba
Mohamed Jakema
Lamin Mbayoh
Maada Mustapha
Bockarie Ibrahim Swaray
Ibrahim Thullah
Frederick Kandeh
Daniel Turay
Kumba Brima
Daniel Kaitibie
Augustin Lansana
Unisa Sesay
Anthony Boilay
Lamin Kamara
Ibrahim Santo
Mamawa Tarawallie
Abu Jalloh
Abdul Mansaray
Henry Kasim

Institutions

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Deputy Executive Director, SLRSA
Director of Planning, SLRSA
Director of Transport Services, SLRSA
Public Relations Officer, SLRSA
Head, Road Safety Corps, SLRSA
Planning Department, SLRSA
Sierra Leone Association of Journalists
SLRSA
SLRSA
Research Assistant
SLRSA
Transport Users Association
Bike Riders Union, Kenema Branch
Bike Riders Union
Fala Junction Axis
Sierra Leone Police
Motor Vehicle Owners Association
Sierra Leone Police
Sierra Leone Police
Bike Riders Union
Bike Riders Union, Kenema Branch
Bike Riders Union
Bike Riders Union
Gelehun Axis
Vehicle Owners Association
Bike Riders Union, Kenema Branch
Sierra Leone Police
Sierra Leone Police
Road Safety Corps
Bike Riders Union
Road Safety Corps
Bike Riders Union
Road Safety Corps
Consultant
Road Safety Corps
Bike Riders Union
Mogbuama axis chief
Motor Drivers Union
Bandajuma axis
Motor Drivers Union

Francis Baigeh Johnson	AKA Research
Nabeela Tunis	Consultant
Dr Shamsu Mustapha	Ecofin Consultants
Dr Krijn Peters	Swansea University

1. Dr Shamsu Mustapha, Team-leader for the Sierra Leone Rural Transport Diagnostic Study welcomed all participants and in particular the Head of the SLRSA, Mrs Bendu. He then introduced the colleagues who contributed to the diagnostic study and provided a short background to the study.
2. Mrs Bendu then welcomed the various participants and underlined the importance of improving the safety record of rural transport services without undermining or diminishing the crucial role they play in the lives and livelihoods of rural dwellers.
3. Dr Krijn Peters then gave three 10 minutes PowerPoint presentations on three different research projects relevant for rural transport provision in Sierra Leone and Liberia (see PowerPoint slides below).
4. This was followed by a short Q&A by the workshops participants regarding the presented.
 - 4.1. Mr Lamin Kamara, Director of Transport Services, SLRSA.
 - 4.1.1.Q: Did you get the cooperation of the police, the Bike Riders Union and the Motor Drivers Union during your Research?
 - 4.1.2.A: Yes. We worked closely together and they helped to arrange some of the interviews.
 - 4.2. Franklyn Moiwo, Transport User.
 - 4.2.1.Q: Are the level of transport fares not very high and beyond the reach of rural dwellers?
 - 4.2.2.A: In general, they were considered reasonable. The main complaint was the inadequacy and unreliability of the transport services.
 - 4.3. Mr H. Kassim, Motor Drivers Union.
 - 4.3.1.Q: Is it possible for RSA to reduce license fees for bikes and vehicles to attract more investments in rural transport services?
 - 4.3.2.A: SLRSA will look into this and recommend to their Board.
 - 4.4. Mr Alpha Kamara, Motor Vehicle Owners Association.
 - 4.4.1.Q: Can SLRSA kindly decentralize vehicle and bike licensing and registration to reduce the cost of travelling to Freetown, especially to get vehicle number plates?
 - 4.4.2.A: Outlets have been opened in Makeni, Bo and Kenema. Soon, more will be opened in Kono, Port Loko, and Kailahun.
 - 4.5. Ibrahim Labor Fofana, Sierra Leone Association of Journalists.
 - 4.5.1.Q: What mechanisms can SLRSA put in place to ensure that bike riders in particular know how to access registration services?
 - 4.5.2.A: SLRSA will soon print booklets in local languages to educate bike riders about the facilities available to them at the registration centres.
5. Then Nabeela Tunis organised the participants into five groups (attention was given to ensure mixed discipline/professional background), with each group given the opportunity to discuss one of the following questions (see below) among themselves for about 15 minutes. Groups were asked to formulate (policy) recommendations relating their question and present these to the other participants in a short (approx. 5 minutes) presentation. The questions were as follows:
 - 5.1. **Group 1:** How to improve road safety for motorcycle operators and passengers in rural areas?
 - 5.2. **Group 2:** Are government sponsored/regulated 'sleeper' services a good way to provide transport opportunities to all rural people?

