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Changing women's lives and livelihoods: motorcycle taxis in rural Liberia and Sierra Leone

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In rural Liberia and Sierra Leone about half of motorcycle taxi passengers are female, with this proportion increasing on market days. However, all motorcycle taxi operators in rural areas are male. This study assessed if and how motorcycle taxis have contributed to the livelihoods of rural women and whether there is appetite among them to become operators themselves. Data were gathered through male and female focus group discussions, roadside traffic counts and operator and passenger surveys. The study was conducted in three districts in rural Sierra Leone and one rural county in Liberia. The Liberia field site was the location of a pioneering pilot project on upgrading footpaths to motorcycle-accessible tracks. This project, funded by a German development agency, aimed to connect remote villages to the feeder road network. Both men and women were involved in track construction and this study assessed whether the women's involvement made them more likely to take up commercial motorcycle riding. Women nearly universally praised rural motorcycle taxis, indicating that they have made access to markets and (maternal) health much easier. However, while many expressed the desire to become operators themselves, they identified a number of barriers, the most significant being lack of friends or business persons willing to rent motorcycles to female operators.

1. Introduction

Since the end of the civil wars in Liberia (1989–2003) and Sierra Leone (1991–2002), public transport services have undergone a major change, perhaps most notably in remote rural areas. Before the wars, rural dwellers often had no alternative other than to walk (and head-load any freight) to the nearest feeder road or town, with a car taxi only visiting the community on market days, if it had a passable road. Now, many of the footpaths are navigated by motorcycle taxis, where possible, providing motorised transport between remote rural communities and urban centres. Rural women are among those that have benefitted significantly from this change, now being able to access (maternal) health care and local markets quickly, conveniently and with more freight. However, despite the heavy use of motorcycle taxis by rural women, no females are operating them in rural Liberia and Sierra Leone, although female motorcycle taxi operators have been documented in Monrovia, the capital of Liberia (UNDP, 2015).

This Research for Community Access Partnership (ReCAP) study, funded by the UK's Department for International Development and conducted by Swansea University (UK), AKA-Research (Sierra Leone) and Lofa Integrated Development Association (Lida) (Liberia), explored why there are no female motorcycle taxi operators and identified the obstacles and barriers that prevent women from becoming

motorcycle taxi operators. A second aim of this study was to understand better if and how motorcycle taxi transport in rural Sierra Leone and Liberia has helped women in their lives and livelihoods. The data for this study were collected in two countries. In Sierra Leone, data were collected in rural communities in Kenema, Moyamba and Bombali districts. The Liberia study was in Nimba county in northern Liberia – the location of a rather novel road infrastructure intervention. Here, a pilot project led by a non-governmental organisation (NGO) is upgrading about 25 km of rural footpaths to motorcycle-navigable tracks/trails using local labour and materials. A third aim of the study therefore was to assess whether this low-cost alternative or addition to feeder road construction, and the active involvement of women in building these tracks, has changed the way women perceive the occupation of motorcycle taxi operators.

2. Background and context

Since the end of the long and brutal civil wars in Sierra Leone and Liberia, motorcycle transportation has spread rapidly and spontaneously, and has become a vitally important mode of transport for rural people in all parts of both countries. The ownership and use of motorcycles for personal transport remains low, but the rapid spread of commercial motorcycle taxis has significantly contributed to rural development by reducing the time and costs of moving produce to markets.

The rural economy of both countries is largely based on semi-subsistence agriculture, with women responsible for transporting produce to markets and selling it. Women thus have a vital role in facilitating local commerce. Unlike traditional four-wheeled taxis, which operated prior to the wars (and still operate to some extent these days), motorcycle taxis are often able to reach isolated villages and farmsteads that are connected to feeder roads solely by footpaths. Furthermore, motorcycle transport has created direct and indirect employment opportunities for low-skilled youth (32% of the motorcycle taxi operators who responded to the motorcycle taxi operator survey in Sierra Leone indicated that they did not have any education at all) in the more rural areas, a category most susceptible to militia recruitment during the intertwined wars (Peters, 2011). Researchers interested in demobilisation and post-conflict transformations in both countries have made some attempts to follow the links between motorcycle taxi riding and the reintegration of former youthful fighters. For instance, Peters (2007) and Denov (2011) focused on the relation between failed disarmament, demobilisation and reintegration support and the need for making livelihoods by other ways. Motorcycle taxi riding soon became a general phenomenon of post-war recovery. Burge (2011) and Menzel (2011) focused on the role of motorcycle taxis in urban areas, while Richards *et al.* (2004) and Baker (2006, 2008) looked at the role of motorcycle taxi unions. Many ‘ordinary’ (non-ex-combatant) young men have entered the profession after first raising the money to purchase a (second-hand) motorcycle by working in other professions open to low-skilled youth, including farming, harvesting rubber, gold mining and selling products such as gasoline.

In Liberia, a 2012 study estimated the number of people involved in commercial motorcycle riding to be around 500 000 (Czeh *et al.*, 2012). This number has since increased due to the continuous spread of motorcycle taxis in rural areas. A 2017 ReCAP rural transport services study found that, in Sierra Leone, 60–95% of all rural transport of people and freight – on roads accessible to conventional vehicles – takes place by motorcycle taxis (Mustapha *et al.*, 2018). Motorcycle operators often work in shifts, taking turns in riding, so that a single motorcycle can provide an income for two or even three operators. For example, the motorcycle taxi operator surveys conducted in Sierra Leone for this study found that 41% of operators ($n=97$) are riding on a part-time basis. Interviews conducted with operators in some of the larger villages along the Saclepea–Tapeta corridor in Nimba county, northern Liberia, in April 2016 highlighted the popularity of ‘work-and-pay’ agreements, with most motorcycle owners indicating that they obtained full ownership through such an arrangement (Table 1).