- 5.3. **Group 3:** Should 'footpath to motorcycle navigable track' upgrading become part of the Ministry's policy?
- 5.4. **Group 4:** Should the government support schemes for female ownership/operation of motorcycle taxis and cargo motor tricycles?
- 5.5. **Group 5:** Should rural transport services move away from being dominated by motorcycle taxis to more conventional modes of transport, and if so, how can this be realised?
6. **Group 1** findings on 'How to improve road safety for motorcycle operators and passengers in rural areas?' Group members: Alusine Dumbuya; Eric Sam; Abubakarr Turay; Daniel Bongroh; Franklyn Moiwo; Mariama Lemon.
 - 6.1. Feeder roads should be well constructed in rural areas.
 - 6.2. Road safety sensitisation in rural communities should take place.
 - 6.3. Overloading should be discouraged.
 - 6.4. Commercial motorbike riders and stakeholders should be able to identify community riders and give them adequate training.
 - 6.5. The authority in charge of road signs should erect road signs in rural areas
 - 6.6. There should be a follow up on the research to be able to look at the impact of the research.
 - 6.7. The Bike Riders Bike Monitoring Officers (BMOs) should be able to work with stakeholders to minimize crimes committed by the riders.
 - 6.8. SLRSA should expedite and improve their services in the rural areas in terms of insurance of riders and licenses for riders and their commercial motorbikes
 - 6.9. SLRSA should work with the bike rider union in supporting female riders in terms of giving them rider licenses.
7. **Group 2** findings on 'Are government sponsored/regulated 'sleeper' services a good way to provide transport opportunities to all rural people?' Group Members: Dauda Kargbo; Abdul Jalloh; John Gbaibai; Alpha Kamara; Foday Kamara; Lamin Turay; Bernadette Mattia.
 - 7.1. Sleeper services will facilitate the transport of local produce (cash crops) to markets.
 - 7.2. Sleeper services will enhance easy and reliable access to rural public transportation.
 - 7.3. The living conditions in rural areas can be improved if the government sponsors sleeper services.
 - 7.4. It will also provide a source of income for the operators.
8. **Group 3** findings on 'Should 'footpath to motorcycle navigable track' upgrading become part of the Ministry's policy?' Group members: Victor Kobba; Mohamed Jakema; Maada Mustapha; Bockarie Swaray; Ibrahim Thullah.
 - 8.1. Yes, it should. It will facilitate the free movement of goods and passengers to market centres.
 - 8.2. It will enhance safe motorcycle transport services.
 - 8.3. It will increase food availability and encourage farming productivity.
 - 8.4. This policy can help develop rural or remote areas in the area of education and health.
 - 8.5. This policy will encourage tricycle movement which will safely carry pregnant women and disabled people.
 - 8.6. It will enhance community development and protect our human resources by providing job opportunities for rural people.
9. **Group 4** findings on 'Should the government support schemes for female ownership/operation of motorcycle taxis and cargo motor tricycles?' Group Members: Frederick Kandeh; Daniel Turay; Kumba Brima; Daniel Kaitibie; Augustin Lansansa; Unisa Sesay.
 - 9.1. Yes, the government should do this.
 - 9.2. It would enhance employment opportunities for female youth, providing gender balance.

- 9.3. It reduces the need for some women to prostitute themselves to make ends meet.
 - 9.4. It enhances economic growth in the country and helps reducing poverty.
 - 9.5. Women are in the majority in terms of service delivery so it would be beneficial to all.
 - 9.6. If they are trained in getting the riding skills, they would be very careful riders.
 - 9.7. Government should go in partnership with private sector to support the scheme by giving loans.
 - 9.8. It is a functional system based on the circumstances we find ourselves in.
 - 9.9. Women are a vulnerable group and therefore need support.
10. **Group 5** findings on ‘Should rural transport services move away from being dominated by motorcycle taxis to more conventional modes of transport, and if so, how can this be realised?’
Group Members: Anthony Boilay; Lamin Kamara; Ibrahim Santo; Mamawa Tarawallie; Abu Jalloh; Henry Kasim; Francis Baigeh Johnson
- 10.1. Yes, rural transport services should move away from being dominated by motorcycle taxis because;
 - 10.1.1. They are an expensive form of service delivery
 - 10.1.2. There is a high risk of transportation accidents
 - 10.1.3. Riders are not trained
 - 10.1.4. MCTs encourage school drop out.
 - 10.2. How can transport service delivery become less dominated by MCTs?
 - 10.2.1. Construct and rehabilitate feeder roads in rural communities.
 - 10.2.2. The government should provide support for conventional and regular transport services.
 - 10.2.3. Create an enabling environment to encourage private investment in the rural transport sector.
 - 10.2.4. Improve economic development and sustainability in rural areas.
 - 10.3. However, it is important to:
 - 10.3.1. Not ignore the role of motorcycle taxis in transport services for rural communities
 - 10.3.2. Support women riders, the take-up of licenses and also private motorcycle riding.

WORKSHOP POWERPOINT PRESENTATIONS

SLIDE 1



Presentations and Interactive Workshop

- **Presentations**
 - Diagnostic Study of Rural Transport Services in Sierra Leone: key findings
 - Identifying Obstacles and Opportunities for Gender Mainstreaming in the Motorcycle Taxi (MCT) sector in rural Sierra Leone and Liberia
 - Motorcycle taxis, track construction and providing opportunities for rural communities and marginalised youth in Liberia and Sierra Leone
- **Interactive Workshop**
 - Formulating policy recommendations for rural transport challenges

SLRSA 6 December 2017



SLIDE 2



Diagnostic Study of Rural Transport Services in Sierra Leone: key findings

Dr Shamsu Mustapha, Ecofin Consultants

Dr Krijn Peters, Swansea University

Mrs Nabeela Tunis, Independent Consultant

SLRSA 6 December, 2017



SLIDE 3



Methodology and Data Collection

- Select 1 feeder road in 3 Districts in Sierra Leone
- Rapid Rural Appraisal, interviewing:
 - Transport Users (n=80)
 - Transport Operators (n=27)
 - Transport Regulators (n=8)
 - Local development experts (=10)
- Traffic counts along all surveyed feeder roads on market and non-market days (6am to 6pm)

Table 8: Summary of development perspectives

Means of transport	Minibus	Taxi (saloon/estate)	Light truck	Motorcycle
Agricultural facilitation	★★★★	★★★	★★★★	★★★★
Enterprise/trade facilitation	★★★★	★★★★	★★★★	★★★★
Women's empowerment	★★★★	★★★★	★★★★	★★★★
Minority group empowerment	-	★★★★	★★★★	★★★★
Disabled people's empowerment	★★★★	★★★	★★★	★★★★
Young people's empowerment	★★★	★★★	★★★★	★★★★
Maternal health needs	★★★	★★★	★★	★★★★
Medical service transport	★★★	★★★	★★	★★★★
Education-related transport	★★★	★★★	★★	★★★★
Mobile phone and ICT integration	★★★★	★★★★	★★★★	★★★★
Un-weighted average	3.4	3.4	3.0	3.9
Cultural impact	★★★★	★★★★	★★★★	★★★★
Environment impact	★★★	★★★	★★★	★★★★
HIV/Aids impact	★★★	★★	★★	★★★★
Un-weighted average	2.7	2.9	2.9	2.9

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SLIDE 4



Key findings of the Study

- MCTs are the most dominant and readily available form of public transport in rural areas
- Advantages are:
 - Instant departure
 - Drop off at final destination.
 - Emergency transport
 - Courier services
 - Integrated with mobile phone technology
- But MCTs are also the most expensive form of transport per travelled kilometre

Bafodia-Kabala road / Koinadugu District	Annual share (%) of passenger transport	Annual share (%) of small freight transport
Pick-up truck	12.4%	13.8%
Motorcycle Taxi	87.6%	86.2%

Gbondapi-Pujehun town road / Pujehun District	Annual share (%) of passenger transport	Annual share (%) of small freight transport
Mini-bus	29.3%	25.8%
Light truck	8.1%	16.3%
Motorcycle taxi	62.6%	57.8%

Batkanu-Makoth road / Bombali District	Annual share (%) of passenger transport	Annual share (%) of small freight transport
Car Taxi (saloon/estate)	1.5%	2.7%
Mini-bus	4.5%	8.1%
Motorcycle taxi	94.0%	89.2%

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SLIDE 5



Key policy recommendations

- Support MCT roll-out in rural areas, as a major contributor to rural development and youth employment
- Promote the roll-out of cargo motor tricycles, which offer cheap transport opportunities for people and freight
- Invest in motor (tric)cycle navigable track construction, upgrading footpaths to trails



Mini-bus on the Batkanu road



MCTs riding over newly constructed trail

- Ensure at least one scheduled trip (going: early morning, coming: early evening) by a conventional public transport provider (eg. mini/midi bus) for main communities at the end of the feeder road

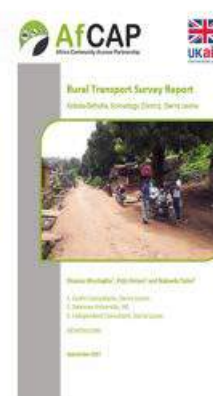
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SLIDE 6



Outputs

- 3 Road Reports
- Final Report
- Policy Brief
- Journal Article



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SLIDE 7



Identifying Obstacles and Opportunities for Gender Mainstreaming in the Motorcycle Taxi (MCT) sector in rural Sierra Leone and Liberia

Krijn Peters, Swansea University
AKA Research, Sierra Leone & LIDA, Liberia



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SLIDE 8



Methodology and Data Collection

- Rural areas in 3 Districts in Sierra Leone and 1 County in Liberia
- Female and male focus group discussion in villages (n=16)
- MCT operator (n=120) and passenger surveys (n=180)
- Traffic counts along all surveyed feeder roads (6am to 6pm)



Female Passengers using a Motorcycle Taxi in Northern Sierra Leone

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SLIDE 9



Key findings of the Study

- MCTs improve access to markets, health, education and public services.
- Women are key beneficiaries.
- But no female MCT operators in rural areas
- Key obstacles are
 - No capital to purchase MCs
 - Reluctance of business people to lease out MCs

MTC Passengers on Surveyed Road	Kenema District (n = 60, male = 7)	Moyamba District (n = 61, male = 18)	Bombali District (n = 31, male = 16)
Want more bikes?	48 (96%)	54 (89%)	28 (90%)
Good if there are women MCT operators?	38 (76%) 1 out of 7 men agreed	33 (56%) 7 out of 18 men agreed	9 (30%) 2 out of 16 men agreed
Preference for gender of rider?	Woman, 17 Man, 32	Woman, 11 Man, 49	Woman, 4 Man, 26

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SLIDE 10



Key policy recommendations

- Establish credit scheme for women cooperative for purchase of MCs
- Support MCT unions in providing driving lessons for female operators

Female Apprentice MCT Operator Taking Lessons from Kenema MCT Union



- Hand over cargo motor tricycle to women cooperative after trail construction is complete

Cargo motor tricycle along Batkanu-Makoth road: the future of rural transport?



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SLIDE 11

THE IMPACT INITIATIVE
For International Development Research

Motorcycle taxis, track construction and providing opportunities for rural communities and marginalised youth in Liberia and Sierra Leone

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SLIDE 12

From Weapons to Wheels

THE IMPACT INITIATIVE
For International Development Research

- DDR in Sierra Leone and Liberia: successes and failures.
- Motorcycle taxi (MCT) riding in post-war Sierra Leone and Liberia: a success story?
- Up to a third of the male population between 15 and 24 is in some way involved in MCT riding, providing jobs for marginalised youth with low skills.



• RUF combatants



SLIDE 13

Tracks out of Poverty

THE IMPACT INITIATIVE
For International Development Research

- 3 year long ESRC/DfID funded research on the socio-economic impact of upgrading footpaths to motorcycle navigable tracks
- 25 kms of tracks constructed in two village clusters, in Northern Liberia, with one control village cluster
- Improving access to markets, health-care, education and services.

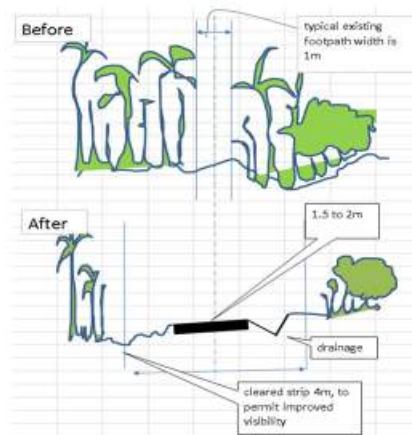


SLIDE 14

Upgrading footpaths to motorcycle navigable tracks/trails

THE IMPACT INITIATIVE
For International Development Research

- Complementary to feeder road construction (or sometimes as an alternative to feeder road construction)
- Costs: 3000 to 5000 US\$ per kilometre as compared to feeder road construction/rehabilitation which costs 50,000 to 100,000 US\$ per kilometre
- Using local labour and local materials.
- Maintenance by local communities



SLIDE 15

Community-based Organisations for track construction and maintenance

THE IMPACT INITIATIVE
For International Development Research

- Well trained and structured CBOs are essential for track maintenance (or for that matter, any community driven development project).



- CBOs as grass-root Good Governance: ownership, transparency and trust.



SLIDE 16



Interactive Workshop

Policy recommendations for improving rural transport

- 5 groups; 5 questions.
- 15 minutes discussion; 5 minutes presentation.
 - Group 1: How to improve road safety for motorcycle operators and passengers in rural areas?
 - Group 2: Are government sponsored/regulated 'sleeper' services a good way to provide transport opportunities to all rural people?
 - Group 3: Should 'footpath to motorcycle navigable track' upgrading become part of the Ministry's policy?
 - Group 4: Should the government support schemes for female ownership/operation of motorcycle taxis and cargo motor tricycles?
 - Group 5: Should rural transport services move away from being dominated by motorcycle taxis to more conventional modes of transport, and if so, how can this be realised?