Under such agreements, a motorcycle is loaned by a friend, family member or business person to a fledgling operator who is expected to pay a ‘report’ on a daily or weekly basis,

Table 1. Motorcycle taxi arrangements in Liberia based on operator surveys

Motorcycle taxi operators (all male)	Proportion of total: %		
	Doumpa (n=22)	Zehplay (n=27)	Gogein (n=21)
Bike owner	86.4	63	81
Work-and-pay rider	4.5	3.7	14.2
Riding for an owner	9.1	18.5	0
Renting for 1 d	0	14.8	4.8
Part-time riding	40.9	29.6	42.9
Combined with farm work	44.4	62.5	55.6

but keeps any earnings above this payment. While key informant interviews suggested that the majority of business people offering motorcycles on this basis are male, there are a growing number of females who also offer motorcycles. When asked why there are no females working as commercial motorcycle operators, one businesswoman – who has recently taken steps to move into offering motorcycles on this basis by arranging for a motorcycle union representative to secure weekly ‘reports’ from a young rider on her behalf – explained that the lack of female operators is likely due to there being no precedent of females working in the sector. She added that vocational training in this area might be able to give females the skills and experience necessary for this kind of work. She suggested that, in doing so, a successful precedent could be set that could engender the confidence of business people to offer motorcycles to women. Interviewees indicated that the daily report paid by most operators is LRD\$500 (US\$5.43). Once the operator has paid LRD\$100 000–110 000 (US\$1086–1195), which normally takes between 9–12 months, he takes ownership of the motorcycle. The vast majority of operators in the area were either operating a motorcycle on a work-and-pay basis or had completed such an agreement. Similar observations were made in Sierra Leone, with the operator survey data showing that 52% of operators surveyed ($n=97$) did not own the motorcycle. In Sierra Leone, operators working on a ‘work-and-pay’ basis paid between Le20 000 and Le50 000 (US\$2.66–6.66) per day, depending on the condition of the motorcycle, the area of operation and the day (e.g. market days are more expensive).

Motorcycles are now the most commonly seen type of vehicle on rural roads in Liberia and Sierra Leone, while four-wheeled taxis are now seen only rarely. The traffic counts conducted in this work supported this. For instance, along the Doumpa road in Liberia, which is accessible by four-wheeled vehicles, only a few were observed and then only on market day. The motorcycle taxi tally for a non-market day reached 53, with even more motorcycle taxis – 137 movements – passing the traffic count ‘checkpoint’ on a market day.

Motorcycle taxis are widely used by women as passengers, who commonly ride with their produce tied to the rear of the

motorcycle. However, the operators are exclusively male. This raises the question of why there are no female operators given that so many (and the majority on market days) of the clientele are women. The first aim of this study was thus to establish the degree of interest from women to become operators and, if interested, establishing the main barriers and challenges that prevent them from achieving this. A second aim was to assess if and how the spread of motorcycle taxis since the end of the wars has helped women both financially and in terms of empowerment. A third aim of the study – for the case of Liberia – was to assess whether community-based motorcycle-accessible track construction – with the explicit involvement of women – has changed the way women think about taking up the occupation of a motorcycle taxi operator or, for that matter, other occupations normally associated with males.

As already mentioned, for villages connected to the primary, secondary or feeder road system by no more than a footpath, motorcycle taxis can offer a motorised service due to their specific design (i.e. narrow and agile but still capable of carrying significant loads). However, not all footpaths are accessible to motorcycle taxis and even if they are, access is often limited to the dry season. There are a number of key bottlenecks that prevent motorcycle taxis reaching villages. The first key bottleneck is water crossings: bridges on footpaths are typically made for people travelling on foot and are generally too narrow and fragile to allow motorcycle passage. Swampy sections can be crossed on foot, but the water level may be too high for motorcycles. The second is footpath obstacles: a rock or fallen tree in the middle of a footpath can be easily circumvented on foot, but can prove impassable by motorcycle. The third is footpath gradients: existing footpaths in hilly terrain can have gradients that are too steep for motorcycles, particularly if the track surface is slippery.

Upgrading existing footpaths to motorcycle-navigable tracks is relatively low cost and around 10–20 times cheaper per kilometre than feeder road rehabilitation, let alone feeder road construction. According to a senior expatriate engineer (personal communication with Jim Clarke, Engineering team leader, Engineering Services to Rural Road Rehabilitation (see also Jenkins and Peters (2016)) who worked for several years for Cardno – an international infrastructure and environmental services company – on feeder road construction and rehabilitation in Liberia, a 2 m wide track costs USD\$3000–4000/km, compared with USD\$50 000–60 000/km for a 5 m wide feeder road rehabilitated to international standards, specified by Liberia's Ministry of Public Works. Track construction thus seems the obvious choice where the overwhelming majority of transport service provision is by motorcycle taxi (Peters *et al.*, 2018). For this intervention, nearly all the labour and materials required can be sourced locally, meaning that the majority of the construction budget will go to rural communities rather than non-local contractors. Arguably, a supervising engineer with the knowledge of how to construct timber bridges and

upgrade existing footpaths to tracks with proper drainage is all that is required.

3. Data and methods

This paper presents findings from two countries, Sierra Leone and Liberia.

In Sierra Leone, data were gathered in Bombali district (in the northern province), Moyamba district (southern province) and Kenema district (eastern province) (see Figure 1). Despite sharing a number of characteristics – for instance, all three sites were deeply rural and often quite isolated, with populations heavily depending on semi-subsistence farming – the data collection sites each had unique features.

- The Bombali site illustrates, among other things, the impact of rural motorcycle riding on the hitherto rather inaccessible margins area of a large-scale international biofuel initiative (Addax).
- The Moyamba site (Kamajei chiefdom) represents an area in which a local initiative over the last four decades has opened up a previously inaccessible and subsistence-oriented farming district to road transportation.
- The Kenema site (Small bo chiefdom) is an area that was a major focus of rebel activity in the civil war and where the scars of war are still prominent. In this location, motorcycle access has not yet fully replaced head-loading along rutted tracks, where once looted supplies were carried to the main rebel base in the hills of the Gola Forest (Peters, 2011).

In neighbouring Liberia, data were collected in three study areas in Nimba county – Doumpa, Zehplay and Gogein (see Figure 2). These study areas were selected in order to assess and compare how gender mainstreaming in the motorcycle taxi sector differs in areas where there is diverse road access and different background conditions.

- The Doumpa area was chosen because it has had motorcycle access since the mid-2000s and is also visited by conventional car taxis.
- The Zehplay area has had motorcycle access for a similar length of time, but the road conditions severely restrict the frequency of car taxis entering the area.
- The Gogein track network has only been reachable by motorcycle taxis since early 2017, when footpaths were upgraded to motorcycle tracks in a pilot scheme funded by the German development agency Gesellschaft für Internationale Zusammenarbeit (GIZ) and implemented by the international NGO Global Communities (Jenkins and Peters, 2016).