Annex B: Transport User Questionnaire

USERS PERSPECTIVE QUESTIONNAIRE PART 1

Road Name/Location _____ Date of Interview: _____ Geo

Coordinates: (if GPS) _____ Interviewer: _____

Name of interviewee: _____ Gender: Female Male Occupation:
 _____ Age: _____

Other information (optional)

Preamble to help with further respondent classification and to determine which transport modes will be asked about.

Which transport services did you use during last year *ON THIS ROAD* (the road being surveyed) and for what purposes?

U1-1. Modes of transport	Purposes
Transport mode 1 (eg Motorcycle)	
Transport mode 2 (eg 'Rural taxi')	
Transport mode 3 (eg Minibus)	
Transport mode 4 (eg Midi-bus)	
Transport mode 5 (eg Large bus)	
Transport mode 6 (eg Light truck)	
Transport mode 7 (eg Other - specify)	

U1-2. Please provide the required information below for each mode of transport

(Please record at least 2 different origins and destinations if possible)

	Origins	Destinations	Dist. (km) <small>Note 1</small>	Passengers fares				Journey time (min)		Accompanied freight (20-50 kg)		Unaccompanied freight (c.200kg)	
				Normal	Child (<12)	Students	Disabled	Normal period	Difficult period	Weight kg <small>Note 2</small>	Cost	Weight kg	Cost
Mode 1 (eg m/cycle)													
Mode 2 (eg Rural taxi)													
Mode 3 (eg Minibuses)													
Mode 4 (eg Midi-bus)													
Mode 5 (eg Large bus)													
Mode 6 (eg Light truck)													
Mode 7 (Other Specif y)													

Note. Rural 'taxi's include: cars, pick-ups and mixed trucks where passenger transport is regular and normal.
 1. Actual distances can be calculated from origin and destination, so leave blank if unsure of accuracy of information .
 2. Where cost is per container (eg basket of produce) estimate a typical weight of this

U1-4. Timetable			U1-5. Service information available			U1-6. Service on demand (special or combined trips)			
No	Informal timetable	Formal timetable (set time for	Not	At	By mobile	Not available	On demand	On demand at	On demand

	<i>timetable</i>	<i>(same time of day but not rigid)</i>	<i>travelling</i>	<i>available</i>	<i>roadside</i>	<i>phone</i>	<i>on demand</i>	<i>at roadside</i>	<i>waiting place</i>	<i>by mobile phone</i>
Mode 1										
Mode 2										
Mode 3										
Mode 4										
Mode 5										
Mode 6										
Mode 7										

	U1-7. Service frequency. No. of travel opportunities per day in direction of hub ¹			U1-8. Average roadside waiting time (in minutes)			U1-9. Possibility of getting onto the first available service along the road (available space for you)				
	<i>Normal day</i>	<i>Busy day ₂</i>	<i>Disrupted day</i>	<i>Normal day</i>	<i>Busy day ₂</i>	<i>Disrupted day</i>	<i>Never</i>	<i>Sometimes</i>	<i>Medium</i>	<i>Usually</i>	<i>Always</i>
Mode 1											
Mode 2											
Mode 3											
Mode 4											
Mode 5											
Mode 6											
Mode 7											

¹ Two services at about the same time count as one travel opportunity. ² Regular busy days exclude major annual holidays.

U1-10. On this road, what facilities exist on roadsides for waiting passengers?

(Facilities at roadside include: shelter and seating)

None	A few, poor quality	A few, good quality	Many poor quality	Many good quality
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	U1-11. Recalled accidents ¹	U1-12. Recalled security incidents ²	U1-13. Periodic fluctuations in availability of services in months ³ (total = 12)				U1-14. Access and convenience ⁴ (universal design appropriate for elderly and disabled people)				
			No service	Disrupted	'Normal' service	Total	Very inconvenient	Inconvenient	Medium	Convenient	Very convenient
Mode 1						= 12					
Mode 2						= 12					
Mode 3						= 12					
Mode 4						= 12					
Mode 5						= 12					
Mode 6						= 12					
Mode 7						= 12					

1. Accidents in past year involving injury and/or damage to that type of vehicle

2. Incidents in past year involving theft, violence, assault or harassment with that type of vehicle

3. Decimals are allowed for number of months per year. The three columns should add up to 12.

4. How convenient is access to RTS vehicles for the elderly or the physically challenged people, eg, those using mobility aids such as sticks, crutches, frame or wheelchair? (This question is only for those likely to have experience, such as the disabled, the frail elderly, medical staff and carers. Convenient access items includes: wide entrances, ramps, small steps, large hand rails, signage and contrasting colour, etc.

U1-15. During the past year, has the number of vehicles operating each day along the road changed?

	Big decrease	Small decrease	No change	Small increase	Big increase
Mode 1					
Mode 2					
Mode 3					
Mode 4					
Mode 5					
Mode 6					
Mode 7					

U1-16. During the past year, has the number of trips per day for each vehicle operating along the road changed?

	Big decrease	Small decrease	No change	Small increase	Big increase
Mode 1					
Mode 2					
Mode 3					
Mode 4					
Mode 5					
Mode 6					
Mode 7					

U1-17. During the past year, has the total number of passengers carried each day by all the vehicles operating along the road changed?