In Sierra Leone, four focus groups with women were organised in Woreh Bana and Maboleh (Bombali district), Gondama

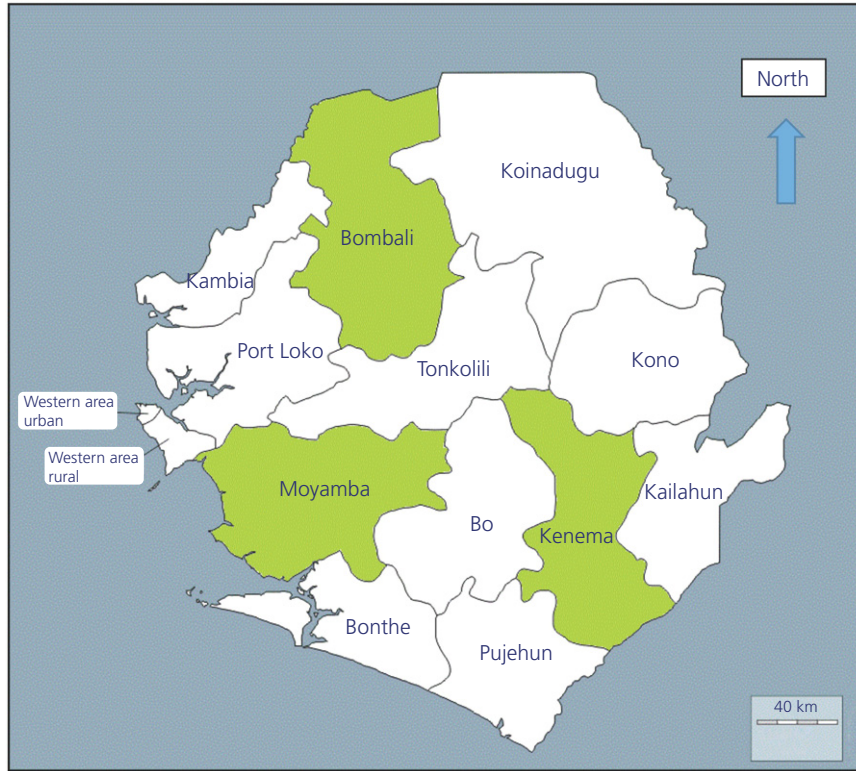


Figure 1. Sketch map of Sierra Leone showing the districts where data were gathered (Bombali, Moyamba and Kenema)

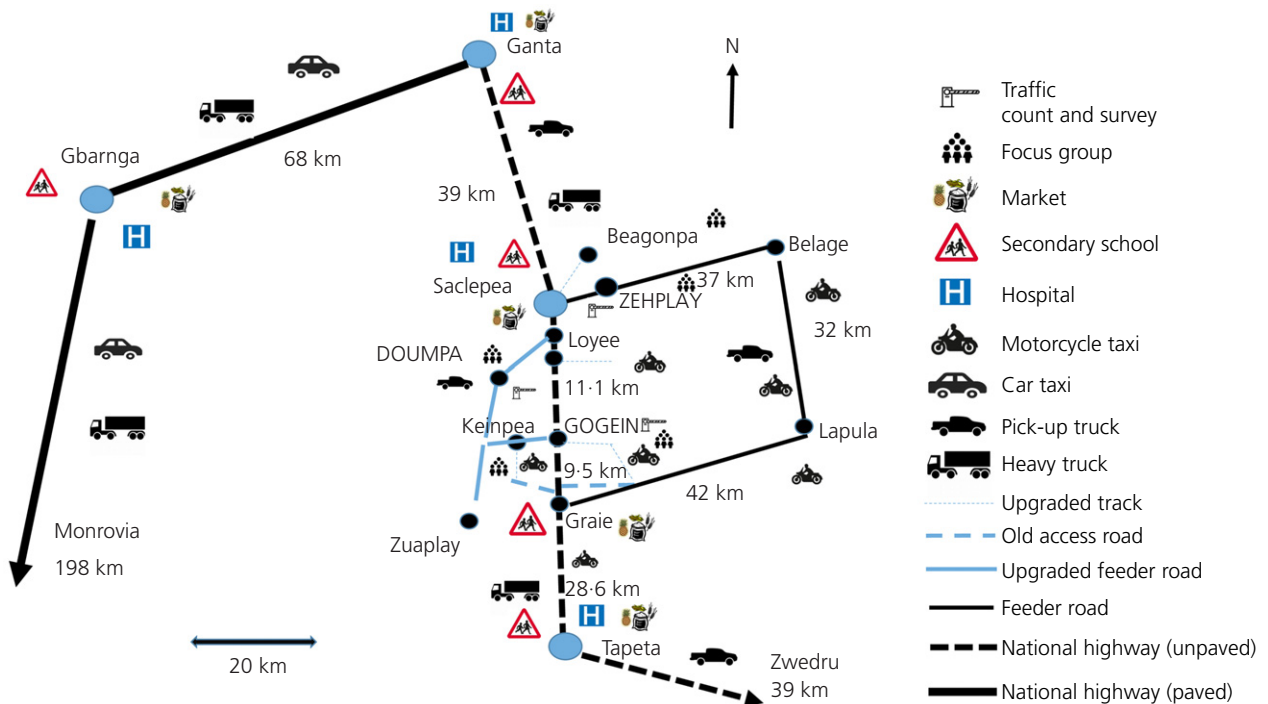


Figure 2. Schematic illustration of data collection areas in Liberia

(Moyamba district) and Bambara (Kenema district). Each group involved 20–30 women and included five or six senior women (sub-chiefs, leaders of women's community organisations and traditional birth attendants). In Liberia, focus groups were conducted in Doumpa, Zehplay, Gogoin, Borpea (a village along the Gogoin track network that was reachable only on foot prior to the construction of motorcycle tracks) and Beagonpa (a village near Saclepea) (see Figure 3). In each study location, two focus groups were conducted – one for women and one for men. Focus groups typically consisted of around 30 participants, although this was sometimes higher in the larger villages (Doumpa, Zehplay and Gogoin) where the number of participants was as high as 50. The ages of the participants ranged from around 15 to 60+ years. Focus groups were conducted in a mixture of English and local ethnic languages by the lead researchers with the assistance of research assistants from local partner NGOs (AKA-Research and Lida). In Liberia, local literates were sometimes required to translate into the local Gio (Dan) language.

The focus group findings were put into context by the results from a number of traffic counts. In Liberia, three locations were selected for this: along the Doumpa road, the Zehplay road and the Gogoin track network. Twelve-hour-long (06:00 to 18:00) traffic counts were conducted on a market day and non-market day along these feeder road/tracks. In Sierra Leone, due to circumstances, shorter six-hour-long counts were

conducted in only two of the three locations. Short questionnaire interviews (see annex A and B in the online supplementary material to this paper) were conducted with both motorcycle taxi operators and passengers (either at the traffic count 'checkpoint' or at the local motorcycle taxi stand). In Liberia, questionnaire interviews were conducted with 70 operators and 79 passengers. In Sierra Leone, questionnaire interviews were conducted with 97 operators and 147 passengers.

4. Results of the study

4.1 Motorcycle taxi passengers

No female motorcycle taxi operators were encountered during this study. The authors hypothesised, based on observations from previous experience working in the study areas, that women constituted the majority of passengers in rural areas, especially on market days. One purpose of the traffic counts conducted was to test this claim.

The traffic count findings in Liberia are summarised in Table 2. It is clear that, on market days, women use motorcycles taxis more than men, emphasising the role of this type of transport in contributing to market integration. The higher number of people travelling on a non-market day in the Gogoin area (the count was taken on the day prior to the Saclepea market day), as compared with a market day, can be explained as follows. To reach Saclepea market early, people

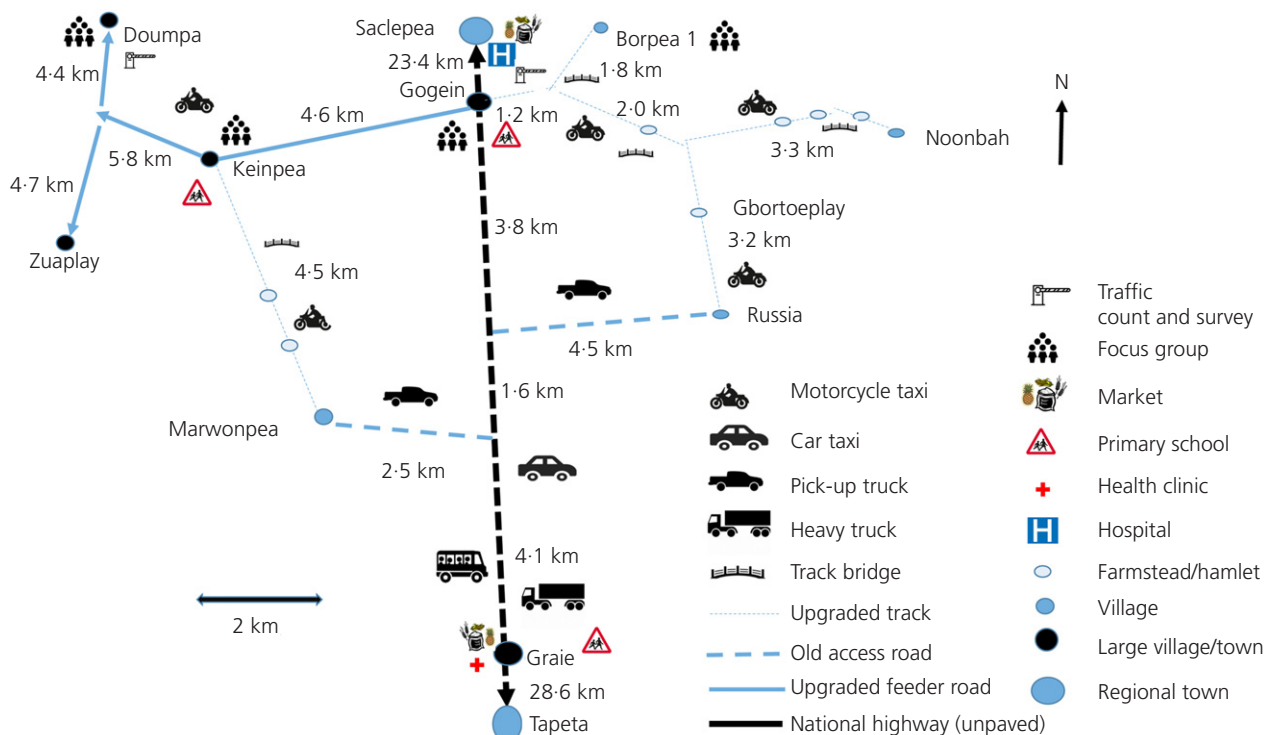


Figure 3. Detailed overview of some of the data collection areas and motorcycle taxi tracks in Liberia

Table 2. Male, female and child motorcycle taxi passengers on market days and non-market days in Liberia

	Gogein		Doumpa	
	Market day	Non-market day	Market day	Non-market day
Male passengers	7 (37%)	10 (40%)	28 (27%)	7 (58%)
Female passengers	9 (47%)	10 (40%)	66 (63%)	3 (25%)
Child passengers	3 (16%)	5 (20%)	10 (10%)	2 (27%)
Total passengers	19	25	104	12

along the Gogein track network leave the day before the market and spend the night in either Gogein or Saclepea. At the time of the counts, motorcycle taxis had just started to operate on the tracks (some sections were still under construction) and villagers were not yet taking full advantage of the possibility of motorised access. 68% and 67% of motorcycle taxi operators surveyed in Doumpa and Gogein, respectively, indicated that they transport women more often than men. In Zehplay, 70% of the operators indicated that they transport men and women in equal numbers. The observation that women use motorcycles taxis more than men on market days was further contextualised by comments made in the focus group discussions. As expected, traffic in the Gogein track location was significantly lower than in Doumpa because motorcycle access has only been possible since March 2017 (the traffic count was conducted in April 2017) and operators and passengers were thus still adapting to the newly opened route.

In Sierra Leone, where counts were conducted in the Bombali and Moyamba district sites, women too outnumbered men as motorcycle taxi passengers, particularly on market days. In the Sierra Leone operator survey, 55% of the motorcycle taxi operators indicated that they carry more female passengers than male passengers.