	Big decrease	Small decrease	No change	Small increase	Big increase
Mode 1					
Mode 2					
Mode 3					
Mode 4					
Mode 5					
Mode 6					
Mode 7					

USERS PERSPECTIVE QUESTIONNAIRE PART 2

Road Name: _____ **Date of Interview:** _____ **Interviewer :** _____

Geo. Coordinates: _____ (optional, if GPS available)

Name of interviewee: _____ **Gender:** Female Male

Occupation: _____ **Age:** _____

Other information (optional) _____

TRANSPORT MODE: _____ (one form for each transport mode discussed)

Options are: Large bus / Midi-bus / Minibus / Taxi (saloon/estate) / Taxi (4x4/pickup) / Pickup (freight) / Light truck / Medium truck / Large truck / Passenger truck / Motor tricycle / Motorcycle / 4-wheel tractor-trailer / 2-wheel tractor-trailer / Bicycle / Animal cart / Other (specify)

U2-1. How satisfied are you with the present passenger’s fares for this mode of transport on this road?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied ☺
--	-----------------------------------	--	---------------------------------	--

U2-2. How satisfied are you with journey times for this mode of transport on this road?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied ☺
--	-----------------------------------	--	---------------------------------	--

U2-3. How satisfied are you with the service frequency for this mode of transport on this road?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied ☺
--	-----------------------------------	--	---------------------------------	--

U2-4. How satisfied are you with the present timetable or predictability of RTS? (Not for m/c)

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied ☺
--	-----------------------------------	--	---------------------------------	--

U2-5. How satisfied are you with present chances of getting onto the first vehicle?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-6. How satisfied are you with the availability of small freight services (20-50kg accompanied goods)?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-7. How satisfied are you with the present small freight charges?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-8. How satisfied are you with the handling of small freight services?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-9. How satisfied are you with the availability of medium freight services (200kg)?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-10. How satisfied are you with the present medium freight charges (200 kg)?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-11. How satisfied are you with the handling of medium freight services (200 kg)?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-12. How satisfied are you with courier services provided by this mode of RTS?

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-13. How satisfied are you with the level of safety of this mode of transport on this road?

(safety relates to accident involving injury to people and damage to vehicle)

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-14. How satisfied are you with the level of security of this mode of transport on this road?

(security relates to risk of theft, assault or harassment)

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-15. How satisfied are you with the level of comfort in terms of seat space? (Not for m/c)

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-16. How satisfied are you with the level of comfort in terms of seat type/conditions?

Note. Seat type/conditions include metal, wooden, plastic and condition

<input type="radio"/> Very Unsatisfied	<input type="radio"/> Unsatisfied	<input type="radio"/> Medium satisfied	<input type="radio"/> Satisfied	<input type="radio"/> Very Satisfied 😊
--	-----------------------------------	--	---------------------------------	--

U2-17. How satisfied are you with the level of comfort in terms of baggage around passengers?

(Not m/c)

<input type="radio"/> Very Unsatisfied	Unsatisfied	<input type="radio"/> Medium satisfied	Satisfied	Very Satisfied <input type="radio"/>
--	-------------	--	-----------	--------------------------------------

U2-18. How satisfied are you with the level of comfort in terms of environment (noise levels/dust/heat)?

<input type="radio"/> Very Unsatisfied	Unsatisfied	<input type="radio"/> Medium satisfied	Satisfied	Very Satisfied <input type="radio"/>
--	-------------	--	-----------	--------------------------------------

U2-19. How satisfied are you with the present convenience of access for the elderly and physically challenged people, eg, those using mobility aid such as sticks, crutches, frame or wheelchair??

<input type="radio"/> Very Unsatisfied	Unsatisfied	<input type="radio"/> Medium satisfied	Satisfied	Very Satisfied <input type="radio"/>
--	-------------	--	-----------	--------------------------------------

The following questions may not be related to just one form of transport

U2-20. How satisfied are you with the facilities provided at the transport stops and pickup points along this roadside? *Note.* Facilities at roadside include: shelter, seating.

<input type="radio"/> Very Unsatisfied	Unsatisfied	<input type="radio"/> Medium satisfied	Satisfied	Very Satisfied <input type="radio"/>
--	-------------	--	-----------	--------------------------------------

U2-21. Some RTS along a road are served by other transport types that bring people and goods to and from the road. How satisfied are you with the inter-modal integration of services along this road?

<input type="radio"/> Very Unsatisfied	Unsatisfied	<input type="radio"/> Medium satisfied	Satisfied	Very Satisfied <input type="radio"/>
--	-------------	--	-----------	--------------------------------------

U2-22. Some RTS services transport people and goods to ensure good and timely links to other types of transport on a main road, at transport terminals and/or at ports and ferries. How satisfied are you with the inter-modal integration with services beyond this road?

<input type="radio"/> Very Unsatisfied	Unsatisfied	<input type="radio"/> Medium satisfied	Satisfied	Very Satisfied <input type="radio"/>
--	-------------	--	-----------	--------------------------------------

Other comments or observations (optional)

Annex C: Operator Questionnaires

OPERATOR PERSPECTIVE QUESTIONNAIRE PART 1

Road Name: _____ Date of Interview: _____ Interviewer
: _____

Geo. Coordinates: _____ (optional, if GPS available)

Name of interviewee: _____ Gender: Female Male Age: _____

RTS owner / RTS operator / RTS owner-operator (circle one)

TRANSPORT MODE: _____ (one form for each transport mode discussed)

Options are: Large bus / Midi-bus / Minibus / Taxi (saloon/estate) / Taxi (4x4/pickup) / Pickup (freight) / Light truck / Medium truck / Large truck / Passenger truck / Official-private-NGO car or 4x4 / Motor tricycle / Motorcycle / 4-wheel tractor-trailer / 2-wheel tractor-trailer / Bicycle / Animal cart / Other (specify)

Other information (optional) _____

O1-1. How many vehicles operate on this road on normal days, busy days and disrupted days?

O1-1a	O1-1b	O1-1c	O1-1d	O1-1e
Road cut off	Disrupted day	Normal day	Busy day (eg market day)	Number of busy days a year (eg, weekly = 52)

O1-2. What are the periodic/seasonal fluctuations in availability of services?

O1-2a	O1-2b	O1-2c	O1-2d
Number of months with no service per year ¹	Number of months with disrupted service per year ¹	Number of months with 'normal' RTS per year ¹	Total
			= 12

¹Note: Decimals are allowed for number of month per year.

Note: we are trying to capture the number of actually disrupted days and not the length of the rainy season(s).

O1-3. How do disrupted days and market days (or other busy days) affect your business?