4.2 Women’s focus groups

Focus groups typically consisted of around 20–30 women. However, this tended to fluctuate, with some women joining and others leaving depending on other commitments. Discussions included

- transport prior to the war and following the war (up to the present day)
- the advantages and disadvantages of motorcycle taxi transport and attitudes of operators to women passengers
- preferences for the gender of the operator,
- possible advantages and obstacles to women working as operators.

During each session, which lasted 60–90 min, both community leaders (female sub-chiefs and women’s leaders) and female villagers participated actively. As a general note, the responses of the focus group participants in the two countries showed

remarkable similarities. This should not necessarily come as a complete surprise given the rather similar rural development pathways of both nations, which includes having overcome similar challenges (e.g. civil wars and the 2014/2015 Ebola crisis) and overcoming similar development constraints (poor rural road infrastructure, rural economy heavily depending on semi-subsistence farming and so on). Focus group discussion extracts hereafter are labelled ‘SL’ for a comment made by one of the Sierra Leone focus groups or ‘Lib’ for a comment from a participant in one of the Liberia focus groups.

4.2.1 Motorcycle taxis and business activities

All focus group participants explained that motorcycle taxis have increased the availability of a wider range of goods in their communities. For those in the Liberia study area, this means they do not need to travel to Saclepea: ‘Because of the visit of [motorcycle taxis] to the community we are now able to get frozen fish and rice (Lib)’. Saclepea is the area’s largest rural town and a motorcycle taxi from Gogein to Saclepea costs around LRD\$150–200 (USD\$1.63–2.17). Business activity has increased in recent years, with people deciding to start up new businesses involved in bringing goods from further afield to sell locally: ‘[Motorcycle taxis] have enabled us to do petty trading, so everybody is doing their little business (Lib)’. This statement suggests that a significant number of women are benefitting from the business opportunities brought by increased connectivity. 84% of the passengers surveyed (*n* = 142, 41 males and 101 females) in Sierra Leone indicated that motorcycle taxis have provided better access to markets. In Liberia this figure was even higher: over 95% of the passengers surveyed felt that motorcycle taxis have improved access to markets. Women and operators in both Liberia and Sierra Leone form informal co-operative business units in which the operator acts as a courier for the goods a woman wishes to buy or sell: ‘The riders [motorcycle taxi operators are generally referred to as ‘riders’ by respondents] have helped us greatly because [we] can just send them to town to buy all the goods we need (SL)’. This courier service saves women involved in petty trading both time and the need to pay for their own transport, although obviously they still have to pay the costs associated with transporting items from town to village (or vice versa). Moreover, village money lenders/traders, which constituted the pre-war ‘hub’ of village mercantilism (see Richards (1986)) have (partly) been replaced

by youthful motorcycle taxi operators: 'The riders even loan us if [we] are without money at a particular time (SL)'. Rather than entering into a long-term debt arrangement with the village money lender/trader – where typically a part of one's future harvest is pledged as a repayment for the loan (not infrequently at highly unfavourable terms to the debtor) – motorcycle taxi operators offer short-term loans (1–7 d) with low or no interest charged.

4.2.2 Motorcycle taxis, access to healthcare and emergencies

A topic that was explored in the focus group discussions was the ability of motorcycle taxis to respond to medical emergencies quickly and effectively. This was often raised as a major positive outcome of motorcycle taxis by participants, even before the researchers had brought it up. For instance, Doumpa is accessible by four-wheeled vehicles and can therefore be reached by ambulances (the number of ambulances in both Sierra Leone and Liberia increased significantly as a result of international support during the Ebola outbreak in 2014/2015; however, many of these have already fallen into disrepair). However, local people still choose to use motorcycle taxis most of the time because they are quicker: 'Because of the visit of [motorcycle taxis] to the community we are now able to get quick treatment, and there are less sicknesses (Lib)'. Motorcycles are now used as ambulances, with a seriously sick or injured person sandwiched between the operator and a second pillion passenger: 'If we want to carry the sick long distances for treatment, we mostly use motorcycles (SL)'. 70% of the people surveyed as part of the motorcycle taxi passenger questionnaire in Sierra Leone indicated that a (night-time) health emergency trip by motorcycle taxi is now available and 54% explicitly praised the motorcycle taxis for providing better access to health. Medical facilities can be reached quickly, without the delay that once would have been associated with the use of a hammock, and at any time of the day: 'Men [operators] can be asked at any time to carry passengers, be it at night or day (SL)'. Even where an ambulance or chartered car taxi can reach a community, the motorcycle taxi is often the faster option: '[Motorcycles] can... carry the sick for medication faster than vehicles, no matter the road condition (SL)'. During the recent Ebola epidemic, motorcycle taxi operators played an important role in bringing cases from outlying villages to the last point on the road system reachable by an Ebola ambulance, ferrying blood samples for testing and delivering urgently needed supplies (Richards, 2016). In Gogoin, participants spoke of the quick access to healthcare as a result of motorcycle taxis, saying that they are able to make a phone call to an operator in the event of an emergency and that maternal health has improved significantly: 'Some pregnant women have gone to hospital on [motorcycle taxis] and given birth safely (Lib)'. Depending on the specific location, 75–93% of the passengers surveyed in Liberia indicated that motorcycle taxis have improved access to health care.

Research conducted in rural Tanzania by Porter (2016) found that the spread of mobile phones in rural areas has significantly complemented motorcycle taxi services. This allows rural people to call a motorcycle taxi operator in case of a medical emergency rather than having to search for a vehicle (which often involves a long walk to a distant paved road).