Type of vehicle operated: _____

	Trips per day carrying passengers (or mixed*)	Passengers per trip	Freight per mixed* trip (kg)	Trips per day carrying freight only	Freight (kg) per freight-only trip
Normal day	O1-3a	O1-3e	O1-3i	O1-3m	O1-3q
Busy day (eg, market day)	O1-3b	O1-3f	O1-3j	O1-3n	O1-3r
Disrupted day	O1-3c	O1-3g	O1-3k	O1-3o	O1-3s
When road is impassable to conventional vehicles ¹	O1-3d	O1-3h	O1-3l	O1-3p	O1-3t

* Mixed trip has both passengers and freight

¹This will probably be zero (and for conventional vehicles can be asked as a joke), but some vehicles, such as motorcycles, tractors, bicycles and work animals may be able to operate when the road is blocked for rural taxis and other vehicles.

O1-4. During the past year, has the number of vehicles operating each day along the road changed?

(for your mode of transport).

Big decrease	Small decrease	No change	Small increase	Big increase
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O1-5. During the past year, has the number of trips per day for each vehicle operating along the road changed? (for your mode of transport)

Big decrease	Small decrease	No change	Small increase	Big increase
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O1-6. During the past year, has the total number of passengers carried each day by all the vehicles operating along the road changed? (for your mode of transport)

Big decrease	Small decrease	No change	Small increase	Big increase
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O1-7. How many recalled numbers of accidents (safety) and incidents (security, related to RTS passengers) have occurred on this road during the last year for your mode of transport on this road?

Safety ¹	Security ²

¹Recalled number of accidents involving injury or damage to vehicle for that type of transport type on that road.

²Recalled number of security incidents including theft, harassment and assault per transport type along the surveyed road.

O1-8. What is the overall condition of the road infrastructure in relation to your mode of transport?

Very poor or non-motorable	Poor or non-motorable part of year	Medium	Good for RTS	Very good for RTS
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O1-9. To what extent is access to capital/credit a constraint to buying and operating a transport service on this road (of your type of transport)?

Very big constraint	Big constraint	Medium	Minor problem	Not a problem
---------------------	----------------	--------	---------------	---------------

O1-10. If an operator (of your type of transport) **needs a bank loan or formal credit to purchase/operate a vehicle, are there adequate formal financial facilities available, accessible and appropriate?**

None/Very poor	Poor	Medium	Good	Very good
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O1-11. If an operator (of your type of transport) **needs a loan or credit to buy/operate transport services are there informal financial facilities (including savings and loans groups) available, accessible and appropriate?**

None/Very poor	Poor	Medium	Good	Very good
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O1-12. How adequate are the present technical services (repairs and spare parts, formal/informal) to provide for the needs of your mode of transport on the route you normally operate?

(for animal transport this includes veterinary services)

None/Very poor	Poor	Medium	Good	Very good
----------------	------	--------	------	-----------

O1-13. Some operators regard regulations and enforcement as ‘disincentives’ for profitable operation. Examples can include check points, barriers, enforced safety regulations relating to loading levels, crash helmets and seat belts and restrictions on operating hours and routes of operation). How strong are such regulatory ‘disincentives’ on this road for your mode of transport?

Very strong disincentives	Strong disincentives	Medium disincentives	Weak disincentives	Disincentives unimportant
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O1-14. In some situations, operators are provided with incentives such as subsidies, tax relief, flat rate tax, route allocation, etc. To what extent do such ‘regulatory incentives’ contribute to your operation at the moment on this road for your modes of transport? (nb we are not asking if they want incentives)

None/Very weak incentives	Weak incentives	Medium incentives	Strong incentives	Very strong incentives
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O1-15. Are there any active associations (formal/informal) of operators for your mode of transport on this road?

No association	Association	Association	Association	Association with
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	with member welfare	concerned with welfare + fares control	concerned with welfare + fares control, queuing and terminal	welfare + fare control, queuing, terminal + route allocation
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O1-16. What is the level of security risk to operate for your mode of transport on this road?

Too dangerous to operate	Very dangerous but possible with caution	Occasional serious incidents	Occasional minor incidents	No perceived risks
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O1-17. How many vehicles are sharing the transport market on this road?

	Number of vehicles	Number of owners / franchise	Number of associations	Number of vehicles operating outside association context
Buses and midi-buses				
Freight vehicles carrying passengers				
Minibuses + rural taxis				
2 – 3 wheel vehicles				

O1-18. Do you transport passengers with accompanied baggage or goods?

If so how much do you charge for 50 kg of accompanied goods? _____

For what distance does that price refer? _____

Type of vehicle this information refers to _____

O1-19. Do you transport unaccompanied produce or goods for people?

If so how much do you charge for 200 kg of unaccompanied goods?

For what distance does that price refer? _____

Type of vehicle this information refers to. _____

Annex D: Regulator Questionnaires

REGULATOR PERSPECTIVE QUESTIONNAIRE

Road Name: _____ Date of Interview: _____ Interviewer : _____

Geo. Coordinates: _____ (optional, if GPS available)

Name of interviewee: _____ Gender: Female Male

Occupation: _____ Sector/position: _____ Age: ____

Other information (optional) _____

Questionnaire to be completed in consultation with local people or officials who are familiar with the road in question. It is important that they know the actual road, and so their opinion will change if there is a significant change in the operations along that road. People consulted may include transport services regulators, police, tax officials, local councils, local authority officials, etc, but if these people are not familiar with the road (as is often the case with District-based officials), other responsible people may be consulted such as local village officials or others who understand both the main regulatory requirements and the present compliance.

R-1. What is the level of compliance with vehicle technical regulations (including specification and annual test) for each of the following modes of transport on the surveyed road?

	None/Very poor	Poor	Medium	Good	Almost full
Transport mode 1 <i>(eg Motorcycle)</i>					
Transport mode 2 <i>(eg 'Rural taxi')</i>					
Transport mode 3 <i>(eg Minibus)</i>					
Transport mode 4 <i>(eg Midi-bus)</i>					
Transport mode 5 <i>(eg Large bus)</i>					
Transport mode 6 <i>(eg Light truck)</i>					
Transport mode 7 <i>(eg Other - specify)</i>					

R-2. What is the level of compliance with tax and financial regulations for each of the following modes of transport on the surveyed road?

	None/Very poor	Poor	Medium	Good	Almost full
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

R-3. What is the level of operators’ compliance with passenger insurance for each of the following modes of transport on the surveyed road?

	None/Very poor	Poor	Medium	Good	Almost full
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

R-4. What is the level of compliance with operational regulation (e.g. timetables, routes, loading levels) for each of the following modes of transport on the surveyed road?

	None/Very poor	Poor	Medium	Good	Almost full
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

R-5. What is the level of operators’ compliance with safety regulations such as speeding, overloading, driver behaviour, use of safety belts and crash helmets on the surveyed road?

	Widespread non-compliance with safety regulations	Fairly dangerous due to non compliance	Fairly safe with medium compliance	Generally safe but some operators are non compliant	Very good compliance with safety regulations
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

R-6. What is the level of compliance with environmental legislation (eg, emission and noise control) for each of the following modes of transport in the area of the surveyed road?

	None/Very poor	Poor	Medium	Good	Almost full
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

R-7. Is there a planning framework for the provision of each of the following modes of transport in the area of the surveyed road?

	No planning framework	Very limited planning framework	Basic planning framework	Good planning framework	Comprehensive planning framework
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

R-8a. What is the level of safety of the surveyed road (the road itself, not driver behaviour)?

Very dangerous road	Fairly dangerous road	Fairly safe road	Safe road but lacking signage	Safe road with signage, no obvious risks
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R-8b. Is the danger or safety of the road the same for all vehicles? Yes/No. If no, for what vehicles is it more dangerous?_____

Annex E: Development Perspective Questionnaire

DEVELOPMENT AND OTHER PERSPECTIVE QUESTIONNAIRE

Road Name: _____ Date of Interview: _____ Interviewer : _____

Geo. Coordinates: _____ (if GPS available)

Name of interviewee: _____ Gender: Female Male

Occupation: _____ Age: _____

Other information (optional) _____

(It is generally not appropriate to ask all the questions to one person as it is designed for different categories of stakeholders: use one questionnaire per person and only fill in the relevant questions)

D-1. To what extent each of the following modes of transport provides sufficient passenger/freight services for the needs of agriculture (including fisheries and forestry) in the area of the surveyed road?

	Very poor	Poor	Medium	Good	Very good
Transport mode 1 <i>(eg Motorcycle)</i>					
Transport mode 2 <i>(eg 'Rural taxi')</i>					
Transport mode 3 <i>(eg Minibus)</i>					
Transport mode 4 <i>(eg Midi-bus)</i>					
Transport mode 5 <i>(eg Large bus)</i>					
Transport mode 6 <i>(eg Light truck)</i>					
Transport mode 7 <i>(eg Other - specify)</i>					

D-2. To what extent each of the following modes of transport provides sufficient passenger/freight services for trade facilitation for any other major local rural enterprises in the area of the surveyed road?

	Very poor	Poor	Medium	Good	Very good
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

'Empowerment' preamble: Certain sectors of society may be disadvantaged or marginalised relative to others. Such groups may include women, the elderly, the young, disabled people and those discriminated due to their ethnicity, religion, political affiliation, HIV status or other characteristic. Government agencies and NGOs concerned with development wish to 'empower' such people to help them overcome their disadvantages and be able to work (if appropriate), run enterprises, participate in social, political and economic activities, access health care and other crucial services without harassment or discrimination.

Rural transport services may or may not directly or indirectly assist such 'empowerment'. The following four questions relate to this issue.

D-3. To what extent does each of the following modes of transport on this road empower women?

	Very weak	Weak	Medium	Strong	Very strong
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-4. Are there a particular social/ethnic group of people that tend to be marginalised in the area of this road (e.g. tribal groups, religious, political, etc.)? Please specify:_____

To what extent does each of the following modes of transport on this road empower these groups?

	Very weak	Weak	Medium	Strong	Very strong
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-5. To what extent does each of the modes of transport on this road empower people with disabilities?

	Very weak	Weak	Medium	Strong	Very strong
Motorcycle					
Rural 'taxi'					
Minibus					
Midi-bus					
Bus					
Truck					
Other (Specify)					

D-6. To what extent does each of the following modes of transport on this road support the advancement of young people?

	Very weak	Weak	Medium	Strong	Very strong
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-7. To what extent does each of the following modes of transport provide sufficient passenger services to meet the needs for transport related specifically to maternal health in the area of the surveyed road?

	Very poor	Poor	Medium	Good	Very good
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					
Transport mode 1					

D-8. To what extent does each of the following modes of transport provide sufficient passenger/freight services for the needs of the medical sector for the users and health services in the area of the surveyed road?

	Very poor	Poor	Medium	Good	Very good
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-9. To what extent does each of the following modes of transport provide sufficient passenger/freight services for the needs of the education sector for the students, teachers and educational establishments in the area of the surveyed road?

	Very poor	Poor	Medium	Good	Very good
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-10. To what extent are mobile phones and other information and communication technologies (ICT) used to help rural transport operations on the surveyed road for each of the following modes of transport?

	Very limited	Limited	Medium	Strong	Very strong
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-11. To what extent each of the following modes of transport contributes to preserving cultural and heritage assets in the area of the surveyed road?

	Very negative	Negative	Neutral	Positive	Very positive
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-12. What overall impact does each of the following modes of transport have on the environment (e.g. deforestation, pollution, litter, etc.) in the area of the surveyed road?

	Very negative	Negative	Neutral	Positive	Very positive
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-13. Preamble: RTS could have negative influence by increasing access to HIV/Aids but also improve access to information and medical care services. What overall impact does each of the following modes of transport have on community health in relation to HIV/AIDS in the area of the surveyed road?

	Very negative	Negative	Neutral	Positive	Very positive
Transport mode 1					
Transport mode 2					
Transport mode 3					
Transport mode 4					
Transport mode 5					
Transport mode 6					
Transport mode 7					

D-14. Some rural transport services along a road are fed by different means of transport used (motorcycles, bicycles, animals) to reach the road (feeding intermodal integration). To what extent does the transport service on this road reflect such inter-modal connectivity?