4.2.3 Women as motorcycle taxi operators

The focus groups explored women's perceptions of riding and their attitudes towards the idea of women becoming operators. A number of women are interested in becoming operators for a variety of reasons, for example to help them pay for their own school fees, to help their children financially and to help their other business interests: 'If I was a rider I could buy my own items instead of giving money to other riders to buy things for me (Lib)'. Others saw it as essential for gender equality: 'Yes, [we want to ride] for [our] right, as the 50/50 [campaign] say, I would like the government to pass a law in parliament that all women are to ride on women okada [motorcycles] and men on men okada (SL)'. Interestingly, just over 40% of the (exclusively male) motorcycle taxi operators surveyed in Sierra Leone indicated that it would be good to train women how to ride motorcycle taxis. However, practical constraints were highlighted. For example, one participant said that women just do not have the money to purchase a motorcycle: '[Women] do not have the money to buy [motorcycles]. If we accept to learn or train to ride a [motorcycle] will you provide [motorcycles] for us? Will it be possible if [a project] can provide cash or loan [to buy a motorcycle]? (SL)'. Asked why women cannot enter into a work-and-pay agreement like men often do, another participant explained that there is a perception that women are not as brave or as strong as men, so finding a friend, family member or local entrepreneur who would be willing to enter into a work-and-pay agreement with a woman is difficult. Motorcycle operators interviewed in our Sierra Leone survey underscored this, with 'lacking strength' cited as the most common (67 times) reason for why there are no female operators, followed by 'no interest' (38 times) and 'no support' (16 times).

There is scope for a future action research study into the impact of an intervention in which women are offered motorcycles on credit to use as a transport service. It is hypothesised that if women are seen to operate motorcycle taxis successfully, then it would be more likely that businesspeople would enter into work-and-pay agreements with women since the ability of women to operate motorcycle taxis successfully would have been demonstrated. However, some caution is needed here: in a baseline study, Porter *et al.* (2012) found that women in Ghana expressed a similar interest in riding bicycles, only to hand over the bicycle to their husbands once provided with it as part of an action research study.

A demand for female operators was confirmed. Many women indicated that they would prefer to ride with a female operator:

'[I would choose the female rider because] women would take their time when riding because women are always careful in things like that (Lib)'. Between 35 and 60% of the passengers surveyed (depending on location) in Liberia indicated that it would be a good thing to have female motorcycle taxi operators (about a third of these were male passengers) with approximately two-thirds of the passengers stating that women would be safer operators. To illustrate further, in Zehplay, out of a total of 27 participants, 24 indicated they would choose a female operator over a male operator, given the option. Just three indicated that they would choose a male operator. In Sierra Leone, more than half (57%) of the passengers interviewed indicated that it would be good to have women motorcycle taxi operators.

However, more than a few women questioned their own ability to ride. Many said that women lack the strength to become operators – navigating footpaths and feeder roads with a (sometimes overloaded) motorcycle requires both strength and skill – with one participant saying that she would only consider riding with a female operator if she was travelling without a load. Another said that women's lack of strength would make it risky for her to ride, suggesting that she would be vulnerable to accidents. However, others countered this by stating that women are more than capable of riding, and that women would ride more carefully and therefore have fewer accidents: '[If women were to ride] you would only find one woman had had an accident if you came back to count after a year (Lib)'.

Motorcycle accidents are an increasing cause for concern. A pilot study in Sierra Leone found that the majority of vehicles involved in accidents were motorcycles: 21 out of a total of 35 vehicles involved in an accident were motorcycles during the pilot study (ReCAP, 2019). But then again, the majority of rural transport of people and freight now takes place by motorcycle taxi in Sierra Leone (Mustapha *et al.*, 2018). 18% of the passengers interviewed in the Sierra Leone passenger survey indicated that they had been involved in a motorcycle taxi accident at one point or another. As expected, the number of motorcycle taxi operators in Sierra Leone having been involved in an accident stood much higher at 51%. A number of accident causes were identified during the focus groups, with bad road conditions and broken bridges listed most often. Other causes included the overloading of motorcycles, speeding, drink driving and passengers not sitting on the motorcycle correctly. However, when the focus groups in Liberia were asked to classify the accidents that happened with motorcycles into one of three categories (minor (brushes and scratches), serious (requiring a visit to a clinic) or very serious (requiring hospitalisation)), it became clear that the overwhelming majority of the accidents were of the first and second category. Few major accidents have occurred, but with limited access to (sometimes rather expensive) medical care there is a risk that even minor accidents can have serious consequences: 'There are too many accidents and injuries are

difficult to cure (Lib)'. Research conducted in Tanzania found that the average length of disability (i.e. the number of days in which an injured individual could not participate in normal daily activities) following a motorcycle accident was 25.9 d (Jinadasa *et al.*, 2013). Lost productivity over such a substantial period of time can have serious repercussions on the rural poor and their families.

In Liberia, some women stated '[Riding is risky] because of sexual harassment while carrying male passengers in [isolated] areas (Lib)'. However, in the Sierra Leone locations, sexual harassment by operators was not considered an issue: 'No, we have not heard of such [harassment] in this community and [if there were such cases] it will be treated seriously by the chieftom authorities (SL)'. In this particular location, most of the operators serving the road are known to the community or even based in it (79% of the motorcycle taxi operators surveyed in Sierra Leone indicated that they were locally resident). This may explain to some extent the absence of sexual harassment, or at least according to the focus group respondents.

Other reasons for not taking up the motorcycle taxi profession were related to perceptions regarding the division of labour: '[women] can't leave their family to ride; [women] take care of the children in the home (SL)'. Others were worried about how they would be viewed by others if they were to become operators, with one participant saying that people would think a woman was a prostitute if she became an operator. Many thought that women becoming operators would put a strain on relationships because husbands or partners would become jealous: 'Husbands and boyfriends would be very jealous because they would think that another man might approach their woman (Lib)'.

4.2.4 Transport preferences

Women were often divided in their opinions where there was a choice between motorcycle taxis and four-wheeled taxis. Just under half (44%) of the passengers questioned in the passenger surveys in Sierra Leone preferred a motorcycle taxi over a shared minibus. However, 87% of passengers stated that there was just no alternative to the motorcycle taxi available, with 92% indicating that they would prefer to have more motorcycle taxis operating on the road. In Liberia, more than 80% of the passengers surveyed preferred motorcycle taxis. This much higher percentage, as compared to Sierra Leone, can perhaps be explained by the fact that here conventional taxis are either saloon-type cars (with fares not as cheap as minibuses) or pick-up trucks (with comfort levels not as high as minibuses). A major advantage that motorcycle taxis have over four-wheeled taxis is that they are much faster, especially on (unpaved) rural roads. Furthermore, motorcycle taxi passengers are not forced to wait when embarking on their journey, unlike passengers in four-wheeled taxis that often only leave when the taxi is full. Sharing a motorcycle taxi with two or

even three other passengers can reduce the fare per person, but market sellers often opt to travel alone and set off immediately in order to reach markets more quickly or they may be carrying freight, making it impossible to take on additional passengers. The main advantage that four-wheeled taxis have over motorcycle taxis is that they are safer: '[four-wheeled taxis] have fewer accidents than [motorcycle taxis]; if we have an accident in a [four-wheeled taxi] we won't get hurt as badly as we would in an accident on a [motorcycle taxi] (Lib)'. However, being familiar with the road seems to improve the safety record of motorcycle taxis, as is clear from Table 3.