	None/Very weak	Weak	Medium	Strong	Very strong
'Feeding' intermodal connectivity					

D-15. Some rural transport services routes are arranged to allow easy access to other transport systems on the main road, transport terminals, ports or ferries (this is linking intermodal connectivity). Some services are timed to make this very convenient. To what extent does the transport service on this road reflect linking intermodal connectivity?

	None/Very weak	Weak	Medium	Strong	Very strong
'Linking' intermodal connectivity					

D-16. How do you rate the adequacy of the present maintenance on the surveyed road?

Very inadequate	Inadequate	Adequate	Good	Very good
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Annex F: Traffic Count Sheet

Road name: _____ ROAD.
 TRAFFIC COUNT FOR _____ (Specify mode of Transport)

Date:	Count Location:	Geo. Coordinates
Length of road (km):	Range of time:	Surveyor:
Traffic and weather assessment: Wet day / dry day.	How much disrupted? (% estimate)	Market day?: (Yes or No)

Note. Transport modes include: Large bus, Midi-bus, Minibus, Car/4x4/pickup taxi, Saloon/estate taxi, Passenger truck, Large truck, Medium truck, Light truck, Pickup, Motor tricycle, Motorcycle, 4-wheel ‘agricultural’ tractor and trailer, 2-wheel tractor and trailer, Animal cart and other (specify eg ambulance, pushed carts, etc.)

Count	Time (hour)	Transport mode	Vehicle usage (RTS/Private/Official/NGO /)	Vehicle registration number	Code	Direction of travel* (1 or 2)*	Number of people			Gender of operator (M or F)	Freight Carried on freight vehicles* (F, H or E)	Freight carried on passenger vehicle (N, S, M, L)***
							Children	Men	Women			

Note: * 1 = To the hub and 2 = from the hub
 ** F = Full; H= Half full; E = Empty
 *** S= Small; M = Medium; L = Large

Road name: _____ ROAD. TRAFFIC COUNT FOR PEDESTRIAN AND CYCLISTS

Date:	Count Location:	Geo. Coordinates
Length of road (km):	Range of time:	Surveyor:
Traffic and weather assessment: Wet day / dry day.	How much disrupted? (% estimate)	Market day?: (Yes or No)

Time (hour)	Direction of travel (1 or 2)	Transport mode	Children			Men			Women		
			No load	With load (> 5kg)	With pax	No load	With load (> 5kg)	With pax	No load	With load (> 5kg)	With pax
	1	Pedestrians									
	2	Pedestrians									
	1	Pedestrians									
	2	Pedestrians									
	1	Pedestrians									
	2	Pedestrians									
	1	Pedestrians									
	2	Pedestrians									
	1	Cyclists									
	2	Cyclists									
	1	Cyclists									
	2	Cyclists									
	1	Cyclists									
	2	Cyclists									
	1	Cyclists									
	2	Cyclists									

Notes (no need to print these out with the data recording sheets)

Traffic counts should normally be in daylight hours, counting all vehicles per day travelling towards main hub. In equatorial countries, this may be from 06.00 to 18.00 but local decisions should be made on the appropriate timing. If there are important pre-dawn and post-sunset movements, these should be either counted or they should be estimated following discussions with the users and operators.

Wherever possible, passengers and loads should be recorded (local police or other authorities may be able to assist in stopping vehicles. This is not normally a problem on low-volume, rural roads. If there is a control barrier, this may provide a valuable opportunity for the traffic count, provided typical loading levels do not change just before or after the barrier.

Where practicable, gender of all operators should be noted.

Passengers should be counted in terms of women, men and children (under c.14 years or in school uniform).

Freight loads should be estimated by weight or relative to normal capacity.

No means of transport should be recorded if it is passing the counting place but is not really travelling for a significant distance along the road (say 5 km). This includes bicyclists, pedestrians and working animals. The aim is to count traffic travelling along the road, and not people using the road for short distances, within and around a village. The counting position may be selected to minimise local, within-village traffic. However, if it is close to a village the people counting should distinguish short-distance local movements from medium-distance (say 5 km or more) travel. This is generally quite clear from the travel speed, direction, body language and load of the travellers. If in doubt, it is generally easy to ask. The same vehicle can be counted more than once, provided it has completed a journey (say 5 km or more) before crossing the counting place a second or subsequent time.

The categories to be counted should be considered as follows.

If there are other types of vehicles on the road you should record these on separate sheets and discuss later how they should be categorised.

Large bus* . Large, long-wheelbase and generally over 40 seats (may be 60 seats)
Midi-bus* . Medium wheelbase such as Toyota 'Coaster'. Usually four rear wheels. Generally 20-30 seats.
Minibus (also known as minivan or 'taxi')* . Usually about 12-16 seats.
4x4/pickup taxi . 4x4 vehicles or pickups with side-facing seats that mainly carry people and normally operate along known routes
Saloon/estate taxi . May be saloon cars, estate cars, that mainly carry people and normally operate along known routes
Passenger truck* . Truck that normally carries passengers and operates like a rural taxi, carrying more than 20 people
Large truck* . Freight-carrying trucks with more than two axles (including artics) generally over 10 tonnes capacity). (Mainly carries freight but may take passengers)
Medium truck* . Freight-carrying trucks, two axles, generally over 5-10 tonnes capacity. . (Mainly carries freight but may take passengers)
Light truck* . Forward control with open back or van, generally 2-5 tonne capacity. (Mainly carries freight but may take passengers)
Pickup : 1-2 tonne capacity, including double cabs . (Mainly carries freight but may take passengers)
Govt/ private/NGO. Most cars and 4x4s that are not mainly used as transport services (passenger/freight).
Motor tricycle*
Motorcycle*
4-wheel 'agricultural' tractor and trailer
2-wheel tractor and trailer
Bicycle*
Riding or pack animal*
Animal cart* (ox carts or donkey carts, specify)
Pedestrians* >5km. Pedestrians should only be recorded if they are travelling for distances of over 5 km along the road,
Other . Record other vehicles separately and then consult how to include them. Other vehicles might include, school buses, private buses or minibuses.

* Where practicable, gender of the operator should be noted and passengers should be counted in terms of women, men and children (under c.14 years or in school uniform).