Training motorcycle taxi operators how to ride properly was seen as an important way of making riding safer. Motorcycle taxi operators were noted for their lack of professional knowledge, perhaps in contrast to car taxi or minibus operators, who have often served a substantial apprenticeship: '[There is a need to] train the bike riders on how to use the road signs (SL)'.

4.3 Men's focus groups

Whether men share their female counterparts' perspectives on the gendered dimensions of motorcycle taxis operating in rural Sierra Leone and Liberia was considered to be an important part of this research. Men's focus groups were thus organised in the same locations as the women's focus groups. As in the women's focus groups, the focus groups typically consisted of around 30 men, but this number could increase in the larger villages. Chiefs, elders, youth representatives, motorcycle taxi operators and 'ordinary' villagers all participated. It is beyond the scope of this paper to discuss the findings of the men's focus groups in detail, so only a short summary is provided.

The importance of motorcycle taxis for business activities in rural communities was confirmed by the men's focus group discussions: 'It takes less time for women to go to market and come back [now that motorcycle taxis operate] so they can do more business (Lib); now there are lot of small businesses in the community (SL)'. The important role that motorcycle taxis play in taking ill people to healthcare centres was also underscored by the men's focus groups: '[Motorcycle taxis] carry sick people and pregnant women to hospital (Lib)'. In Borpea, where motorcycle access has only recently been possible following track construction, participants were very keen to

highlight this aspect: 'Because of the [newly constructed motorcycle tracks] we don't die of health problems because [motorcycle taxis] can come and take [sick people to healthcare facilities] (Lib)'.

In response to questions about why there are few (if any) female motorcycle taxi operators, male contributors stated that women are fearful of the risks: there is a threat that they will be raped, have their motorcycle stolen or be injured due to the dangerous road conditions. Other participants said that women may be ashamed of becoming an operator, afraid to make their husbands or partners jealous. Socially conservative comments illustrate this further: 'Women are to care for the home; there will be no respect for their husband (SL)'. Perhaps most revealing of all, it was remarked: 'They will start challenging us [the men] in income earning (SL)'. Whereas in the women's focus groups a lack of support in obtaining a motorcycle was often given as a reason for there being few or no female operators, only one male focus group participant raised this: 'They don't have support to get a [motorcycle] (Lib)'.

4.4 Discussion on focus group findings

The focus groups confirmed the importance of motorcycle transportation in rural Liberia and Sierra Leone. The two major roles they play, as the focus groups showed and the passenger surveys supported, are increasing business activity and improving access to healthcare. Participants repeatedly stressed that commerce is now easier, allowing producers to transport their produce to market more quickly, more easily and in greater quantities. Business activity has increased greatly in the other direction too, with a far wider range of goods available to buy in communities. An interesting finding was that women and operators form informal co-operative business units in which the operator acts as a courier – and sometimes as a money lender – for the goods that a woman wishes to sell. In allowing the sick to be transported to hospital quickly (and much more easily than if a sick person needs to be carried in a hammock, as required previously), motorcycle taxis have greatly increased community access to essential services, including maternal healthcare. Green *et al.* (2013) reported similar findings for an intervention in northern Nigeria (a context of extremely low utilisation of maternal health services by rural women) that trained commercial taxi operators – both four-wheeled taxi drivers and motorcycle taxi

Table 3. Local residency of motorcycle taxi operators and number of passengers indicating to have experienced a motorcycle taxi accident on the surveyed road

Motorcycle operators survey (n = 97, all male)	Kamajei (n = 33)	Small bo (n = 34)	Addax area (n = 30)	All answers
Resident locally?	32 (97%)	26 (76%)	19 (63%)	77 (79%)
Motorcycle taxi passengers survey	Kamajei (n = 50, of which 7 males)	Small bo (n = 61, of which 18 males)	Addax area (n = 31, of which 16 males)	All (n = 142)
Accidents?	7 (14%)	11 (18%)	7 (23%)	25 (18%)

operators – to volunteer their services to women in their village facing a maternal emergency.

In the men's focus groups, participants gave different reasons for the lack of female operators, including that the profession would be particularly risky for women due to the threat of being raped or having their motorcycles stolen, because of the risk of injury on bad roads and because of socially conservative ideas about the division of labour (cf. Porter, 2011). Very few men recognised that the main obstacle seems to be lack of support for a woman interested in buying or operating a motorcycle.

In the women's focus groups, some participants said that fear of riding and the difficulty of the profession are indeed reasons why there are so few female operators. However, problems with acquiring funding or support were raised as the greatest challenge, with women saying that they do not have the money to buy a motorcycle and that work-and-pay agreements, so popular with men, are not available to women. However, contrary to male participants who believed that women are not interested in becoming operators, a number of women expressed a willingness and readiness to operate a motorcycle taxi. Women who expressed this interest believed that riding would allow them to help themselves and their children financially, and were keen to enter employment. Just over 40% of the motorcycle taxi operators in Sierra Leone believed that it would be a good thing to train women in operating motorcycle taxis – perhaps the relatively young age of the male operators (on average just over 31 years of age) contributed to these somewhat more progressive views.

5. Women and track construction

A third aim of the study was to assess whether a low-cost intervention – upgrading rural footpaths to motorcycle-accessible tracks (Figure 4) – has changed the way women perceive the occupation of motorcycle taxi operators. The NGO Global Communities was responsible for the GIZ-funded community-based track construction pilot project in Nimba county, Liberia, and paid specific attention to gender equality. Community-based organisations (CBOs) were put in charge of coordinating the work on the ground (Fearon *et al.* (2008) give more details on the cohesive role of CBOs in Liberia). The CBOs comprised both men and women, with the NGO using its contacts and the organisational structure already in place as a result of an earlier Global Communities intervention that focused on community-led total sanitation following the Ebola crisis. The CBOs discussed the required work with the communities and explained that the workforce would be split into different 'teams' depending on the nature of the work required. They then identified those who were skilled and those who were unskilled. For instance, some local men had been involved in feeder road rehabilitation before. The skilled workers were made leaders of the different groups and given high-visibility jackets and helmets to denote their role as group leaders.

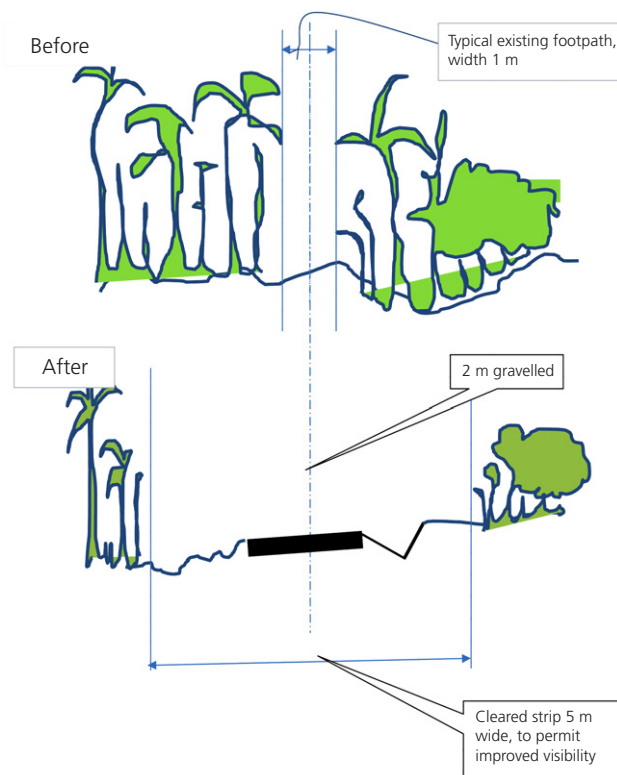


Figure 4. From footpath to motorcycle-accessible track

According to the female NGO representative on the project, women were encouraged to sign up: 'not just on menial jobs like gravel compacting, but on bridges and in other more important areas too'. In the end, just over a quarter of the team members were female. It was claimed by the NGO that it was not possible to have gender equality in the teams' composition because of the need to have an adequate number of skilled workers, who tended to be men. Nevertheless, the following testimony by an older female shows that it is possible to achieve higher female participation rates even in the more skill-required construction teams.

We are all learning the skills for bridge building [see Figure 5] from a man in the community who has done this before at another place in Liberia. I have worked for 11 days on the first [track] bridge; 9 days on the second bridge and 10 days on third bridge, plus another 15 days on the track construction. I definitely know how to build and maintain these bridges in the future. You can learn all you need to know in about a week. I would really like to build on my experiences by doing other jobs in construction. This bridge construction made me understand that in any technical job, women can do as good a job as men. Yes, they tend to give these jobs to men because men are stronger, but I just kept asking and in the end they gave in [and allowed me on the bridge team]. Some of the other women even laughed at me, wondering if I am a 'man-woman'. Really, women could build such a bridge all



Figure 5. Newly constructed 'engineered timber bridge' (left) and old locally constructed bridge (right)

by themselves, that is what I believe. We can even operate a power-saw (Lib).

She continued by explaining what she intended to do with the money she earned from working on the track construction, which shows vision and underscores the transformative impact that tracks and motorised access can have in these labour-constrained environments.

I worked for 45 days on the project now and it gives me US\$3·50 each day. I used a part of that money to pay for school fees; I am a widow so supporting my three children is solely my responsibility. I also used the money to hire labour to work on my farm. For the money I get each day from working on the project, I can hire about 3 labour days of farm work. And these are young and strong men working on my farm as a group. This has allowed me to expand my farm and I know that next year it would be much easier to transport my produce to the market now that motorcycles can reach here with the new track. Before, it was just me head-loading everything, and there is not much you can take on your head. So, women love the [motorcycle taxis], because women often have loads (Lib).

Regarding what women can gain from working on the tracks, she is very clear

Most of the other women working on this project worked on the tracks, clearing and levelling them. You are allocated a section and are paid for that section. Some work fast, some work slow, some alone, others have friends or even children joining in. Some used it to pay for school fees or to buy extra food, but there are a few who started a business with the money, particularly if they could work on the tracks for a good number of days. Once they have a business going, they join a savings club to let the money grow further. Men do not do that. Some men just bought alcohol (Lib).

The fact that children may be joining in raises issues around child labour. Contractors or implementing agencies will have to monitor the level and nature of children's labour so that

children are not involved in potentially dangerous or hazardous activities and that it does not jeopardise time spent in school. To allow women with pre-school children to participate, temporary nurseries could be organised.

There is some tentative evidence that, in the track construction locations, more women indicated that they would like to become motorcycle taxi operators, as compared with the focus groups conducted in areas where no track construction was taking place. Unfortunately, at this point, there is not enough additional evidence to state this robustly.

Finally, the project promised the communities along the tracks that it would provide them with one or two cargo motor-tricycles once the tracks were constructed (originally, it was envisaged that these cargo motor-tricycles would be used for the actual track construction but unfortunately they could not be imported in time). Handing one over to a women's CBO (and the other to a men's CBO) may be a way to overcome some of the barriers and obstacles identified above for women interested in becoming motorcycle taxi operators.

6. Conclusion

Whether the involvement of women in track construction will lead to the emergence of female motorcycle taxi operators remains to be seen. Data were collected while track construction was still ongoing, so it may be too early to tell. Furthermore, the female focus groups showed that there are a number of barriers to be overcome before women become motorcycle taxi operators (confirmed by the men's focus groups) – and not all of these obstacles would be addressed by women being involved in track construction. However, with more attention given to gender equality and training when selecting community people to be involved in track construction in Liberia, there can be little doubt that the positive impact of female employment can be further enhanced. More generally, the evidence presented in this paper clearly shows the beneficial and transformative nature of rural motorcycle taxi services for women in Sierra Leone and Liberia. Motorcycle taxis now provide improved access for millions of rural Africans, where before people had no other alternative than to walk (and head-load), with women clearly being major beneficiaries of this still new and expanding phenomenon.

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